ORNL/CON-325

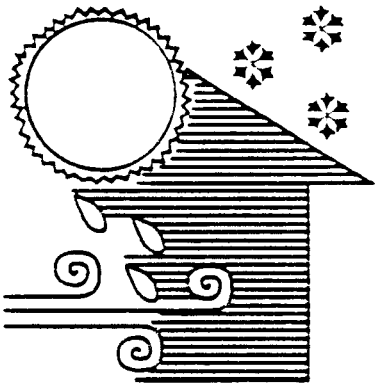
ornl

OAK RIDGE NATIONAL LABORATORY

MARTIN MARIETTA

SCOPE OF THE WEATHERIZATION ASSISTANCE PROGRAM: THE WEATHERIZED POPULATION AND THE RESOURCE BASE

Meg Power
Joel F. Eisenberg
Eugene Michels
Marjorie J. Witherspoon
Marilyn A. Brown



Weatherization Assistance Program

MANAGED BY
MARTIN MARIETTA ENERGY SYSTEMS, INC.
FOR THE UNITED STATES
DEPARTMENT OF ENERGY

ORNL/CON-325

Energy Division

The Scope of the Weatherization Assistance Program: The Weatherizated Population and the Resource Base

May 1992

Meg Power*
Joel F. Eisenberg*
Eugene Michels*
Marjorie J. Witherspoon**
Marilyn A. Brown

Research Sponsored by the
Weatherization Assistance Program
Conservation and Renewable Energy
U. S. Department of Energy

*Economic Opportunity Research Institute
Washington, DC 20037

**National Association for State Community Service Programs
Washington, DC 20001

Prepared by
OAK RIDGE NATIONAL LABORATORY
Oak Ridge, Tennessee 37831
managed by
MARTIN MARIETTA ENERGY SYSTEMS, INC.
for the
U. S. DEPARTMENT OF ENERGY
under Contract No. DE-AC05-84OR21400

The Scope of the Weatherization Assistance Program: The Weatherized Population and The Resource Base, PY 1978-89
At A Glance

Number of State Managers Completing Survey (of 51 surveyed)	47
Number of Utilities Completing Survey (of 443 surveyed)	124

Funding for Full-Scale Low-Income Weatherization, PY 1978-89: $4.364 billion
Funding for Full-Scale Low-Income Weatherization, PY 1989: $0.553 billion

Percent Expended, by Program Type*

	PY78-89	PY89
DOE/WAP	76.5%	68.7%
HHS/WX[1]	11.9%	11.8%
Utility	9.6%	14.0%
Other	2.0%	6.2%

Percent Contributed, by Funding Source*

	PY78-89	PY89
DOE/WAP	45.1%	26.6%
LIHEAP	27.8%	20.8%
PVE (Oil Overcharge)	14.4%	31.7%
Utility	9.6%	14.1%
State	2.4%	4.8%
Other	.8%	2.1%

Percent Expended, by Climate Region

Cold: 21% Moderate: 58% Hot: 13% Calif:[2] 8%

No. of Low-Income Units Weatherized PYs 1978-89 (with $4.3 billion): 3.895 million

Percent Weatherized, by Climate Region*

Cold	16%
Moderate	50%
Hot	14%
California[2]	21%

Percent Weatherized, by Program*

DOE/WAP	68%
HHS/WX	9%
Utility[3]	22%
Other	.004%

Types of low-income units weatherized (for 2.943 million units with reported characteristics):

Single family owner-occupied:	59%	Multifamily:	18%
Single family rented:	19%	Mobile homes:[4]	4%

Selected Characteristics of Non-DOE Full-Scale Programs:

HHS/WX[1]
- 16 States
- Purposes: mechanical measures, repairs, increase DOE cost limits

Other Wx Programs and Contributions:
- 17 States
- 5 State WAP programs
- 11 repair/rehab programs
- 6 Landlord and/or utility match
- 24,105 units (8000 mixed with DOE or HHS/WX)

Utility Weatherization
- 49 utilities with programs
- 27 States with utility programs
- 70% of investments mandated by P.U.C.s
- 18 programs using DOE subgrantees

Most Common Measures, 1989: attic insulation, wrap water heater or ducts, weatherstrip/caulk

1. HHS/WX means LIHEAP conservation programs with rules different from DOE/WAP. 2. California is treated as a separate region. 3. Utility programs generally include a much smaller number of measures than offered by DOE/WAP. 4. Mobile homes were generally reported as "single-family" and not as separate category. Therefore, this figure is an understatement.
* Figures may not sum to 100 percent due to rounding.

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

LIST OF APPENDICES

LIST OF ACRONYMS

AFDC	Aid to Families with Dependent Children
AHS	American Housing Survey
BPA	Bonneville Power Administration
CDBG	Community Development Block Grant
DOE	U.S. Department of Energy
DOE/WAP	U.S. Department of Energy's Weatherization Assistance Program
EORI	Economic Opportunity Research Institute
FmHA	Farmers Home Administration
HHS	U.S. Department of Health and Human Services
HHS/WX	Low-income weatherization programs using LIHEAP funds under rules different from DOE/WAP
LIHEAP	U.S. Department of Health and Human Services' Low-Income Home Energy Assistance Program
NASCSP	National Association for State Community Services Programs
OMB	Office of Management and Budget
ORNL	Oak Ridge National Laboratory
PUC	Public Utility Commission
PVE	Petroleum Violation Escrow
PY	Program Year
TVA	Tennessee Valley Authority

ACKNOWLEDGMENTS

Many people have participated in the design and implementation of this study. Of particular note are the members of the Evaluation's Working Groups who continue to provide extensive input to this process. The authors are grateful for their advice, comments, and suggestions, without which this report would not have been possible.

Jeff Ackermann
Department of Local Affairs
State of Colorado

Mary Ann Bernald
Edison Electric Institute

Dale Canning
Salt Lake Community Action Agency

Don Barnett
Department of Natural Resources
State of Missouri

Jeff Brown
North Carolina Department of Commerce

Margaret Fels
Center for Energy and Environmental Studies
Princeton University

Michael Foley
National Association of Regulatory
Utility Commissioners

Michael J. Ganley
National Rural Electric Cooperative
Association

Rick Gerardi
Division of Economic Opportunity
State of New York

Sharon Gill
U.S. Department of Energy
Chicago Support Office

Larry Goldberg
Sequoia Technical Services

Mariam Goldberg
U.S. Department of Energy

Judy Gregory
Center for Neighborhood Development
Cleveland State University

Al Guyant
Public Services Commission
State of Wisconsin

Martha Hewett
Center for Energy and the Urban
Environment
University of Minnesota

Bion Howard
Alliance to Save Energy

Ken Keating
Bonneville Power Administration

Larry Kinney
Synertech Systems Corporation

Judith Lankau
Orange and Rockland Utilities

Ron Marabate
Michigan Department of Labor

John Mitchell
American Gas Association

John F. Nelson
Wisconsin Gas Company

Meg Power
National Community Action Foundation

Jeff Schlegel
Wisconsin Energy Conservation

Marjorie Witherspoon
National Association for State
Community Service Programs

Leon Litow
U.S. Department of Health and Human Services

Jane Marden
American Gas Association

Barry Moline
American Public Power Association

Karl Pnazek
CAP Services
Stevens Point, Wisconsin

Ken Rauseo
The Commonwealth of Massachusetts

Ken Tohinaka
Champlain Valley OEO Weatherization Program
and Vermont Energy Investment Corporation

In addition to the above individuals, this report was produced under the supervision and guidance of Darrell Beschen, Mary Fowler, and Jim Gardner of the U.S. Department of Energy. We would also like to acknowledge useful comments on the report provided by Linda Berry and Don Jones (Oak Ridge National Laboratory) and Susan Lloyd (Princeton Economic Research, Inc.).

THE SCOPE OF THE WEATHERIZATION ASSISTANCE PROGRAM: THE WEATHERIZED POPULATION AND THE RESOURCE BASE

EXECUTIVE SUMMARY

BACKGROUND

This study is part of the U.S. Department of Energy's national evaluation of its Weatherization Assistance Program (WAP). The Weatherization Assistance Program was established by Title IV of the Energy Conservation and Production Act of 1976 (PL 94-385). It is administered by the U.S. Department of Energy (DOE), and is designed to provide financial assistance to qualifying low-income households for the "weatherization" of their housing units.

The most recent national evaluation of the WAP was completed in 1984, and was based on data for 1981. WAP regulations and operations have changed substantially since then. DOE, with the support of Oak Ridge National Laboratory (ORNL), has initiated an updated and comprehensive national evaluation of the WAP. This study is one part of that evaluation.

OVERVIEW OF THE SCOPE OF WEATHERIZATION STUDY

Objectives

The DOE evaluation has five parts of which three involve analyses of energy savings and two are policy studies. The first policy study, recently completed (Mihlmester, Koehler, Beyer, Brown, and Beschen, 1992), characterizes the capabilities, innovations, and leveraging ability of the WAP network. The second policy study entitled "The Scope of the Weatherization Assistance Program," deals with the weatherized population and the resource base applied to weatherization. It will be conducted in two phases over three years. This report presents the findings of the first phase.

This first phase of the "Scope" study has three major goals: 1) to enumerate the size and sources of investment in low-income weatherization; 2) to provide a tally of the number of low-income units weatherized by all weatherization programs and characterize the type and tenure of these weatherized homes; and 3) to document the extent to which the DOE/WAP funding has been expanded through use of external resources. Opportunities for the future direction of the WAP suggested by the analysis will be explored.

Research Methodology

Data on the cumulative number and characteristics of the units weatherized in five periods from Program Year (PY) 1978 through PY 1989 were collected from surveys of state WAP managers and utility conservation program managers. WAP managers were asked to provide data on all major publicly funded federal, state, or local programs and on any private sector initiatives

about which they had data. In addition, a national sample of 443 utilities representing investor-owned and public entities was asked to provide information about the comparable low-income weatherization activities of their organizations over the same study time period.

The subject of this inquiry was narrow. Information was solicited regarding only energy conservation investments which were delivered as a package of measures and/or were comparable to the major measures approved for the DOE/WAP program itself, and contributions that were added to such "full-scale weatherization" efforts. Furthermore, this analysis considers only funding for, and housing units of, low-income households whose incomes did not exceed current federal standards for DOE/WAP or Low-Income Home Energy Assistance Program (LIHEAP) eligibility levels.

Data on programs administered under DOE/WAP rules in all 51 grantee jurisdictions (including Washington, D.C.) are included in this report. Additional information is available for 47 states. Of 443 utilities surveyed, 124 responded and a total of 49 of them in 27 states reported full-scale weatherization programs in one or more of the five periods in the study. Thus, the non-DOE/WAP resources for low-income weatherization are understated.

This report classifies weatherization expenditures in two different ways: by source of funding (i.e., the type of agency or organization that provided the funding for full-scale weatherization) and by type of program (i.e., the type of agency or organizational rules and procedures that governed how the funds were spent). There is substantial overlap between these two categories, but they are nevertheless distinct. By law, all funds appropriated by DOE/WAP are governed by DOE/WAP rules and regulations. However, funds appropriated by the Department of Health and Human Services (HHS) may be spent according to the rules and regulations of either DOE/WAP or HHS/LIHEAP. Similarly, Petroleum Violation Escrow (PVE) funding, utility, and state funding for full-scale weatherization may or may not be spent under the auspices of DOE/WAP rules.

Six funding sources are considered:

- DOE/WAP appropriations;
- HHS/LIHEAP appropriations;
- PVE or oil overcharge funds;
- utility funds;
- State appropriated contributions; and
- funds from other full-scale weatherization and housing repair programs.

These six funding sources support four types of full-scale weatherization programs:

- DOE/WAP;
- HHS/WX (i.e., LIHEAP appropriated funds spent on full-scale weatherization administered under the state programs funded by HHS);

- other programs (state initiatives, housing repair programs, and various private, non-utility programs).

MAJOR FINDINGS AND CONCLUSIONS

The scope of weatherization programs considerably exceeds the activities performed under the DOE/WAP program, yet DOE/WAP remains the predominant source and form of weatherization expenditures. Of the 3.9 million low-income units weatherized over the program years 1978 - 1989, nearly 77% received weatherization services under DOE/WAP rules.

The 3.9 million units weatherized from PY 1978 through PY 1989 represent completion of a significant, though uncertain, percentage of the contemporary low-income housing stock. According to the American Housing Survey, 21.4 million housing units are occupied by households below 150 percent of the poverty level. However, this does not mean that 18% of eligible households (that is, 3.9 million of 21.4 million) received weatherization services between 1978 and 1989; the percentage may be lower because of the physical and income mobility of the low-income population.

Over 20 percent of the 3.9 million weatherized units were weatherized exclusively by utility-based programs concentrated in a few states. They received notably lower investments than homes weatherized by public sector programs.

Over time, DOE appropriations declined slightly in significance as a funding base, while PVE and LIHEAP Block Grant funding increased. However, DOE's rules determined the way most of those monies were used. The trend at the end of the study period was downward for all funding sources except DOE, so it is unlikely that the PY 1989 levels of $553 million in funding and 455 thousand weatherized units in all programs have been sustained.

Weatherization programs extended the resource base of federal weatherization funds by 15 percent between 1978 and 1989. However, this resource expansion was limited to state weatherization and utility expenditures concentrated in a few states. This means that there is experience in running large utility and state programs to draw on, but not from a wide variety of locations. However, growing numbers of states instituted programs for housing repair and for collecting private contributions in the last two years of the study, perhaps indicating a new trend. Utility programs tend to be in states where low-income weatherization program scope and goals were mandated by regulatory bodies and, on average, they are not comparable to DOE/WAP.

Comparison between this study and the first policy study of the WAP evaluation (Mihlmester, et al., 1992) shows that the state and utility managers who provided these data are not always aware of local and private programs with initiatives in energy conservation. This means the local non-federal investment in weatherization may well be understated in this review. It also suggests that developing integrated and targeted expansion of weatherization resources will require greater coordination and communication among the various providers in the system.

Finally, the study makes it clear the policies and regulations of DOE's program have directed and shaped much of the low-income weatherization activities that occurred in the United States between 1978 and 1989.

KEY FACTS AND FIGURES

A total of $4.3 billion was reported spent on full-scale weatherization activities from PY 1978 to PY 1989. At least 3.9 million units were weatherized with these funds. Not all funds could be associated with completion figures. Thus, the count of weatherized units is underestimated.

Programs

Of all weatherization resources, 76.5 percent were found to have been spent in the DOE/WAP program, and 12 percent in programs run by state Low-Income Home Energy Assistance programs (hereafter HHS/WX) under rules different from DOE/WAP programs. Full-scale weatherization programs run by utilities contributed 9.6 percent of resources and the fourth category, "Other" free-standing weatherization programs of significant size in Alaska, Florida, Georgia, Maine, Massachusetts, Minnesota, North Carolina, Ohio, and Wyoming, account for 2 percent of weatherization resources. By PY 1989, the non-federal programs had grown to 20.2% of all program resources.

Of the 3.9 million units weatherized, 68 percent were weatherized by DOE/WAP programs, 9 percent by HHS/WX programs at expenditure levels per dwelling comparable to DOE/WAP, and less than one-half of one percent by "Other" full-scale programs. Twenty-two percent were completed by utility programs, at about one-third the average investment per unit generally provided by the DOE/WAP program.

At least 250,000 units were reported served by a combination of programs. State managers reported that a large but unknown number of additional units received DOE/WAP or HHS/WX investments in addition to utility investments. Therefore, utility unduplicated completions may be overstated in the study. Other weatherization programs were unable to report on units completed; they account for two percent of all funding.

Resource Base

Six funding sources were considered independently from the programs in which funds were spent. The survey showed proportional contributions over twelve years to be: DOE/WAP appropriated funds 45 percent of all funds, LIHEAP block grant 28 percent, Petroleum Violation Escrow Funds (PVE) 14 percent, utilities 10 percent, state appropriations 2 percent and other federal, local and private sources nearly 1 percent. In PY 1989, DOE/WAP provided 26 percent of funds, PVE funding was 32 percent LIHEAP was 21 percent, and utilities provided 14 percent.

Characteristics of the Units Weatherized

Tenure (e.g., owner-occupied or rented) and size characteristics were reported for 74 percent of all units including over 95 percent of all DOE/WAP completions. Fifty-nine percent were single family owner-occupied units and an additional 19 percent were single family rental units. This number included many mobile homes. An additional 4 percent of units were explicitly identified as mobile homes. Multi-family units, those containing two or more living units, were 18 percent of completions.

The allocation of resources and the units weatherized differed by climate region: the moderate climate region, made up of 23 states, had 58 percent of all reported resources and completed 50 percent of all units weatherized; the coldest region had 21 percent of the resources and completed 16 percent of units weatherizated; the hot region had 13 percent of the resources and 14 percent of the completed units. California's aggregate data could not be broken into climate regions and stands alone. It had 8 percent of the funding and 21 percent of weatherized units because its utility full-scale programs weatherized three-quarters of all utility weatherized units. These utility investments were 40 percent of the average investment in DOE/WAP or HHS/WX units.

By PY 1989, most of the full-scale weatherization resources classified as "Other" major programs were in the hot region, as were half the housing repair programs contributing to weatherization efforts. By contrast, no full-scale utility programs existed in the hot region by the end of the study period.

Expansion of Resources

Opportunities for expanding the resource base are of special interest. The trend between 1978 and 1989 was to declining federal funds, including PVE resources. In PY 1989, substantial non-federal funding was available from utilities, but 80 percent of utility investment came from federal power authorities (8 percent) and from programs mandated by utility commissions in 4 states (72 percent). In fact, 61 percent of all utility funding was reported by California companies and some but not all of the Wisconsin utilities operating mandated programs. These investments generally involve a subset of DOE/WAP measures and are not a comparably comprehensive package.

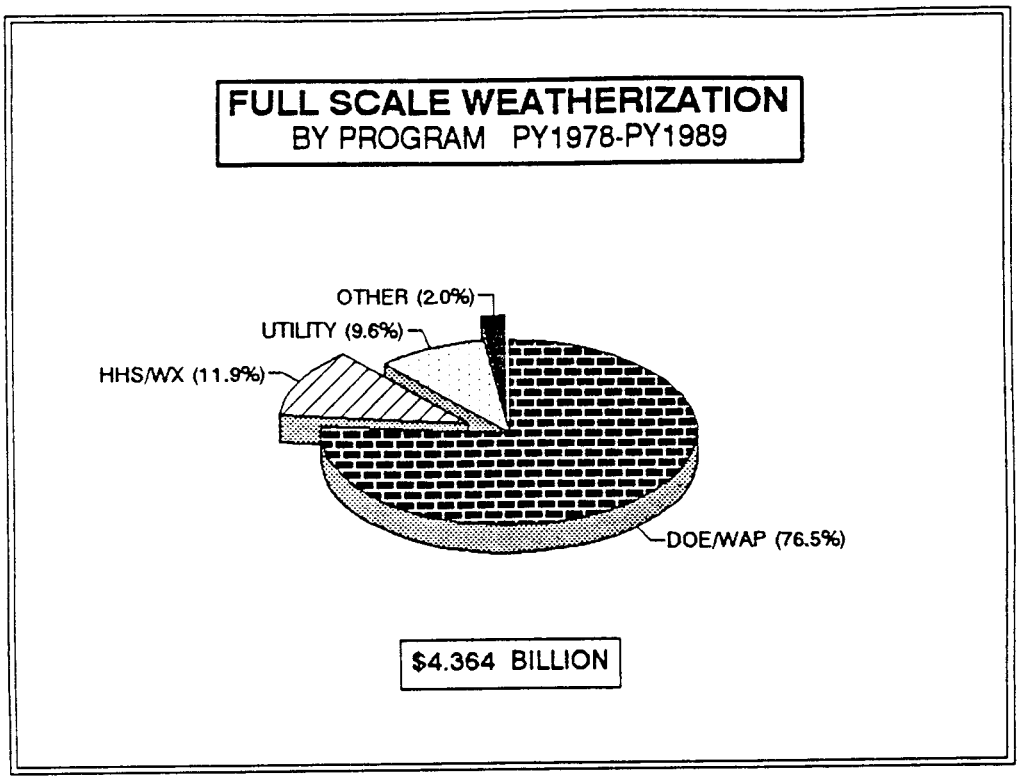
By PY 1989, 13 states had non-federal weatherization programs or contributions totalling $24.3 million of which nearly 80 percent was a North Carolina program and most of the balance came from landlord contributions in New York. Based on this study's database, most states had not expanded their resources over the study period.

THE SCOPE OF WEATHERIZATION INVESTMENTS, PY 1978-PY 1989

This section first examines the four categories of full-scale weatherization programs, which reflect distinct rules and policies under which funding was spent. Attention then turns to the sources of funds for each category.

A breakdown of the program categories under which funds were spent (as distinct from the origin of the funds) shows that 77 percent of the $4.364 billion reported in the merged data from the state and utility surveys was spent according to the rules of the DOE program, regardless of the original source of the funds. Figure I represents all four categories of full-scale weatherization programs as a proportion of the twelve-year total. The HHS/WX program represents 12 percent of all funds, utility-based weatherization programs account for nearly 10 percent, and the remaining 2 percent was spent in a miscellany of state initiatives, housing repair programs, and private, non-utility programs.

Fig. I:



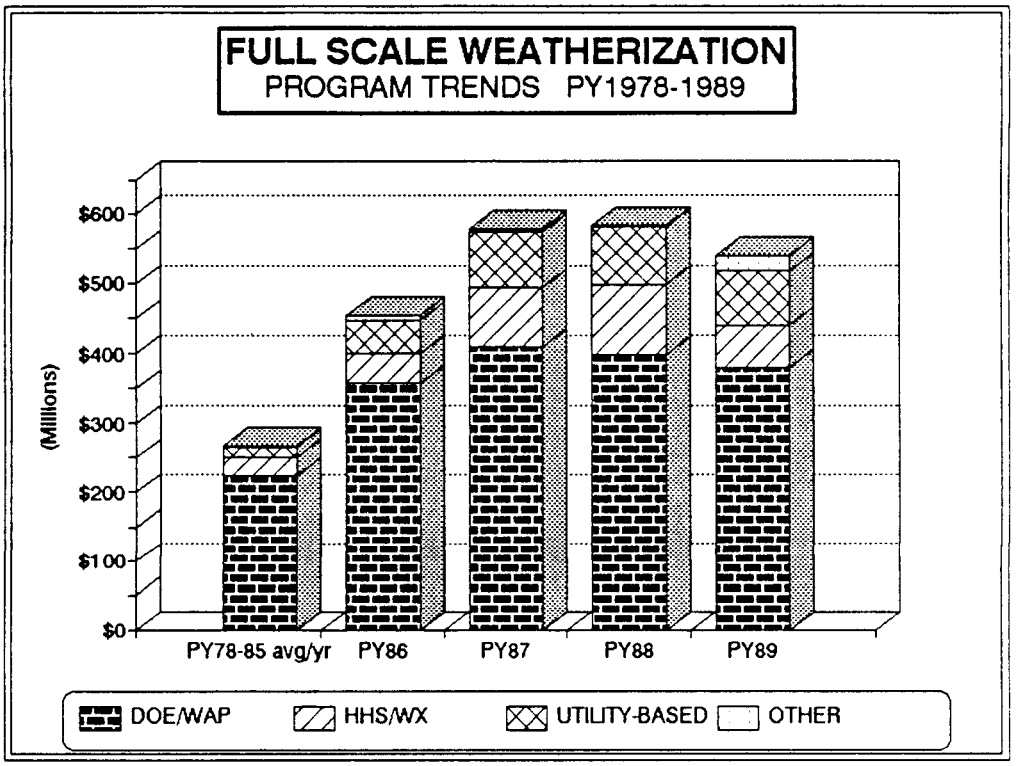
Both the mix of program types and the mix of funding sources change in the later years of the study period, reflecting major changes in the program. Figure II displays the changes in program type, which show growth between 1986 and 1989 was limited to the non-DOE

programs, especially HHS/WX and new full-scale utility based programs. However, the trend by PY 1989 was downward for these two kinds of programs and for all weatherization resources. Further, the nominal dollars shown for PY 1989 would be valued at $0.88 each in 1986 dollars and therefore the real reduction in resources is greater than shown.

There are differences among the three major program types, as discussed in detail below. As a twelve year average, DOE/WAP invested $1,057 per unit and HHS/WX invested $1,095 while utilities invested an average of $446 in the units they reported. For PY 1989 only, the comparable figures are: DOE $1,401, HHS/WX $994, Utilities $389. This indicates that utility programs offer a lower number and far less expansive range of measures, while HHS/WX spent amounts comparable to DOE/WAP on different priorities.

At least a quarter of a million units had multiple funding sources, and any one of these individual units may have had a combination of these investments.

Fig. II:



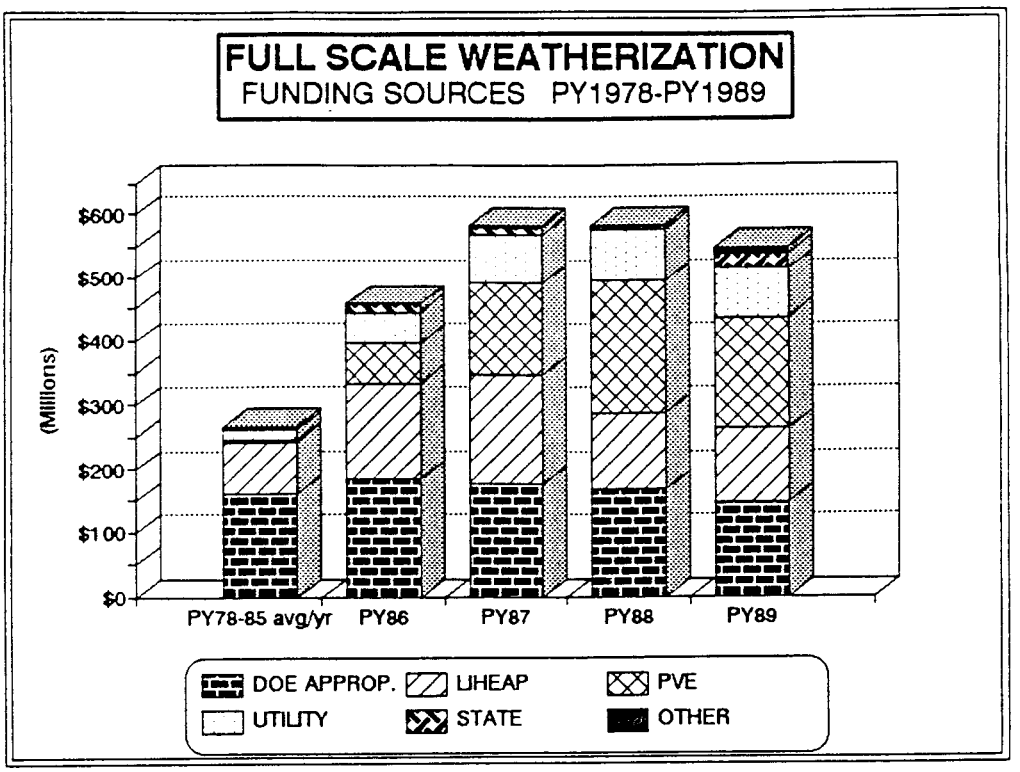
THE SOURCES OF FUNDING

An examination of the sources of funding for full-scale weatherization over the period reveals that funds appropriated to the Department of Energy do not dominate the mix of funds.

Figure III shows the mix of funding sources over the study time period. Twenty-eight percent came from LIHEAP Block Grant funds, 14 percent from PVE and nearly 10 percent from utility sources. States provided 2 percent of funding. Business (other than utility), individuals, and publicly funded housing rehabilitation programs (largely federal housing programs managed by state and local governments) together account for less than 1 percent of the total.

Figure III shows the trends change in funding sources in the period and reflects the large proportion of PVE funding in the programs from PY 1986 on, as well as recent increases in utility and "other" funding initiatives.

Fig. III:



LIHEAP funds made up about 28 percent of all funding. Of this amount 63 percent was reported to have been used according to DOE program regulations, while just 37 percent was expended under HHS/WX program rules as described below.

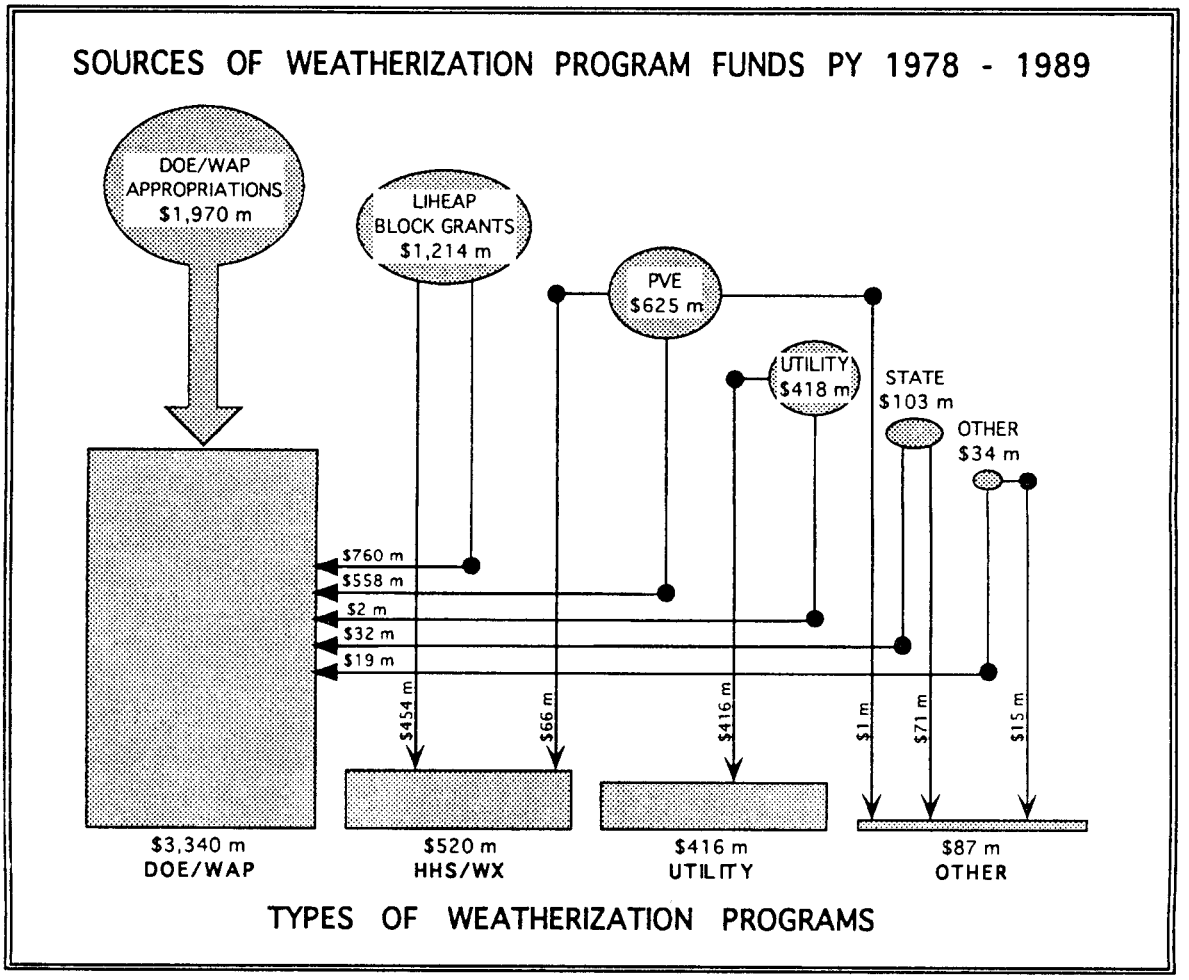
PVE or oil overcharge funds accounted for just under 15 percent of all weatherization resources in the twelve years. Exxon case funding, the source of most PVE weatherization, was released to the States in 1986-87. Nearly 90 percent of all these PVE funds spent on weatherization were used under DOE rules.

State appropriated contributions totalled $102.7 million of which 31 percent was used to add funding to DOE/WAP, less than 1 percent was used for HHS/WX programs, and the balance was in the full-scale and housing repair programs described in the next section. Fifteen states made contributions during one or more of the time periods studied. By 1989, nine states were investing appropriated funds in weatherization activities. Housing repair not funded by state sources, other public funding and other private funds totalled just $33.8 million over the study period, or less than 1 percent, and are not shown in Figure III.

THE SCOPE OF THE INDIVIDUAL PROGRAMS AND FUNDING SOURCES

Figure IV portrays the funding sources of each of the four types of weatherization programs. It shows that significant portions of total weatherization resources from each type of non-DOE funding source have been channeled through DOE/WAP, underscoring the central role played by the DOE/WAP program in directing weatherization activities nationwide.

Fig. IV



DOE/WAP

Throughout the twelve-year period, funding appropriated to DOE made up just under 59 percent of the total amount of funding for weatherization that was spent according to DOE/WAP rules (e.g: the DOE/WAP program). LIHEAP Block Grant funds and Petroleum Violation Escrow funds administered under DOE rules accounted for 23 percent and 17 percent of the balance of DOE/WAP respectively. However, by PY 1989, DOE funds accounted for just 39 percent of that year's expenditures and LIHEAP funds for 15 percent. The largest resource in PY 1989 was the PVE monies which constituted 45 percent of that year's DOE/WAP funding. Homes weatherized by DOE/WAP programs during the twelve-year period totalled 2.65 million units, and the total investment in the DOE/WAP program was $3.84 billion.

HHS/WX

The HHS/WX program category refers to energy conservation activities administered with LIHEAP Block Grant and/or other funds pursuant to rules set up consistent with the LIHEAP regulations but not with the DOE/WAP rules. The LIHEAP statute has (since PY 1982) permitted states to define energy conservation activities for eligible households. As a consequence, a variety of state initiatives have been undertaken, some of which are full-scale weatherization programs reported here and some of which are energy conservation education, low-cost no-cost measures, or self-help home energy improvements.

The sixteen states with HHS/WX programs in PY 1989 reported on the purposes of their HHS/WX programs. They were:

- Heating system measures not allowed in DOE — 12 Programs
- Higher cost limits than DOE — 6 Programs
- Other mechanical and safety measures — 3 Programs
- Repairs, rehabilitation — 2 Programs
- Training Centers — 1 Program

These sixteen states represent a decline from the high of nineteen such programs in PY 1987. The nearly 30 percent drop in LIHEAP block grant funding in that period may account for the change.

From PY 1982 to PY 1989, over $519.7 million was expended in HHS weatherization programs and at least 427,000 units were weatherized.

Utility Programs

Surveys were sent to 443 utilities serving 75 percent of the residential consumers in the U.S. Surveys were also sent to the largest municipal utilities and rural electric cooperatives in each state as well as any utilities identified in the literature or by State WAP managers as having weatherization programs if not in the original list. There were 124 respondents. This included 30 of the 114 investor-owned gas utilities, 31 of the 118 investor-owned electric utilities, 23 of the 74 rural electric cooperatives, 31 of the 135 municipal utilities and 7 of the combination companies surveyed, Bonneville Power Administration (BPA) and the Tennessee Valley Authority (TVA).

This response rate may have resulted in a significant undercounting of utility weatherization resources. It is clearly a low estimate because a few large utilities in states with mandated programs did not provide data and numerous municipal utilities served by BPA did not respond. It is also possible that non-responses reflect the lack of comprehensive low-income programs. State managers noted few utility initiatives not reported by utilities. Data were available on either the state managers survey or the utility survey for most large programs in the states where commissions mandated programs. Representatives of several national utility associations are not aware of significant programs other than those reported here. Therefore, these utility data, while not precise, are of the correct order of magnitude.

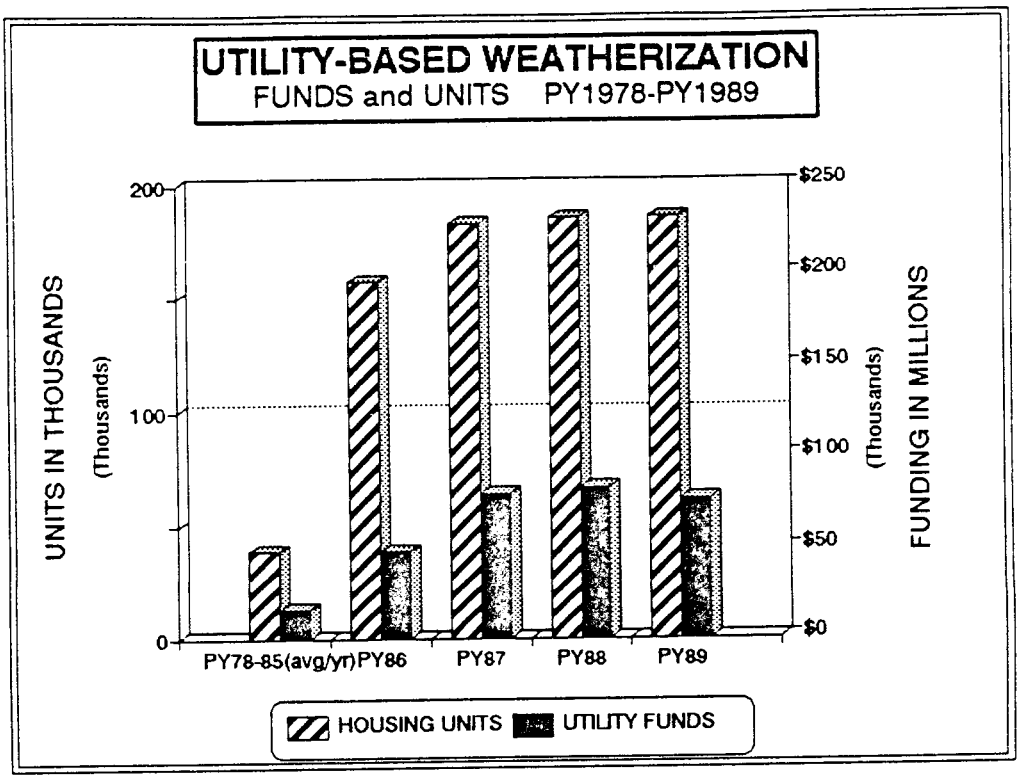
The utility and state manager's reports on utility programs were screened for duplicate counts and merged to provide these data. The full-scale utility-based programs are described in this subsection. Other utility activities are described in the following subsection.

Full-scale programs vary in the level of investment per unit and measures selected, and differ from the comprehensive programs offered under DOE/WAP and HHS/WX. All use at least one measure comparable to those allowed in the DOE/WAP and all involve some form of home energy evaluation though not necessarily of the scope used in DOE/WAP. Selection criteria for utility weatherization (e.g: demand reduction) may prioritize the investments of highest value to the utility systems and therefore may not capture all, or even most, measures with high value to the household.

Forty-nine utilities in 27 states reported some form of full-scale low-income program during one or more periods from PY 1978 to PY 1989. The annual funding and unit completions are dramatically higher in the last three years of the study period as Figure V shows.

Over the twelve-year period, utilities spent $417 million on energy measures for just over one million low-income units. Respondents estimated that at least 160,000 of these units had more than one weatherization program contributing measures. This means that 17 percent of all the units utilities completed involved work administered in combination with DOE or other programs. However, units in which state programs later performed additional work were not counted; state managers estimate these numbers to be significant in states with utility programs.

Fig. V:



Nearly half of the 49 utilities reported using DOE subgrantees for all or part of their weatherization work.

From PY 1986 to PY 1989, the number of utilities reporting full-scale programs rose from 28 to 36. Sixty-eight percent of all PY 1989 utility funds came from California and Wisconsin; both had mandated programs.

In fact, of all full-scale utility programs reported, the vast majority of the investments came from mandated programs, Bonneville Power Administration (BPA), and the Tennessee Valley Authority (TVA). This pattern was true for all time periods, as Table 1 shows.

The measures most commonly available as part of a utility full-scale program were:

- attic insulation (33 out of 49 programs)
- water heater and/or duct wrap (30 programs)
- weatherstripping and caulking (30 programs).

Table 1
Percent of Utility Investments
By Category of Utility Program

	All Years	1989
MANDATED*	70%	73%
BPA and TVA	8%	6%
OTHER	22%	21%

* See Appendix C 1-7

Miscellaneous Utility Weatherization Resources

Another section of the utility questionnaire asked for reports on other measures or benefits utilities offered low-income households at no cost. Of the sixteen utilities which offered the largest number of such energy measures to low-income households, nine were the same utilities that offered large full-scale programs that year. Definitions of activities and low-income households were not as strict for this section. Utilities could document $76.6 million expended in the 1986-89 period, 54 percent of it in one utility, Southern California Edison. However, expenditure data was lacking for many of the programs reported.

The measures most commonly provided in this category in 1989 by the 65 utilities reporting were:

- client education at home (24 utilities)
- weatherstrip/caulk (20 utilities)
- client education by mail (18 utilities)
- water system wrap (16 utilities)
- low cost/no cost kits (14 utilities)
- heating system replacement (12 utilities)
- heating system tune-up/repair (12 utilities).

Other Programs

The state managers survey asked for data on any other significant weatherization programs operated during the 1978-89 period -- e.g. those constituting 10 percent or more of all weatherization activity in one time period. Funding for these totalled $59 million, or just over 1 percent of all resources, of which $24.3 million was in PY 1989 programs. Of the PY 1989 resources, 82 percent represented a North Carolina housing rehabilitation and weatherization program.

Contributing Resources

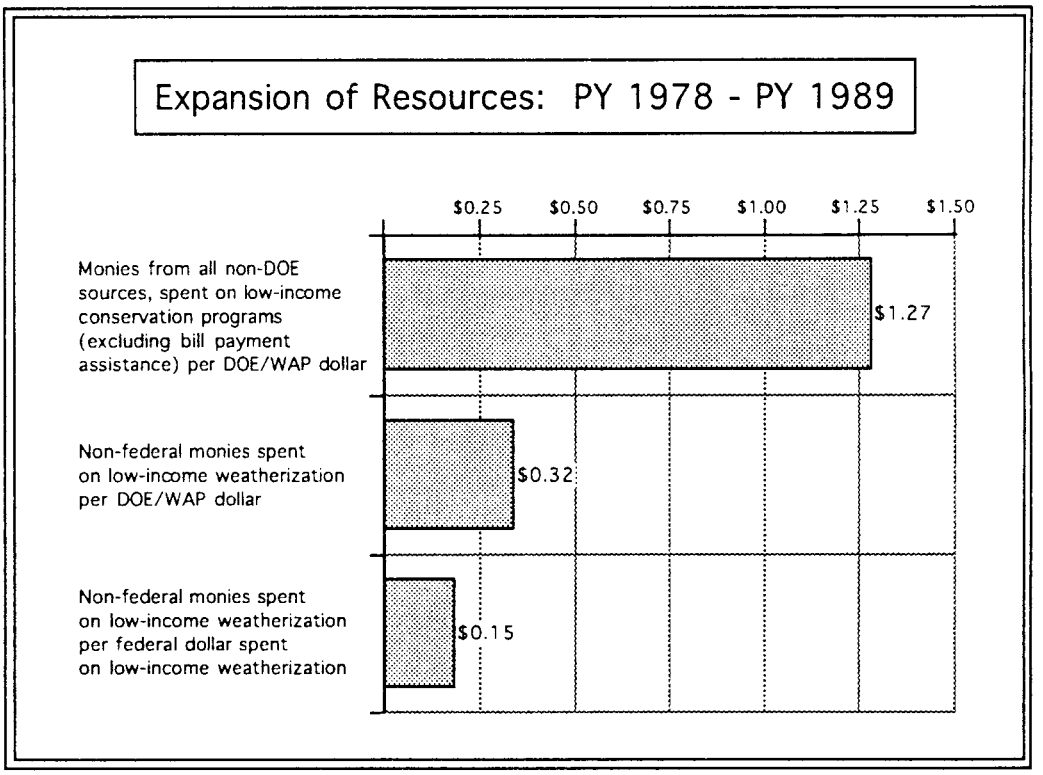
States were also asked to report on housing rehabilitation or repair programs integrated with weatherization and on any resources contributed to one of the four major program categories, operated during the 1978-89 period. The response included substantial estimated data.

For housing rehabilitation/WAP initiatives, $17 million was spent by 11 states in the twelve years, 67 percent of it in Michigan. For additional contributions, $11 million was reported. While a variety of labor, materials, and even other federal funding was reported, 57 percent of all contributions of this type were reported in PY 1989 and were predominantly accounted for by landlord contributions in New York.

DOE/WAP Expansion

If every DOE dollar appropriated and spent by responding states over twelve years is compared to all other funds from all other sources including miscellaneous not full-scale weatherization programs, then $1.27 was available from all other monies for each DOE dollar. Matching all DOE with all non-federal weatherization shows that $0.32 was expended per DOE dollar (Figure VI). Counting funds only in the 30 states that had expanded weatherization from non-federal funds would show that $0.52 was generated per DOE dollar expended in those states.

Fig. VI:



The pattern of sources of non-federal funds in PY 1989 was substantially different from the twelve year pattern. Of the PY 1989 total of $128 million, utilities provided the most significant leveraging or 72 percent of resources, largely in California. Twenty percent of the non-federal funds are state funds which reflect dramatic increases in one state that year.

CHARACTERISTICS OF WEATHERIZED HOMES AND NUMBERS SERVED

Number of Households

The survey respondents reported that a total of 3,895,000 units were weatherized during the 1978-1989 interval. This unduplicated estimate corresponds to $4.272 billion expended, or 98 percent of all funding, as responses that did not report completions were excluded.

To put these figures in perspective, the Census Bureau reported a total of 90.89 millon occupied housing units nationwide in the 1987 American Housing Survey (AHS). This means that low-income weatherization resources covered in the utility and state surveys have been applied to slightly more than 4.2 percent of the total U.S. occupied housing stock. Of these, 2.65 million, or 2.3 percent of all units, were weatherized under the DOE/WAP rules.

The 1987 American Housing Survey also indicates that 21.345 million units are occupied by households below 150 percent of the poverty level. However, it is not possible to deduce from this housing base the percentage of homes that have received full-scale weatherization. Housing units qualify for DOE/WAP weatherization based on the income of the occupant. The residential mobility of low-income households means the housing stock weatherized and the low-income population do not equilibrate. The 1987 AHS reported that of all households below 150 percent of the poverty level, 4.74 million, or 22 percent, had moved in the past year. Of these, just 10 percent were originally owner-occupants, and the rest were renters.

The income mobility of the low-income population means that households that qualify for and receive low-income weatherization may not remain qualified over a period of years. Indeed, the best available longitudinal statistics indicate that, over time, a large proportion of the population in poverty moves up and out of poverty, often replaced in the poverty statistics by households whose income slid in the other direction.

The relationship between the low-income population's residential mobility and its income mobility is poorly understood. It is therefore difficult, at this stage of the study, to draw any precise conclusions regarding the population that remains to be served. Phase two of this study, which will analyze data from the 1990 Census and the DOE Residential Energy Consumption Survey, can clarify the influence of some, but not all, of these factors.

Types of Homes

The data available from the utility and state surveys regarding the characteristics of weatherized households is limited, consisting largely of the information reported to the Department of Energy regarding housing tenure and characteristics. Information describing 2.94 million weatherized households by tenure (e.g., owners versus renters) was provided, representing 76 percent of all weatherized households reported in the survey.

The data showed that of the 2.94 million households weatherized, 80 percent or 2.27 million were living in single-family dwellings. The majority of the 2.94 million (61.8 percent or 1.86 million) are also owner occupied.

The 21.345 million households living below 150 percent of the OMB poverty level in 1987 roughly match the program's eligibility standards. Owner households comprise 44.9 percent of the eligible low-income occupied units reported in the AHS. This compares to the 61.5 percent of the total of weatherized units reported in the state and utility surveys which were owner-occupied dwellings. Concomitantly, 55.1 percent of the eligible units were rentals compared to 38 percent of weatherized units reported in the surveys.

The major difference among program types was the high rate of utility multi-family weatherization compared to DOE and HHS programs. By PY 1989, all types of programs were weatherizing nearly equal numbers of rental and owner-occupied units, a considerable change from the PY 1978-1985 period when nearly 65 percent of weatherizations were in owner-occupied units.

Statistics that describe the weatherized households in greater detail will be available for phase two of this study.

REGIONAL FACTORS AFFECTING THE SCOPE OF WEATHERIZATION

For purposes of the other four studies that form the DOE/WAP evaluation the U.S. has been divided into three major climate zones: (1) the northern tier, states that are cold with minimal summer cooling load; (2) the middle tier which has both significant heating and cooling energy usage; and (3) the southern tier of generally warm climate states with some heating, and substantial cooling, energy usage. California, in this analytic scheme was divided into two climate zones (Beschen and Brown, 1991).

The analyses below differ from the larger evaluation in that they consider California as a separate region, since all data provided is statewide, and include Alaska in the coldest region and Hawaii in the warmest. Figures VII and VIII show funding and units completed by region.

Fig. VII:

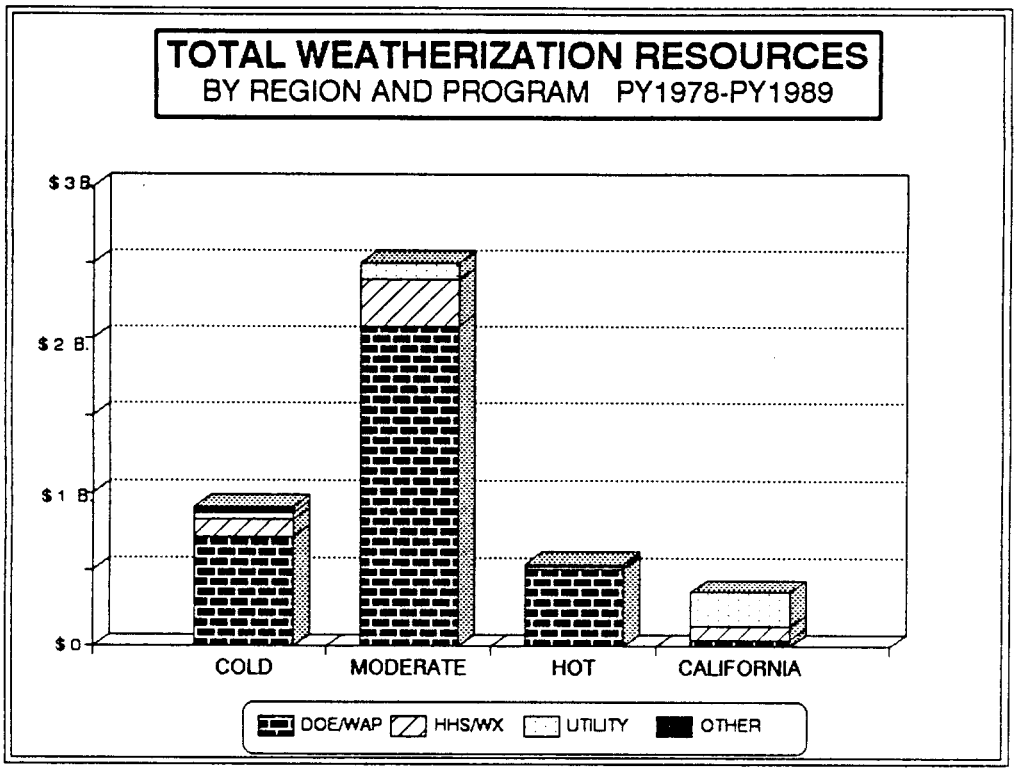
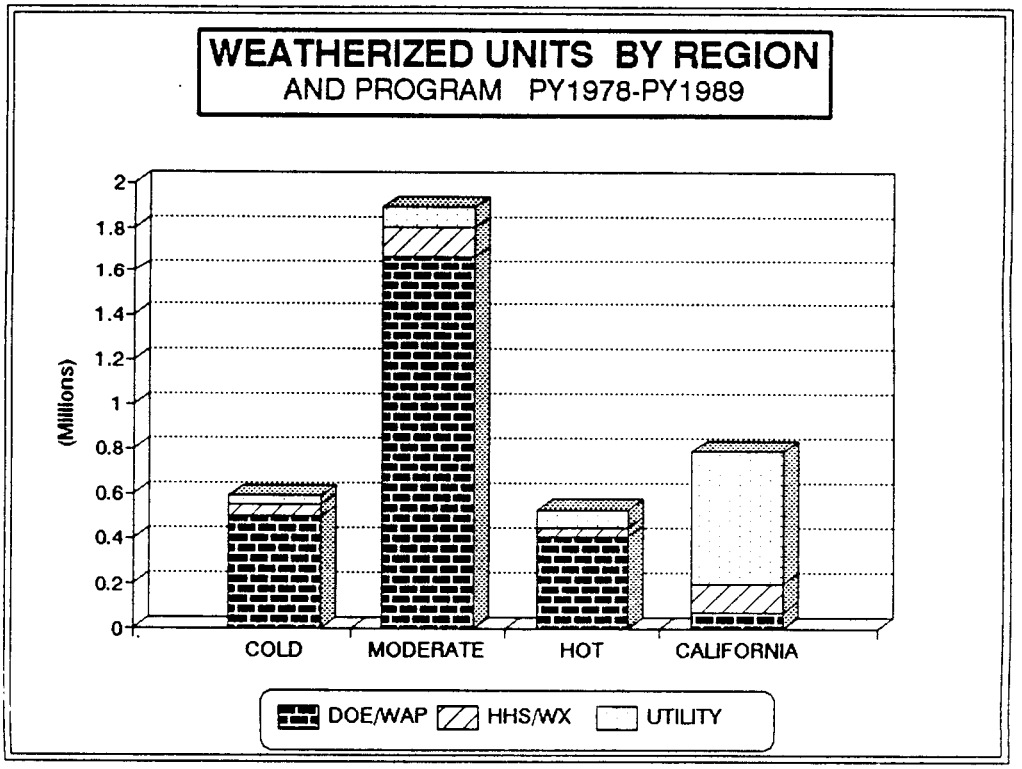


Fig. VIII:



The number of units weatherized varies by region, as do expenditures by program type. Seventy-three percent of all utility-weatherized units are in California and represent 15% of units weatherized in the U.S. in all programs; average investments in these units are considerably lower than in DOE/WAP and HHS/WX programs. The hot region has the same share of utility-weatherized units as the much larger moderate climate region, but all these units are in Tennessee and received an average investment of only $125.

PHASE II OF THE SCOPE OF WEATHERIZATION STUDY

In the next phase of the Scope of The Weatherization Assistance Program Study a detailed examination will be made of the energy usage and conservation characteristics of low-income households. Data from the 1990 Census, the 1990 Residential Energy Consumption Survey, the American Housing Survey and other sources will be examined and integrated to provide a profile of the households that remain in need of weatherization services. To the extent resources are available, the study will examine the longitudinal impact of population and housing dynamics on both the eligible and recipient populations.

ABSTRACT

This study is one of five parts of the U.S. Department of Energy's national evaluation of its Weatherization Assistance Program (WAP). It has three major goals: 1) to enumerate the size and sources of investment in low-income weatherization; 2) to provide a count of the number of low-income units weatherized by all weatherization programs and characterize the type and tenure of those homes; and 3) to document the extent to which the DOE/WAP funding has been expanded through use of external resources.

Data on the cumulative number and characteristics of the units weatherized in five periods from Program Year (PY) 1978 through PY 1989 were collected from surveys of state WAP managers and utility conservation program managers. WAP managers were asked to provide data on all major publicly funded federal, state, or local programs and on any private sector initiatives about which they had data. In addition, a national sample of 443 utilities was surveyed. Information was solicited regarding energy conservation investments which were delivered as a package of measures and/or were comparable to the major measures approved for the DOE/WAP program itself, and contributions that were added to such efforts. Furthermore, this analysis considered only funding for weatherization programs targeting low-income households whose incomes did not exceed current federal standards for DOE/WAP or Low Income Home Energy Assistance Program (LIHEAP) eligibility.

Cumulative expenditures of $4.36 billion and weatherization of 3.9 million low-income units were reported cumulatively in the twelve program years PY 1978 - PY 1989. Nearly 77 percent of all reported resources were expended by state DOE/WAP programs pursuant to DOE/WAP program regulations. In addition, utility programs for low-income households, energy conservation initiatives administered by LIHEAP and miscellaneous state and local weatherization initiatives all provided significant resources. However, the nature and comprehensiveness of the non-DOE programs were not in all cases comparable to DOE/WAP.

Significant changes in funding sources and uses over the twelve-year period were identified. Differences in resources and the characteristics of programs were evident among climate regions. Type of dwelling unit (e.g: single-family or multifamily) and occupancy characteristics of weatherized homes also were reported. A second phase of this study will provide more detailed data on the characteristics of the households and housing units occupied than were available from program reports.

THE SCOPE OF THE WEATHERIZATION ASSISTANCE PROGRAM: THE WEATHERIZED POPULATION AND THE RESOURCE BASE

CHAPTER 1: INTRODUCTION

1.1 Background

This study is part of the U.S. Department of Energy's national evaluation of its Weatherization Assistance Program (WAP). The Weatherization Assistance Program was established by Title IV of the Energy Conservation and Production Act of 1976 (PL 94-385). It is administered by the U.S. Department of Energy (DOE), and is designed to provide financial assistance to qualifying low-income households for the "weatherization" of their housing units in order to reduce energy consumption and corresponding expenditures. DOE provides financial grants to State WAP agencies who in turn administer the program and fund local community WAP agencies or "subgrantees" to perform the actual weatherization work.

The most recent national evaluation of the WAP was completed in 1984, and was based on data for 1981. WAP regulations and operations have changed substantially since then. In addition, new initiatives, incentives, opportunities, methods, and technologies are on the horizon. For these reasons DOE, with the support of Oak Ridge National Laboratory (ORNL), has initiated an updated and comprehensive national evaluation of the WAP to provide policy makers and program implementers with the up-to-date, credible, and reliable information needed for effective decision making and cost-effective program operations. This study is one part of that evaluation.

The national WAP Evaluation is designed to accomplish seven goals:

1. Estimate energy savings due to the program one, two, and three years after participation;

2. Assess non-energy impacts, e.g., comfort, safety, and housing affordability;

3. Assess program cost-effectiveness;

4. Analyze factors which influence energy savings, non-energy impacts, and cost-effectiveness;

5. Describe the WAP network's characteristics and innovations;

6. Characterize the scope of the weatherization resources and population served; and

7. Identify promising WAP opportunities for the future.

To meet the above goals, the national WAP Evaluation has been divided into five studies. Three of the studies focus on the impacts of the program as implemented in key WAP markets and will perform energy cost-effectiveness evaluations.

Two supporting studies address additional aspects of the program, but are not designed to provide cost-effectiveness evaluations:

- A characterization of the WAP network, and
- This characterization of the scope of the resources for low-income weatherization and the low-income population served.

This document is the report on the first phase of the last of these supporting studies.

1.2 Purpose of the Study of the Scope of Weatherization Resources and the Weatherized Population

The analysis of the scope of the program will be conducted by the National Association for State Community Services Programs (NASCSP) under contract to ORNL over three years. A variety of tools will be used to characterize and enumerate investment from all sources in full-scale low-income weatherization programs, the number of low-income units weatherized from the inception of the programs in 1978 through 1989, some of the characteristics of the weatherized units and households, and the size and characteristics of the eligible population.

This first portion of the "Scope" study has three major goals: a) to enumerate the size and sources of investment in low-income weatherization; b) to provide a reliable estimate of the number of low-income units weatherized by all weatherization programs and characterize the type and tenure of these weatherized homes; and c) to document the extent to which the DOE/WAP appropriated funding has been expanded through use of external resources and alternative program frameworks. Opportunities for the future direction of the programs suggested by the analysis will be explored.

This report begins in Chapter Two with a summary of investments and completions in all full-scale weatherization programs reported. A discussion of funding sources and types of dwellings completed is included. The data were collected for five time periods, Program Years (PYs) 1978-85 together, and PYs 1986, 1987, 1988 and 1989 individually. A Program Year was the DOE program year April 1 - March 31 fiscal year or the closest approximation non-DOE programs could provide. The findings will be reported cumulatively, in series, or contrasting later and earlier years as may be useful.

In Chapter 3, each of the four major kinds of weatherization programs, that is, DOE/WAP, Low Income Home Energy Assistance Program weatherization not conducted under DOE regulations (HHS/WX), utility, and "other" full-scale, is examined in depth for its funding sources and purposes. In this analysis, weatherization activities are considered in programmatic categories, each program having distinctive characteristics and policies, albeit with considerable inter-state variability.

Chapter 4 examines in detail the sources of funding that made up each kind of program over time. Here, the weatherization programs described in the previous section are considered with regard to the variety of resource types used in each. Special attention will be given to the smaller funding sources -- those other than DOE, Petroleum Violation Escrow (PVE) funds, the Low Income Home Energy Assistance Program (LIHEAP), and utilities -- in search of examples of new resources. Extensive review of the expansion of federal programs with other resources and the "leveraging" effects of DOE/WAP is the focus of Chapter 5.

The fifth chapter examines the available, though limited, data on the number and characteristics of weatherized units. The sixth chapter reviews differences among funding patterns and completions by climate region.

1.3 Methodology

Data on the cumulative number and the type and tenure characteristics of units weatherized from PY 1978 through PY 1989 were collected from surveys of state WAP program managers and utility conservation program managers. These surveys are found in Appendix B of this report. WAP program managers were asked to provide data on all major publicly funded federal, state or local programs and on any private sector initiatives about which they had data. A national sample of 443 utilities representing investor-owned and public entities was asked to provide information about the comparable low-income weatherization activities of their organizations over the study time period. The list of utilities is displayed in Appendix C.

The subject of this inquiry was narrow. Only information regarding comprehensive energy conservation investments which were delivered as a package and/or were comparable to the major measures approved for the DOE/WAP program itself were counted, together with contributions that were added to such efforts. "Full-scale" programs, for the purposes of this survey, were defined as "conservation programs for low-income households that are offered at no charge and include:

1) An evaluation of the unit's requirements according to a formal, written energy audit or evaluation procedure; and

2) the availability of a comprehensive package of major and minor energy measures from which to choose; and

3) installation of at least one or more of the following major measures: attic/ceiling insulation, floor insulation, wall insulation, heating or water heating system maintenance, repair or replacement, window replacement or storm windows."

Furthermore, the study counted only funding for, and housing units of, low-income households whose incomes did not exceed current federal standards for DOE/WAP or LIHEAP eligibility. Those were households not exceeding the maximum eligible household income of 150 percent of the federally-established poverty level (the equivalent of $15,090 for a family of 3 in

PY 1989) or 60 percent of state median income. Other households receiving Aid to Families with Dependent Children (AFDC), Food Stamps, or Supplemental Security Income were also eligible.

The purpose of narrowly defining the subject of the utility inquiry was to achieve some certainty that the investments considered in national totals both of units weatherized and of dollars spent were roughly comparable to DOE Weatherization activities. However, within these definitions there are vast variations in the extent and nature of weatherization investments, particularly between federally-funded and utility-sponsored weatherization programs. It should not be assumed that the findings of the forthcoming impact and effectiveness studies of the DOE/WAP being conducted as part of the national evaluation of WAP will necessarily apply to all these program types.

1.4 Data Availability and Limitations

Data on all programs administered under DOE rules in all 51 grantee jurisdictions (including Washington, D.C.) are included in this report. Forty-seven of the 51 states surveyed responded to the State Managers' Survey. Data reported annually by the non-responding states to DOE was substituted for the missing survey data. Of the 443 utilities surveyed, 124 responded, and a total of 49 of them in 27 states reported full-scale programs for at least part of the PY 1978 - PY 1989 study period.

Certain limitations on the data reported should be borne in mind while reading the study. Retroactive data collection over more than a decade poses formidable practical problems. Data that were not originally collected and assigned to categories conforming to those of this study are impossible to reconfigure in hindsight. Further, many non-DOE programs do not record data on housing type, and utility programs do not always record household eligibility.

Estimates by respondents were encouraged in the survey. In fact, very little estimated fiscal or completion data was received. Those answering the surveys either provided firm figures collected in accord with DOE, U.S. Department of Health and Human Services (HHS), state reporting requirements, or utility reports, or they had few data at all. The data on units with two or more funding sources and on the type of unit weatherized had a much higher incidence of estimation.

Non-DOE activities do not generally share the DOE program year. Thus, some of the activities defined in each period occurred sometime in a 24 month period in which various 12-month programs fall. Totals for the entire period are relatively accurate.

The figures reported do not reflect all activity in nongovernmental or in decentralized programs at the local or neighborhood level, as such programs typically do not provide reports to state authorities. The first report from this five-part study of DOE weatherization (Mihlmester, et al., 1992) showed considerably more low-income energy conservation activity at the local level

than the state and utility data contain. There was no way, however, to match those local activities with the strictly-defined full-scale weatherization reported on here.

In addition, and as discussed further below, a few utilities known to be conducting comprehensive weatherization programs did not respond. There is reason to believe, however, that most of the full-scale utility activity in the PY 1978 - PY 1989 period is reflected in this report. The ancillary contributions of the utility sector in the form of energy conservation donations or loans offered to a large part of their residential consumer base and used by WAP-eligible households are probably understated. Most do not fit the framework defined for the core of this study. The data in this report are, therefore, an understatement of energy conservation resources for the poor, but they do capture the most significant investments in weatherization services.

Finally, it is difficult to infer trends from the eight program years within PY 1978 - PY 1985, as annualized average figures do not reflect federal or state appropriations trends. Rather, they represent the weatherization expenditures and activities during each Program Year.

Despite these limitations, the data analyzed in this report represent the most comprehensive and complete summary of verifiable public and private sector low-income weatherization activity ever assembled.

CHAPTER 2: THE SCOPE OF WEATHERIZATION INVESTMENT: TOTAL RESOURCES PY 1978 - PY 1989

The study shows over $4.364 billion was spent on full-scale low-income weatherization during the twelve program years studied. This statistic results from merging of the data provided on the survey of states and the survey of utilities.

2.1 Total Resources by Type of Program

Figure 2.1 shows the proportion of the twelve-year total expenditure contributed by each of the various program types. Four program categories are used: DOE/WAP -- the structure and rules of the DOE/WAP program pertaining in each time period; HHS/WX -- any programs using LIHEAP Block Grant Funds under rules different from DOE/WAP; utility-based full-scale weatherization programs; and other state or local initiatives which were independent weatherization programs constituting at least 10 percent of their states' total resources. Each type will be examined individually in detail below. Appendix Table A-1 displays detailed annual data. Of course, the data for the first eight years of the study are aggregated, and there is little basis for estimating annual figures to parallel the multi-program totals reported on this survey.

In 1986, NASCSP (E.O.R.I. and the Grier Partnership, 1986) reported on an extensive mail and phone survey of all states to determine the levels, sources and uses of conservation resources for low-income households from PY 1978-85. Cumulative data were collected for the first four years and annual data for PY 1984 and PY 1985.

At that time, 141 utilities and forty-five states, including those with the largest DOE programs, reported spending just under $2 billion on weatherization-type services. State and utility programs which served moderate-income as well as low-income households were included in the total. On this basis, the report estimated national annual weatherization activity from all sources to be at a level of one-half billion dollars and one-half million units.

It is difficult to estimate annual rates of spending in the pre-1983 period. Unquestionably, the PY 1984 and 1985 weatherization levels represented a significantly higher rate of expenditure than in all previous years, but comparing these levels to 1982 or 1983, when substantial new DOE and utility funds became available, is not possible from existing reports. Compared to the annualized PY 1978 - PY 1983 rate of spending, PY 1984 funding from the LIHEAP Block Grant and from utilities both jumped 40 percent, DOE/WAP monies grew about 30 percent.

The current study provided states with the data from the NASCSP 1986 report and asked each state to verify and change any incorrect numbers. For those states with no data, Department of Energy reports on state WAP expenditures were substituted.

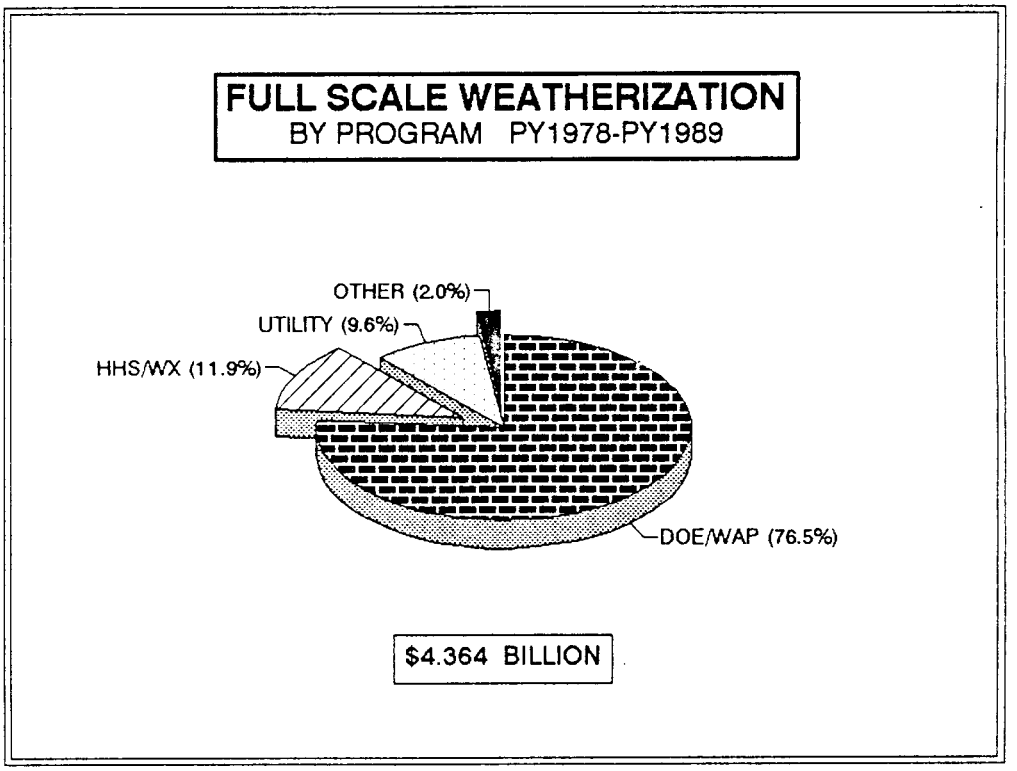
One result of this process was that state managers modified the data and removed virtually all reported utility contributions from the survey. Alternative data sources on utility programs other than the utilities themselves, do not generally exist. The impossibility of validating the

utility contributions reported to be over 10 percent of reported PY 1984 resources and 15 percent of PY 1985 resources, further frustrates any attempt to annualize the PY 1978-85 data. Unquestionably, the spending curve rose from PY 1978 through PY 1985.

Not surprisingly, this study's finding that $2.17 billion was spent by 51 states in the same period is consistent with the 1986 study from which data are borrowed. The 1986 prediction that weatherization resources had reached a new plateau was relatively accurate as measured by the present study's results. From PY 1986 to PY 1989, annual funding ranged from $460 million to $590 million, but completions remained below one-half million, varying from 440,000 to 445,000 per year.

During the entire twelve-year study period, the DOE/WAP program rules and regulations directed nearly 77 percent of all reported low-income weatherization investments; HHS/WX programs contributed 12 percent; utility full-scale programs contributed nearly 10 percent; and all other programs in the states accounted for 2 percent of weatherization funding. The relative percentage of DOE/WAP may be overstated because it is the only program for which complete fiscal records were available for all states for all twelve years. Many, but not all, other programs were reported by states or utilities for most years. Nevertheless, the DOE/WAP clearly shapes the structure of weatherization activity because its rules are used for determining most investments.

Fig. 2.1:

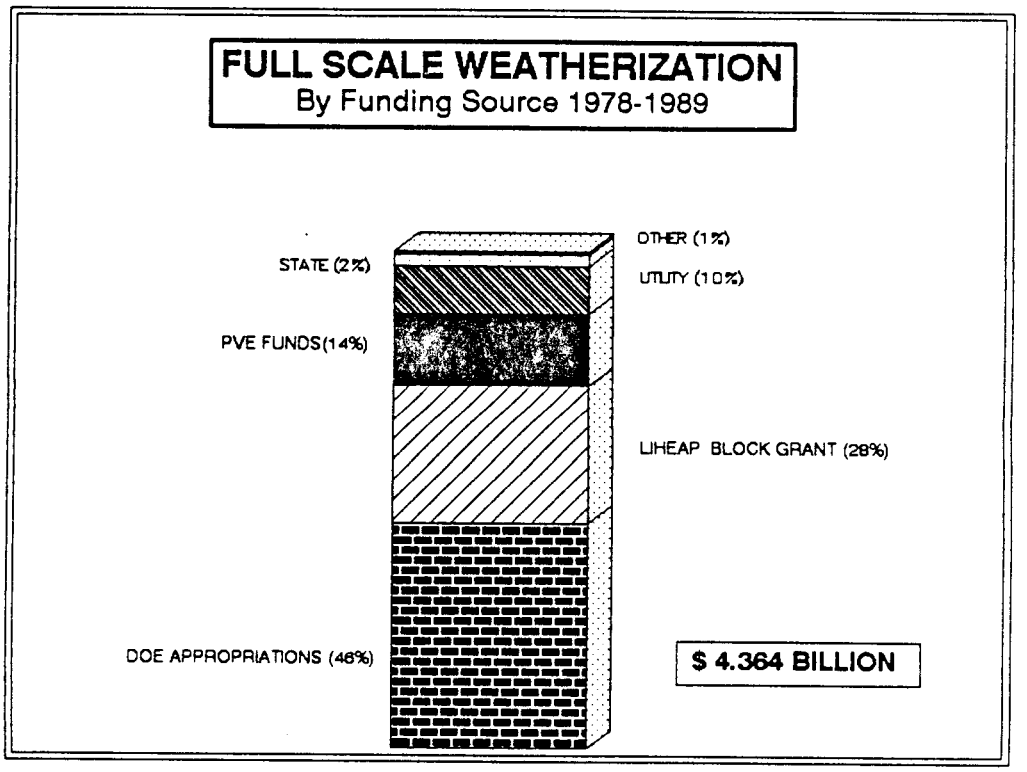


2.2 Total Resources by Type of Funding Source

When the sources of funding instead of the categories of program for full-scale weatherization are examined over the full study period, a different picture emerges. Funds appropriated to the Department of Energy do not dominate the mix of funds. State and local policy makers have used many funding sources, as shown below, and have combined most, but not all, of them under the roof and rules of their DOE programs.

Figure 2.2 shows the mix of funding sources over the time period in question. Less than half of the resources, 45 percent, are DOE funds. Over the decade, 28 percent came from the LIHEAP Block Grant, 14 percent from Petroleum Violation Escrow (PVE) funds (which are also called "oil overcharge" funds and were distributed by formula by federal court order), and nearly 10 percent from utility sources. States provided 2 percent of funding. Businesses (other than energy utilities), individuals, and publicly-funded housing rehabilitation programs (largely funding distributed to states or localities by federal housing programs) together accounted for just one-half of one percent of the total and are not visible on the graph.

Fig. 2.2:

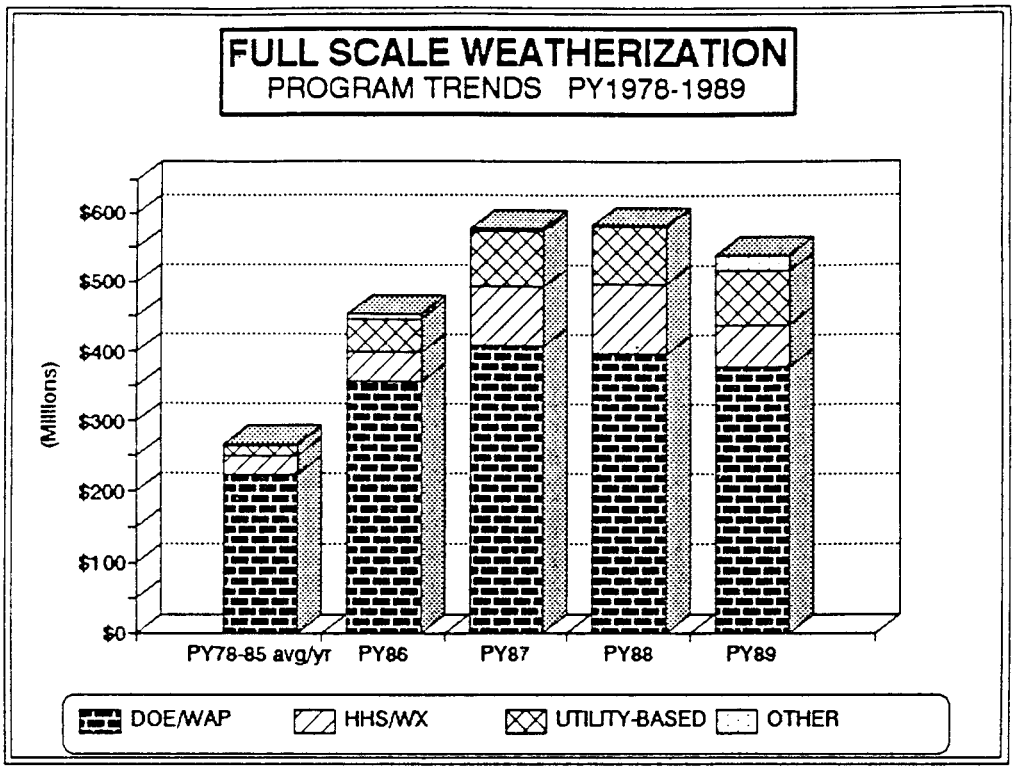


2.3 Funding Trends: Program Types

Both the mix of program types and the mix of funding sources change in the later years of the study period, reflecting major changes in weatherization activities. In the first eight years of the programs, DOE represented 83 percent of all weatherization, and utility programs just 6 percent. Figure 2.3 displays the changes in program type, which show growth between 1986 and 1989 was limited to the non-DOE programs, especially HHS/WX initiatives with different purposes than DOE/WAP, and new full-scale utility-based programs. However, the trend for these larger non-DOE resources was downward by PY 1989, as was total funding for all weatherization.

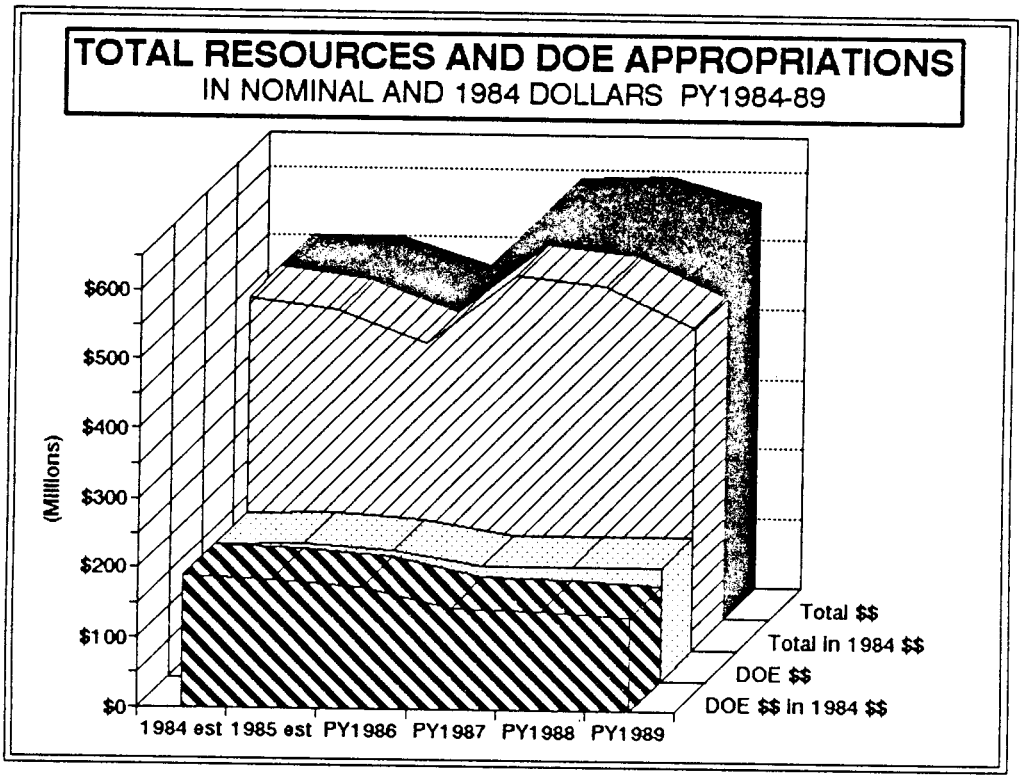
By PY 1989, the DOE/WAP program accounted for 69 percent of all weatherization resources and utility programs were 14 percent. HHS/WX remained constant around 11 percent through the period studied. Only the small sector designated as Other Programs, largely state and local initiatives, showed growth in PY 1989.

Fig. 2.3:



The PY 1989 level would be 12 percent lower than the graph now shows if real 1986 dollars, rather than nominal dollars, were used. Figure 2.4 displays a comparison of real and nominal dollars in the PY 1984 - PY 1989 using data from the 1986 NASCSP study for the first two years which are generally, but not in all categories, parallel to these collected in 1991.

Fig. 2.4:

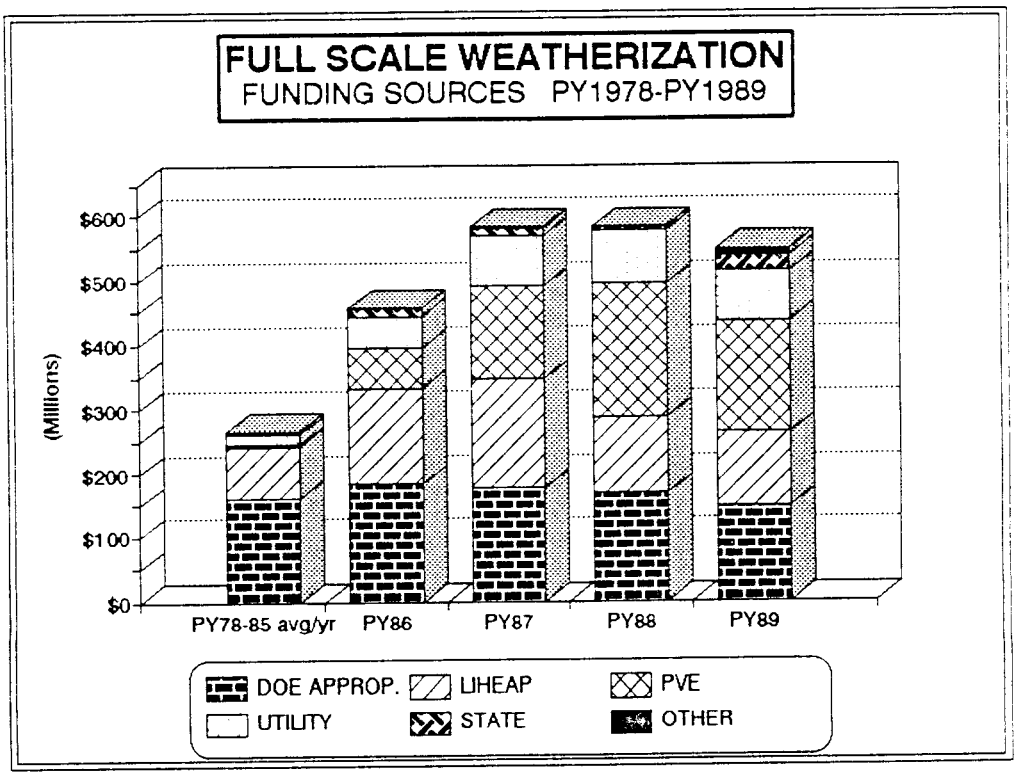


2.4 Funding Trends: Sources of Funds

Figure 2.5 shows the change in funding sources, rather than programs. This graph uses the annual average for the PY 1978 - PY 1985 period because in spite of its imprecision, dramatic changes in the twelve years are evident. It reflects the large proportion of PVE funding in the programs in the PY 1986 - PY 1989 period, as well as moderate increases in utility and "other" funding initiatives discussed below. The LIHEAP block grant contributions declined in real and proportional terms. DOE contributions dropped slightly.

Contrasting the early years with PY 1989 shows that DOE-appropriated funds provided 59 percent of funding in the early period and just 27 percent in PY 1989. Both state and utility contributions more than doubled as a proportion of all funding.

Fig. 2.5:



Chapter 3 discusses each of the programs and sources in greater detail to clarify the mix of programmatic approaches and monies.

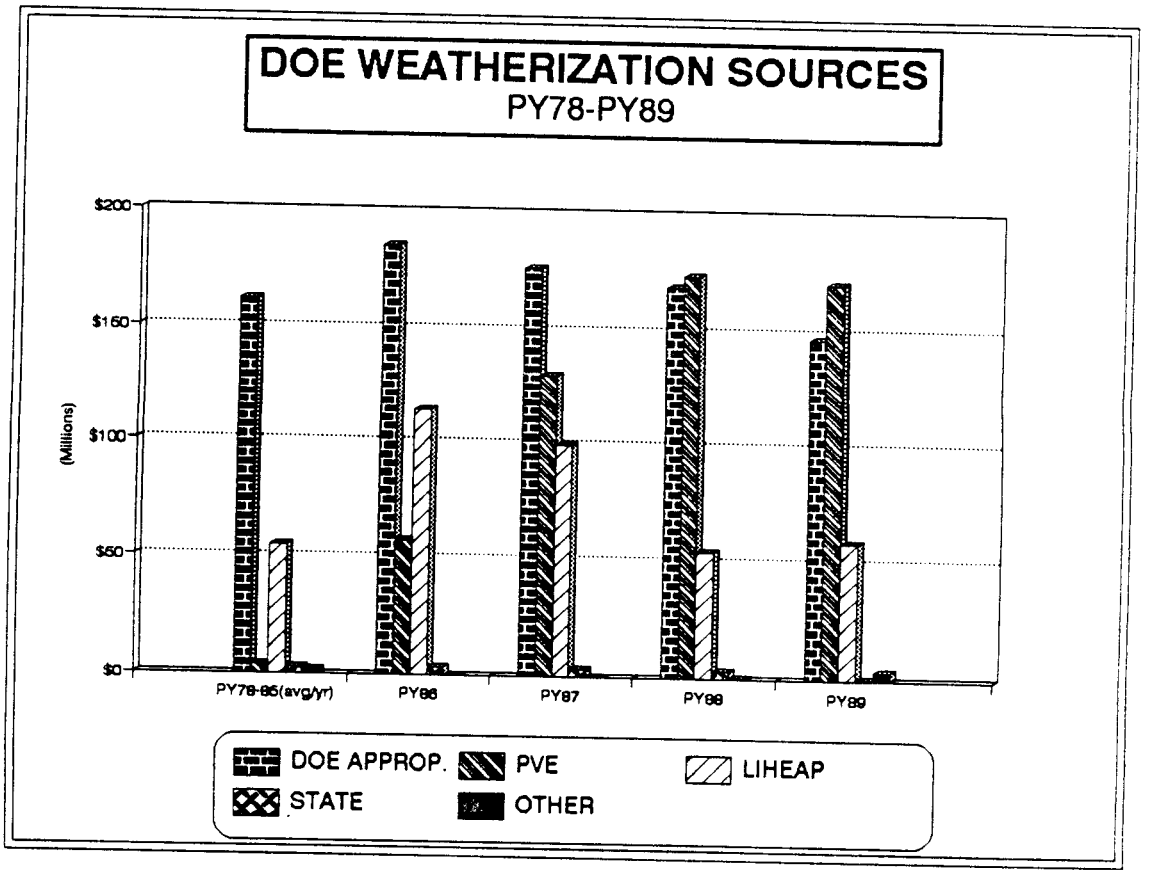
CHAPTER 3: THE SCOPE OF THE FOUR PROGRAM TYPES: A CLOSER LOOK

3.1 The DOE/WAP

While the proportion of funding devoted to weatherization from the state and local Department of Energy Weatherization Assistance Programs may be overstated, approximately 77 percent of weatherization funds was invested according to DOE regulations in 68 percent of the completions reported. Other activities and programs apparently constitute important additions to the energy initiatives of the federal program, and run in parallel, or as contributing elements, to the DOE program.

Figure 3.1 shows the kinds of resources devoted by the states to the DOE/WAP program. Throughout the study period, funding appropriated to DOE made up just under 59 percent of the total amount of funding for weatherization that was spent according to DOE/WAP rules. LIHEAP Block Grant funds and PVE funds administered under DOE rules accounted for 23 percent and 17 percent of the balance of DOE programs respectively. The makeup of funding

Fig. 3.1:



for DOE programs shifted over the study period. By PY 1989, DOE appropriations accounted for just 39 percent of DOE/WAP expenditures and LIHEAP funds for 15 percent. The largest PY 1989 resource was the PVE monies which were 45 percent of DOE/WAP funding.

Total funding reported in PY 1989 was nearly $380 million, representing a decline in nominal, as well as real, dollars from the previous two years. This total figure is less than the total expenditure reported in the evaluation's study of 1989 state programs (Mihlmester, et al., 1992) largely because our figure excludes energy and housing programs not meeting the strict threshold definitions for full-scale weatherization. Also, we do not count all other (non-weatherization) energy programs administered by WAP managers as did the previous survey. More local initiatives in weatherization and other energy efforts were reported on in the Mihlmester study of 1989 state programs. Some of these may have been programs conforming to the strict definitions in this survey. The contrast indicates that qualifying local initiatives are probably understated in this report.

LIHEAP funds committed to DOE/WAP programs dropped precipitously from PY 1986 to PY 1989. The pattern of use of LIHEAP funds is discussed below, and the drop parallels a decline in LIHEAP block grant appropriations.

Negligible amounts of funding from other sources were devoted to the DOE/WAP program under the DOE rules, and most of these limited contributions were made in the PY 1978-85 period. Those contributions that were identified came primarily from funds from the Community Services Administration's Winterization Program.

The purposes of the DOE program changed over the years. The original "winterization" purpose permitted small-scale investment in insulation and infiltration reduction. By PY 1986, many different home energy evaluations were in use and investments began to shift to a mix of insulation techniques and mechanical measures at substantially higher return and higher cost per unit. Eligibility standards for multifamily units were broadened. Eligibility was also broadened to permit states to use the same eligibility standards for DOE/WAP and LIHEAP payment programs. Following new legislation allowing average expenditure of $1,600 per unit, average DOE/WAP expenditures per unit (not including administrative and training expenses) rose to $1,400 in PY 1989, compared to a twelve-year average of $1,057. This new flexibility opened opportunities for coordination both among state low-income programs and with private initiatives, using a broader range of investments.

3.2 HHS/WX

The HHS/WX program category refers to energy conservation activities administered with LIHEAP Block Grant and other funds pursuant to rules set up consistent with the LIHEAP regulations but not the DOE/WAP rules. The LIHEAP statute since PY 1982 has permitted states wide latitude in defining energy conservation activities for eligible households. As a

consequence, while substantial LIHEAP funds have gone directly to DOE/WAP, in addition, a variety of state initiatives have been implemented with these funds.

Some of these state initiatives provide full-scale weatherization services and are programs that fall within the subjects of this study. Others involve conservation education, self-help minor home improvements, or low-cost no-cost measures. Therefore, HHS/WX expenditures reported for purposes of this study, even when totalled with the LIHEAP resources devoted to DOE/WAP, are less than the cumulative LIHEAP amounts reported by states to the Department of Health and Human Services (DHHS) to have been expended on conservation activities in the same period.[1]

A total of $519.7 million was reported in full-scale HHS/WX programs, and 427,000 units were weatherized, including nearly 65,000 which also received some DOE/WAP investments. By PY 1989 the average investment was just under $1,000 per unit, though units with both DOE and HHS/WX funding averaged $3,200.

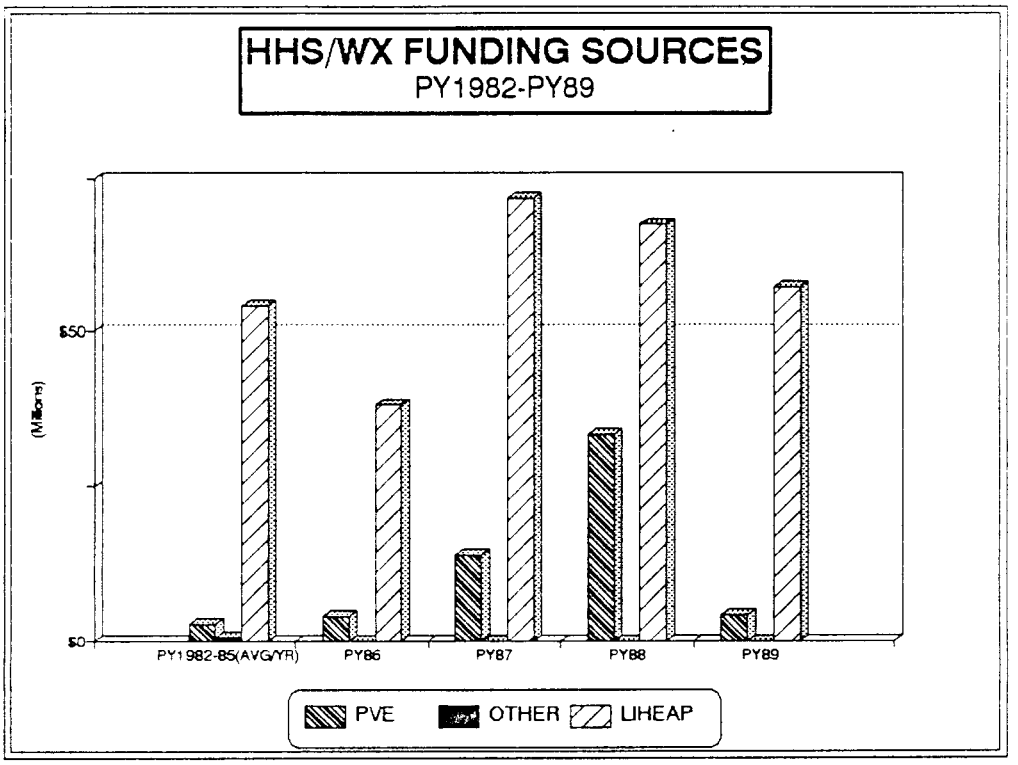
Sixteen states reporting had HHS/WX programs in PY 1989, down from a high of nineteen in PY 1987. The nearly 30 percent drop in LIHEAP Block Grant funding in that period may largely account for the change. The purposes of the programs are shown on Table 3.1. These same purposes were reported in equivalent proportions for programs through the eight year period.

Table 3.1
Purposes of HHS/WX Programs PY 1989
16 States

Purpose	No. of Programs
Higher cost limits than DOE/WAP	6
Heating system work not permitted in DOE/WAP	12
Other mechanical or safety measures	3
Repairs, rehabilitation	2
Training Centers	1

Figure 3.2 shows the sources of HHS/WX funds. Less than 1 percent of HHS/WX funding came from state and other sources. LIHEAP Block Grant and PVE funding were combined in these initiatives, although PVE funds never amounted to more than 33 percent of the total (in PY 1988). Nevertheless, one half billion dollars, or 12 percent of all weatherization resources, were committed to HHS/WX programs in the minority of states which created these programs.

Fig. 3.2:



3.3. Utility Programs

Extensive attention is devoted here to the data states and utilities provided on utility effort both because it has not been reported in any comparable report and because it is of enormous interest to policy-makers.

3.3.1 Methodology

Previous studies (EORI, et al., 1986, and Mihlmester, et al., 1992) have found that utility-based programs provided the largest source of non-federal funding for low-income weatherization but have not been able to collect valid standard data. The present study sought to identify and quantify the scope and nature of utility-based initiatives by several methods. Because anecdotal evidence and the first report of the National WAP Evaluation (Mihlmester, et al., 1992) suggested that most utility programs were not reported to state WAP managers, a separate national utility survey was conducted. It was designed to capture data from PYs 1978-89 and count exclusively the low-income units served by comprehensive utility-based programs and the expenditures associated with those units.

Data were solicited on three kinds of utility programs:

1) Full-scale weatherization programs as defined above (p. 3);

2) Contributions by utilities directly to state- or locally-run weatherization programs which were made in addition to any full-scale programs reported; and

3) Any energy-savings contributions made directly to low-income households in addition to any full-scale or state and local programs with which they were involved.

The detailed annual utility-by-utility results, and notes on the sample and methodology are attached in Appendix C.

The sample of utilities was designed to capture as many weatherization activities as possible by surveying all utilities with significant residential customer loads and adding to that group any large municipal or rural electric cooperative utilities missed in the original sample. The Tennessee Valley Authority (TVA) and Bonneville Power Administration (BPA), and other utilities with large well-known conservation programs, were also surveyed. National utility associations assisted in the sampling and follow-up to maximize utility participation.[2] Public Utility Commissions (PUCs) were interviewed to determine the existence of any qualifying programs and to obtain data on them.[3] Few such reports were available at all, and most that were did not conform to the framework of this survey.

3.3.2 Response Rate

Of 443 utilities surveyed as a result of this method, 124 (or 28%) responded. Respondents included 30 of the 114 investor owned gas utilities surveyed, 31 of the 118 investor owned electric utilities surveyed, 23 of 74 rural electric coop counties, 31 of 135 municipal utilities, and 7 of 10 combination companies. BPA and TVA also responded. Utilities responded in all but one state (Connecticut) which had PUC-mandated or PUC-approved low-income programs, although not all utilities did respond. Both federal authorities with extensive residential programs, the Bonneville Power Administration and the Tennessee Valley Authority, provided full responses.

This response rate may have resulted in a significant undercounting of utility weatherization resources. The finding is clearly somewhat low because a few large utilities in states with mandated programs, e.g., Wisconsin and Connecticut, did not provide data, and numerous municipal utilities in the Bonneville Power Administration area did not respond. However, it is more likely that non-responses reflect the lack of comprehensive low-income programs. The state managers noted few utility initiatives not reported by utilities themselves. Data were available on either the State Managers' Survey or the utility survey for most large programs in the states where PUCs mandated programs. Representatives of several national utility associations and utility commissions interviewed are not aware of significant programs

other than those reported here. Therefore, these utility data, while not precise, are of the correct order of magnitude.

3.3.3 Data Integration and Validity

State managers also provided reports on all utility activity known to them.[4] Integrating the utility data with the information provided by states to arrive at an unduplicated national total of funding and weatherized units posed some formidable problems, including:

- *Non-uniform definitions* of low-income: While many PUC-mandated programs use the DOE or LIHEAP eligibility criteria, many other programs are not strict in defining the households they accept, thus inflating the count of weatherized low-income units.

- *Non-uniform definitions of conservation measures*: Terminology on such items as "energy audits," "low-cost," and "repairs" is inexact.

- *Non-uniform program years*: The survey designated years often do not reflect common time periods. Utilities were typically reporting calendar years, which coincide with only 9 months of the DOE program year. Therefore, the annual breakdowns of PYs 1986 through 1989 are only an approximation of the actual breakdown of completions and expenditures in any 12-month (April-March) period.

- *Overlapping boundaries*. All multi-state utilities and the BPA could not provide state-by-state breakdowns. The resources of the former were assigned to their home state. The BPA figures were unduplicated from Washington State's programs and most of Oregon's programs but Montana and Idaho units are reported with other BPA monies and not in their states.

- *Duplicated completions*. Only utility programs that work under contractual agreement with DOE or HHS/WX, such as the TVA programs of the mid-1980's, could report with certainty whether or not utility and DOE, HHS/WX or other state program funds were also being used. Thus, unduplicated completions may well be overstated by the merged state and utility surveys.

3.3.4 The Characteristics of the Full-Scale Utility Programs

The full-scale utility-based programs are described in this subsection. Other utility activities are described in the following subsection, "Additional Utility Weatherization Resources."

The full-scale utility-based programs vary considerably but all use one or more measures comparable to those in DOE/WAP and involve some form of energy evaluation, though not

necessarily of the scope of DOE/WAP audits. Unlike DOE/WAP there are no uniform policies or regulations even within most states. Among the differences, both among utility programs and between those programs and DOE/WAP, are investment levels per unit and the number and type of measures offered.

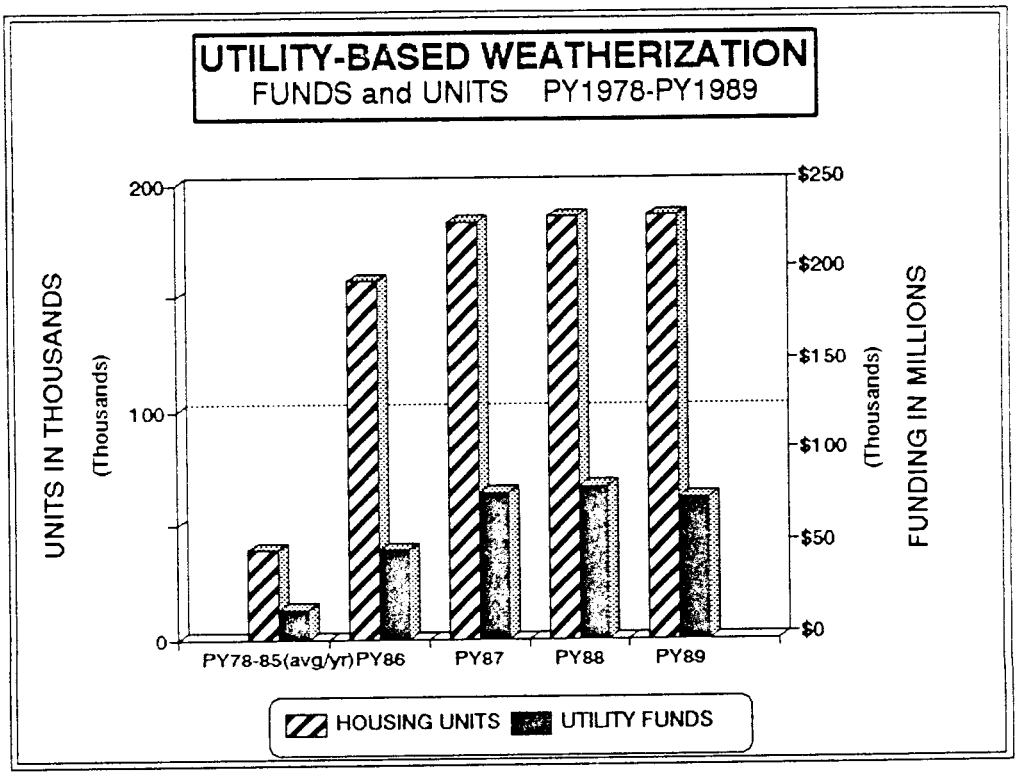
Many utility programs may consider maximizing payback to their own utility system as the key criterion for the selection of measures. Some of the largest place a premium on serving the maximum number of households. For example, interviews with DOE and utility subgrantees in California indicate utility programs in the period studied, which produced three-quarters of all U.S. utility weatherizations, used caulk, low-flow shower heads, water heater wrap and weatherstrip considerably more often than insulation. BPA programs, on the other hand, were reported to be comparable to DOE/WAP. The selection of measures by criteria other than targeted cost-effective reductions in consumption of energy by low-income households may neither reduce their household energy bill nor reduce total consumption significantly. It should therefore not be assumed that all or most utility full-scale weatherization is necessarily comparable to that conducted by DOE/WAP.

The findings presented in detail below show significant differences between utility and public sector programs in per-unit expenditure levels and characteristics of the completed units. The threshold definitions of comprehensive full-scale weatherization did not exclude a wide range of program types. The forthcoming effectiveness studies that make up the balance of the ORNL evaluation can offer valuable insights into how programs comparable to the utility initiatives outlined here compare to the larger-scale DOE/WAP and HHS/WX investments in low-income homes.

Forty-nine utilities in 27 states reported some form of full-scale low-income program during some period between PY 1978 and PY 1989. They are shown in Appendix Table A-3. The annual funding and unit completions are considerably higher in the last three years of the study period, as Figure 3.3 shows.

Over the twelve-year period, utilities reported weatherizing just over one million units. Of these, they estimated at least 160,000 had more than one funding source. This means 17 percent of the units they completed involved work in combination with DOE/WAP or other programs, to the best of their knowledge. In PY 1989, utilities reported combining their investments with other programs for 2 percent of their completed units. Ten utilities reported combining their investments with DOE/WAP investments, and twelve utilities combined their investments with "other" state or local programs. A reading of the local names of the programs designated as joint state/utility efforts and comparisons to the state surveys suggest that virtually all 22 of them were, in fact, the DOE/WAP or HHS/WX program. Interviews with state managers suggest these data understate the combination of utility and DOE resources.[5] State managers believe subgrantees frequently perform energy audits on homes in which utilities have installed measures and find that additional major resources are required. The utility reports reflect only those programs with formal coordination agreements.

Fig. 3.3:



In addition, utilities were asked to report whether their low-income programs were delivered in whole or in part by DOE subgrantees. In PY 1989, this was reported to be the case for 18 of the 38 full-scale utility programs, including many of the largest, whose programs totalled 45 percent of all utility funds and 26 percent of utility units. However, state managers interviewed report Pacific Gas & Electric and Bonneville programs, which did not list themselves as using DOE subgrantees, did, in fact, use these agencies for significant levels of work. If these two utilities' funds are considered, programs providing 89 percent of PY 1989 utility full-scale weatherization funds and 94 percent of PY 1989 utility weatherized units used DOE local agencies for at least some of their weatherization work.

From PY 1986 to PY 1989, the number of utilities reporting full-scale programs rose from 28 to 36. However, of the 36 reported programs in PY 1989, 23 had programs under $100,000. Sixty-eight percent of all PY 1989 utility funds came from California and Wisconsin; both states had mandated programs, and not all utilities in these states provided data, so the 68 percent may understate their contributions to the national total.

In fact, of all full-scale utility programs reported, the vast majority of the investment came from mandated programs and the two federal authorities. Of the balance, most was accounted for by Ohio's gas utility programs which were, in fact, mandated for a two-year period. This pattern was true for all time periods as Table 2 shows.

Table 3.2
Percent of Utility Investments
By Category of Utility Program

	All Years	1989
MANDATED*	70%	73%
BPA and TVA	8%	6%
OTHER	22%	21%

* Appendix C 1-7

The fact that investor-owned gas and combination utilities made up 88 percent of full-scale programs' funding in PY 1989 follows from this pattern of PUC mandates which affect only investor-owned utilities. Of the 21 publicly-owned or rural electric utilities responding in PY 1989, just 4 had full-scale programs.

The utilities responding and their contributions to full-scale programs are shown by type of utility in Table 3.3. There is substantial room for growth in most sectors of the industry. The low contributions by investor-owned electric utilities reflects the fact that programs not targeted at heating-energy conservation may not meet the definition of full scale weatherization. Over half of the non-full-scale utility contributions reported in section 3.3.5 below are from one electric utility.

Table 3.3
Percentage of Utility Resources
By Type of Utility

	PY 1978-85		PY 1989	
Type	% of Responses	% of Resources	% of Responses	% of Resources
Gas Investor-Owned	24%	15%	29%	42%
Electric Investor-Owned	13%	6%	16%	3%
Combination Investor-Owned	10%	62%	24%	48%
Public-Owned Gas	2%	2%	2%	0%
Public-Owned Electric	22%	11%	11%	3%
Public-owned Combination	6%	6%	5%	<.005
Rural Electric Coop	21%	<.005	16%	<.001

Table 3.4 shows the states with PUC-mandated or approved utility programs to date.[6] Approved programs are utility proposals permitted as part of an approved rate schedule. State managers reported some of the "approved" programs as mandates, indicating, perhaps, a stable long-term commitment by regulators to the plans.

Table 3.4
Mandated or Approved
Utility Weatherization

Mandated States	Start Dates	Federal Authorities	Start Dates
CA	1982-4	BPA	1983
CT	1980	TVA	1983 to 1988(end)
MA	1990		
OH	1986 to 1987 (end)	**PUC Approved States:**	**Start Dates**
NJ	N/A	MN	N/A
NY	1991	IA	N/A
PA	1988	MI	N/A
WI	1982-3	OH	1978-86

The measures offered as part of a full-scale program varied. Utilities were given a checklist and the 36 responding in PY 1989 identified the measures available from their programs as those shown in Table 3.5. There are no data on the frequency of use of these measures.

Table 3.5
Utility Investments
in Full-Scale Weatherization Measures
used by 36 Companies PY 1989

Measures	Number of Utilities
Attic insulation	(33)
Wrap water heater or ducts	(30)
Weatherstrip/caulk	(30)
Storm windows or doors	(21)
Wall insulation	(20)
Basement insulation	(19)
Window replacement	(18)
Home repairs	(17)
Heating system repair/tune-up	(15)
Heating system replacement	(15)

This list shows that some of the cost-effective measures identified as a growing part of DOE/WAP programs by the first portion of the DOE evaluation (Mihlmester, et al., 1992) were not common in utility programs. Wall insulation is used by just over half; heating system work by less than half. Conventional measures are most popular, including low-cost items such as wrap and infiltration measures. This priority listing would be virtually identical in any of the preceding time periods studied, when even fewer utilities had such programs. The full results appear as Appendix Tables C-1 through C-6.

Utilities were asked to report on any resources they donated directly to any of the three other types of full-scale weatherization programs in their area. However, over 80 percent of monies they reported in each year were duplications of funds reported above, and the balance was also not identified sufficiently so it could be determined to be additional resources. Most utilities were unable to assign a dollar value to the contributions. However, non-fiscal data provided are a useful representation of the role that utilities played when they combined their resources with the DOE or similar programs. For example, it appears that, in PY 1989, at least two utilities donated materials, personnel or training to both DOE/WAP subgrantees and local volunteer groups, although no total value was assigned to the donations.

3.3.5 Additional Utility Weatherization Resources

Another section of the utility questionnaire asked for reports on other programs utilities offered to low-income households at no cost. This was designed to ensure that neither utilities without full-scale programs, nor separate resources offered by utilities which did have full-scale

programs, would be excluded from the final enumeration of available weatherization dollars. It also provides a description of utility activities that may be a productive contribution to future public-private programs. These 'miscellaneous' utility contributions are not counted in the totals discussed above. The resources are, however, included in the leveraging discussion below. The data were not clearly differentiated from those reported above and, more important, these resources do not meet the full scale weatherization threshold definitions. An extensive checklist of measures was offered and the results are displayed in Appendix Table C-7.[7]

Many more utilities reported providing low-income energy resources on this portion of the study; sixty-six utilities reported one or more measures in PY 1989, when 36 were offering full-scale programs. PY 1989 expenditures for these 66 totalled $18.9 million, of which $11 million was spent by twelve utilities on replacing heating equipment in 9000 homes. This represents a dramatic escalation in reported heating systems programs. Of the sixteen utilities which offered the largest number of energy measures to low-income households at greatest expense, nine were the same utilities that offered large full-scale programs that year.

In most cases and years, utilities did not have full data on the number and cost of the services or measures they reported. The checklist provides a descriptive sketch of the range of services available to some low-income households at each time period; the fact that few of the two data items requested about each service (e.g., no. of households served and cost per household) are available for the earlier time periods indicates that all of the PY 1989 data shown below are significantly more reliable than that for previous years. Therefore, these twelve-year figures represent an underestimate of measures offered to households at or near the program eligibility levels and may not be fully unduplicated from those reported above.

Table 3.6 shows the resources that utilities reported devoting to the low-income conservation measures that are not within the definition of low-income weatherization, and for which they maintained records.

Table 3.6
Other Utility Weatherization Initiatives
PY 1986 - PY 1989

Year	1986	1987	1988	1989
Number of Utilities	46	43	55	66
Expenditures ($000s)	2,127	2,947	$8,717	$18,893

The high figures in PY 1988 and PY 1989 are due, partly, to the fact that utilities could report expenditures for recent years whereas in the earlier years many just acknowledged having provided resources without providing further information and cost figures. The heating system replacement programs which began in PY 1988 in 10 utilities, and continued in PY 1989 in 12 utilities, account for the majority of the increase.

The measures and other resources offered in PY 1989 by the 66 utilities reporting are shown in Table 3.7. These numbers indicate an emphasis on client education and low cost measures.

Table 3.7
Utility Investments
in Miscellaneous Measures
66 Utilities PY 1989

Measures	Number of Utilities
Client education at home	(24)
Weatherstrip, caulk	(20)
Client education by mail	(18)
Water heater wrap	(16)
Low cost/no cost kits	(14)
Heating system replacement	(12)
Heating system tune-up/repair	(12)

3.4 Other Weatherization Programs

In the State Managers' Survey, a fourth program category was designed to capture any significant freestanding programs not administered as DOE/WAP, HHS/WX, nor utility-based. The survey asked for data on any other weatherization programs or contributions to any of the full-scale programs defined as: programs providing weatherization services that meet the full-scale test and that provided at least 10 percent of the total weatherization resources in the state, in each time period reported. Detailed data on the purposes of these other weatherization programs were not collected. Such programs were reported in nine states. Three of them began programs in PY 1989, and four of them began in PY 1988.

Funding for all nine programs totalled $59 million for all years and $24.3 million in PY 1989. The overwhelming majority of the funds are state-appropriated in each period. The unduplicated count of nearly 16,000 units is greatly understated because over one-third of the funds reported as Other Weatherization were not associated with data or units.

Three types of programs provided most of the funding:

1. programs offering comprehensive home repair, including weatherization (Florida, Maine, North Carolina);

2. general purpose state weatherization programs (Alaska, Massachusetts, Minnesota, Georgia, Wyoming) which accounted for most Other Weatherization expenditures in the twelve years;

3. state programs designated exclusively for heating system retrofits (Ohio, Maine).

In PY 1988 only two small general-purpose state programs were reported. Housing/weatherization programs accounted for half of the PY 1988 "other" programs and nearly ninety percent of such resources were committed in PY 1989 in North Carolina.

Most of the nine programs listed were not designed as an adjunct to DOE/WAP. Only three states used any funds together with DOE/WAP or HHS/WX funds in any units. The 7900 "mixed" units in these states, however, were nearly half of all completions reported.[8] Therefore, there was significant coordination with the federally-funded programs in key states.

3.5 Contributing Resources

States were also surveyed regarding two categories of contributions that could expand activities and resources in one of the four major categories of programs. These were:

a) programs for low-income housing repair or major rehabilitation that were run jointly with a full-scale program; and

b) contributions from non-federal sources directly to one of the four full-scale program categories.

3.5.1 Housing Repair Contributions

The housing repair and/or rehabilitation contributions to WAP or HHS/WX varied over time. In the early half of the decade less than one percent of resources came from this category and most of the figures are estimates, but the majority of funding was State-appropriated. Eight states maintained programs through the entire period, three others reported programs in some years. The majority used their housing monies in conjunction with DOE/WAP. Of the $17 million reported for all years, $11.4 million came from state funds in one state, Michigan. However, by PY 1989 there was no single large program. Table 3.8 shows the sources of these repair funds.

Of the 8 states with rehabilitation/repair programs in all years, 4 were in the hot region. Seven of the eleven which existed at one or more periods in the twelve years were in heavily

rural states. The availability of Farmers Home Administration (FmHA) and small cities Community Development Block Grant (CDBG) funds in rural areas may account for this pattern.

Table 3.8
Number of States Using
Housing Repair/Weatherization Funds
by Funding Source PY 1986 - PY 1989

Source	PY 1986	PY 1987	PY 1988	PY 1989
CDBG	3	3	3	5
FmHA	3	4	4	5
State	4	4	4	2
Local		1	1	

The only clear distinction between the programs reported by the states to be in this category and the three freestanding home repair/weatherization programs reported in section 3.4 above seem to be the relatively small size of most of these "contributing" additions to the DOE/WAP or HHS/WX effort. The three rehabilitation programs reported as "other" repair and weatherization programs also mixed repair and energy conservation, but in addition, they exceeded ten percent of total weatherization resources in the state.

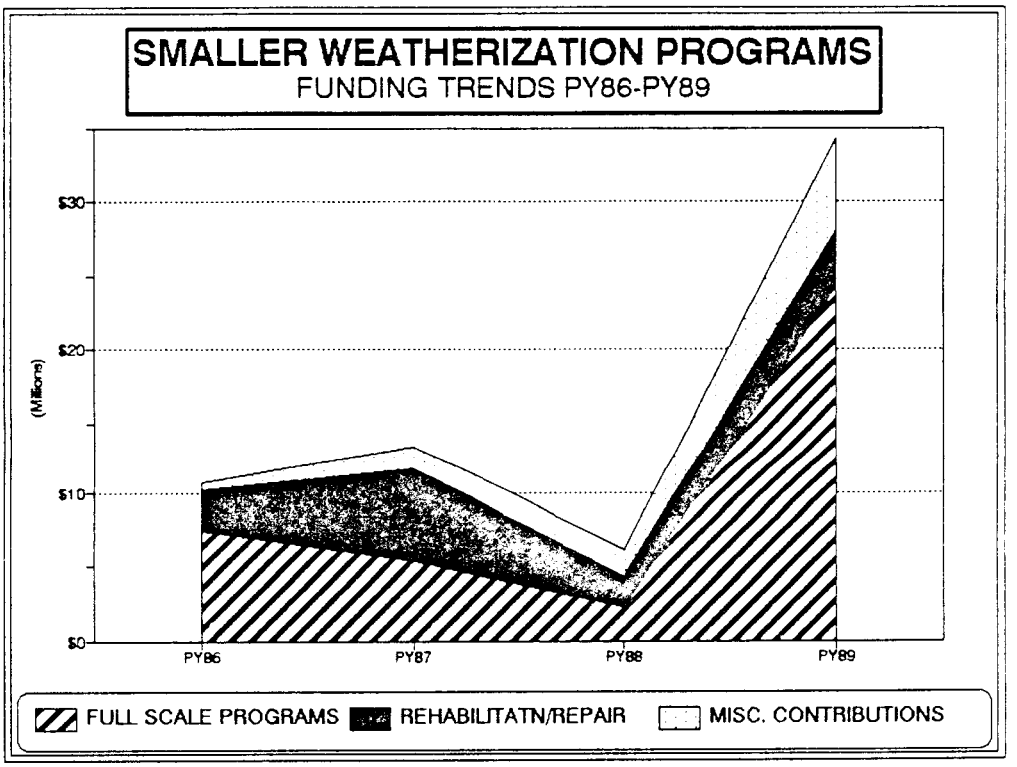
3.5.2 Other Public or Private Contributions

For the category of direct public or private contributions to the four major kinds of programs, states provided only few data and all are estimated. Just under $11 million was reported for the twelve years. Labor and materials were the most commonly contributed. In the PY 1978-1985 period, most contributions were from federally-funded programs that flowed through state or local government. Five states from PYs 1986-1988 and 6 in PY 1989 reported having such contributing sources. The major funding sources in PY 1988 and PY 1989 were utility and landlord contributions. The latter increased exponentially from PY 1987 through PY 1989, with 88 percent of the large total increase in PY 1989 due to the growth of New York's program of landlord contributions. As a result, PY 1989 funding represented nearly 57 percent of all contributions ever reported in this category and one percent of all PY 1989 weatherization resources. All contributions were in the two colder regions and all states that reported them were combining these resources with the DOE/WAP or HHS/WX programs.

Figure 3.4 shows other full-scale programs, together with housing repair programs and miscellaneous contributions in the later part of the period. Taken together, 17 states had reported having one or more such programs in the twelve year period. Fifteen of them had full-scale and/or repair programs. By PY 1989, 13 had one or more initiatives underway. The sharp

upswing in resources in PY 1989 is due to just two state programs' growth; the North Carolina Housing Partnership program reported as a full-scale "other" weatherization initiative and New York's landlord contributions to DOE and HHS units.

Fig. 3.4:



Appendix D contains an annotated list of PY 1989 non-federal initiatives for those wishing to obtain further information on their operations and applicability in other states. Appendix Table A-1 shows the annual funding and unit totals for three kinds of these non-federal initiatives described in this chapter.

CHAPTER 4: THE SCOPE OF THE SOURCES OF FUNDING: A CLOSER LOOK

As the preceding chapter examined the nature and scope of weatherization programs, this one reviews, in detail, the trends in sources of funding that were used, generally in combination, for those four major program categories. Appendix Table A-2 displays the detailed data.

4.1 DOE-Appropriated Funding

DOE-appropriated funding was, by law, used only in the category of program designated Weatherization under DOE/WAP rules. DOE appropriations over the entire period ranged from $66 million in PY 1978 to $161 million in PY 1989, with a high of $245 million in PY 1983. From PY 1984 to 1986, funding remained near $190 million in nominal dollars and then dropped to $162 million for the last three years of the study period. Figure 2.4 above showed these trends.

4.2 LIHEAP Block Grant Funding

LIHEAP funding, or monies appropriated to states by formula grant from the LIHEAP Block Grant, could be used for a broader range of conservation activities for the same eligible clients, with considerable latitude to the states to design these programs. Funds reported in this category are 18 percent less than HHS reports show for the same period. However, LIHEAP permits use of such funds for conservation measures not included in the full-scale programs, which doubtless accounts for the discrepancy. Less than 15 percent of the shortfall is accounted for by the non-responding states' share.

These LIHEAP funds made up about 28 percent of all funding and 63 percent of this amount was reported to have been used according to DOE program regulations while just 37 percent was expended under the HHS/WX programs described above.

4.3 PVE Funding

PVE or oil overcharge funds amounted to $627 million and accounted for just under 15 percent of all Weatherization resources in the twelve years, but for a much greater proportion in the later years. Funding pursuant to the *Exxon* decision, the source of most PVE Weatherization, was only released to states in 1986-87. Nearly 90 percent of these funds were used under DOE rules.

While LIHEAP statutory restrictions on using no more than 15 percent of funds for weatherization limit the amount of PVE that could be put into the HHS/WX programs, $960 million from PY 1986 - PY 1989 could, theoretically, have been used under the more flexible HHS/WX rules, while only $66 million was. Of course, many LIHEAP programs combined PVE and LIHEAP funds and spent them according to DOE regulations. These PVE weatherization figures are lower than previous estimates for the period (National Consumer Law Center, Washington, D.C., 1990). There has been no previous full report on the actual expenditure of

PVE dollars committed to both DOE/WAP and HHS/WX uses; previous reports reflected commitments of funds which may have extended beyond PY 1989.[9]

A very small portion of the PVE funds were committed to the other full-scale programs reported by states or categorized as "contributions" to the DOE/WAP.

4.4 Utilities Funding

Utility programs provided $416 million in the full-scale utility-based programs and an additional $2 million in contributions reported to DOE/WAP or HHS/WX programs. Miscellaneous contributions totalling $76.6 million were reported not to be a part of full-scale programs. They are factored into the analysis of expanded resources in Chapter 5 below.

4.5 State Funding

State contributions to the programs, other than the PVE funding states chose to allot, fluctuated through the decade. Of the $102.7 million total, 31 percent was used to add funding to DOE/WAP, less than 1 percent was used for HHS/WX programs and the balance was in the full-scale Other Weatherization and housing repair programs described above.

Fifteen states made contributions at one or more of the time periods studied. By PY 1989, just 9 states were investing appropriated funds in weatherization. It is important to note that of the $102.7 million reported in twelve years from State sources, 53 percent came from just two states (Michigan and North Carolina) and another 37 percent came from four other states (Massachusetts, Minnesota, Alaska and Ohio). Of these six, only two still had state programs in PY 1989.

4.6 Other Funding

Together, housing repair programs not funded by state sources, other public funding and other private funds totalled just $33.8 million over the study period, or less than 1 percent. The "other public" monies were primarily expended in PY 1978-85 period out of carryover from the Community Services Administration funds and 1983 "Jobs Bill" programs. The housing repair and rehabilitation funds which are not state-appropriated are largely CDBG and FmHA monies. The other private funding came from a small range of sources such as landlord contributions. These were discussed above in subsection 3.5.2 on contributing programs.

CHAPTER 5: DOE/WAP EXPANSION

This section explores the proportion of resources other than DOE/WAP appropriated monies used to expand the scope of the weatherization activities. The terms "leveraging" or "leveraged resources" have no single or clear meaning as commonly used in connection with federal programs. They imply a certain causality. This section refers to the availability of non-DOE funds as "expansion" instead.

A loose definition of expanded resources is the amount of additional funding devoted to an activity beyond the core funding. By that standard, the 51 state DOE programs appropriated funding of $1.97 billion spent through PY 1989 has been expanded by more than $2.5 billion. This takes into account funding from all sources spent on the households eligible for DOE/WAP programs for purposes similar to DOE/WAP's. This funding includes the $76.6 million from miscellaneous low-income household benefits reported by utilities, primarily in California,[10] the majority of which were not broken down by program year. However, we know that 23 percent of all full-scale resources and all miscellaneous utility contributions have little or no administrative connection to DOE/WAP state or local programs.

A stricter definition would consider expanded resources to be only those which the program actively caused through its influence, or "leverage," to be added to its own resources. Theoretically, the existence and nature of the DOE program may have inspired either the genesis or the form of the three other kinds of programs. Few states, however, responded to the section of the survey asking if they attributed non-WAP resources in that state to the existence of DOE/WAP. Thus, with the exception of housing rehabilitation programs and smaller contributions that are directly coordinated with DOE/WAP local programs, it is impossible to determine what resources DOE "caused" to be leveraged.

However, states did report that at least 272,000 units of housing completed with resources of "other" HHS/WX or state programs were also simultaneously recipients of DOE/WAP weatherization. Utility programs also had some of these combination units. Some proportion of weatherization completions and resources in each program category were clearly related to DOE/WAP investments. However, amounts spent on these units cannot be determined. Two alternative definitions of expanded or leveraged resources are explored below.

The definition of leveraged funds used in the DOE/WAP authorization legislation of 1990, e.g., non-federal funds used for weatherization, suggests an alternate guideline for enumerating expanded resources. If non-federal weatherization resources are considered, the DOE funds associated with them can alternatively be counted a) as all states' DOE-appropriated expenditures, or b) as just the expenditures in the states which could also report on the expanded resources. None is identical to the statutory definition which counts only the resources which expand DOE/WAP itself.

In all these examples, PVE funds are treated as federal funds because of the limited federal purpose for which these monies were available. Arguably, PVE had state funds'

character because states made final disposition of their uses, but the stricter test is shown below. Figures 5.1.a, b and c display all three ways of considering the data.

In Figure 5.1.a for every DOE dollar, $1.27 was available from all other monies, in 5.1.b, matching all DOE with all non-federal Weatherization, $0.32 was raised per DOE dollar and in 5.1.c, counting DOE funds only in the states that did use non-federal funds, $0.52 was generated per DOE dollar.

Fig. 5.1.a

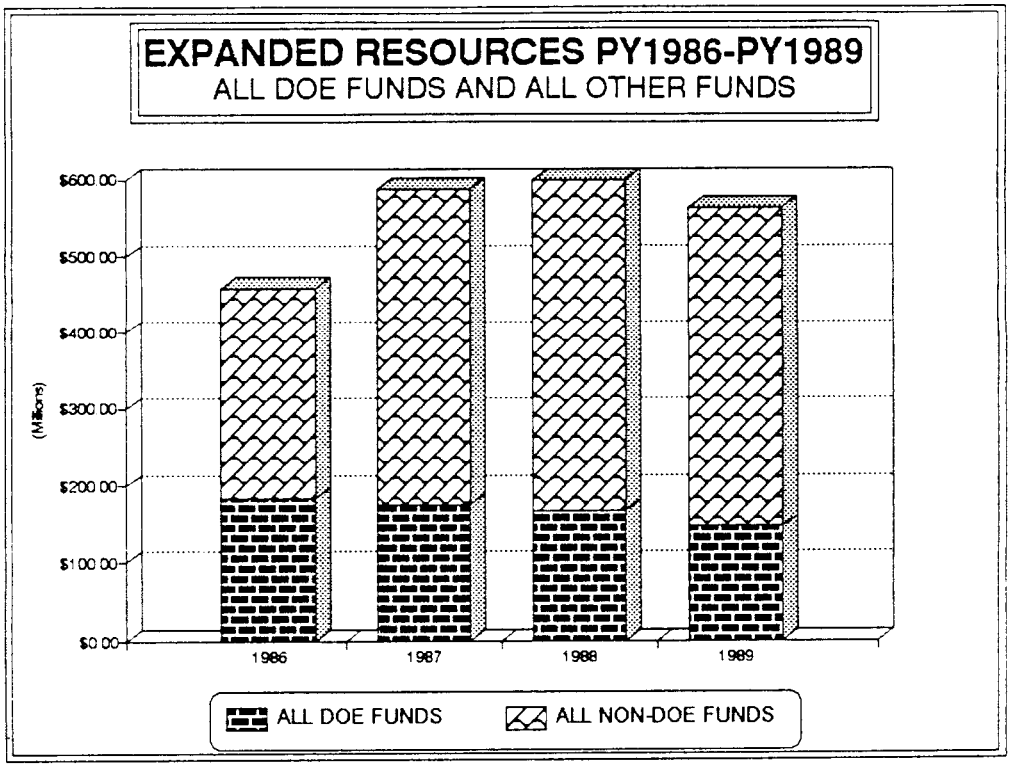


Fig. 5.1.b

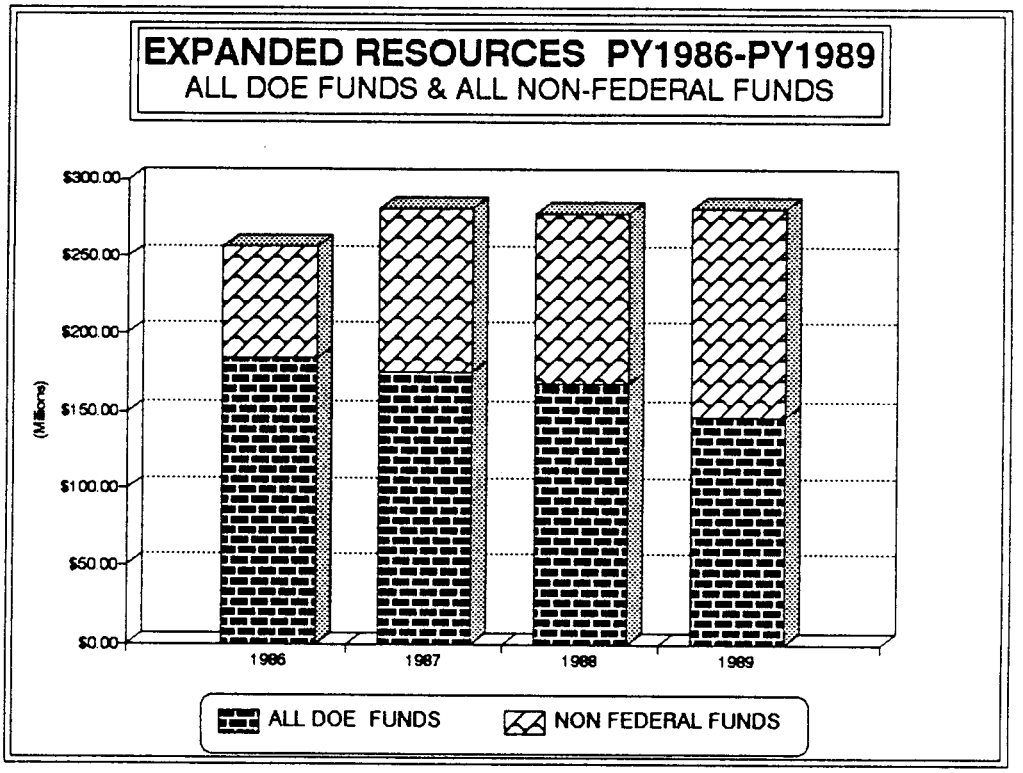
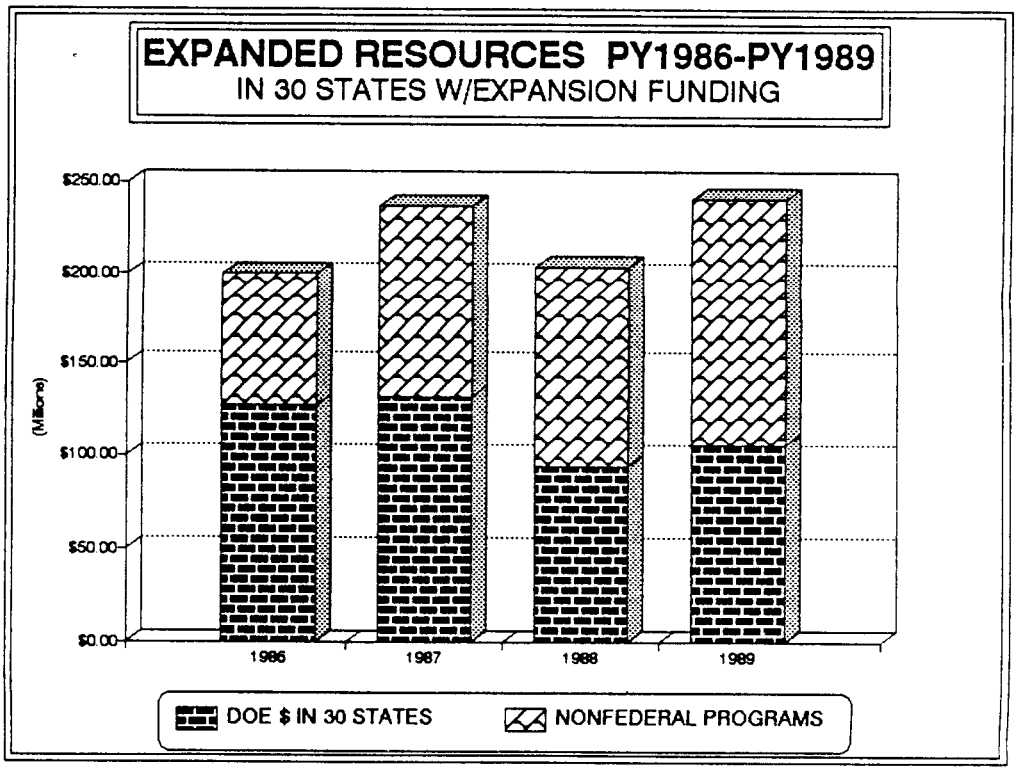


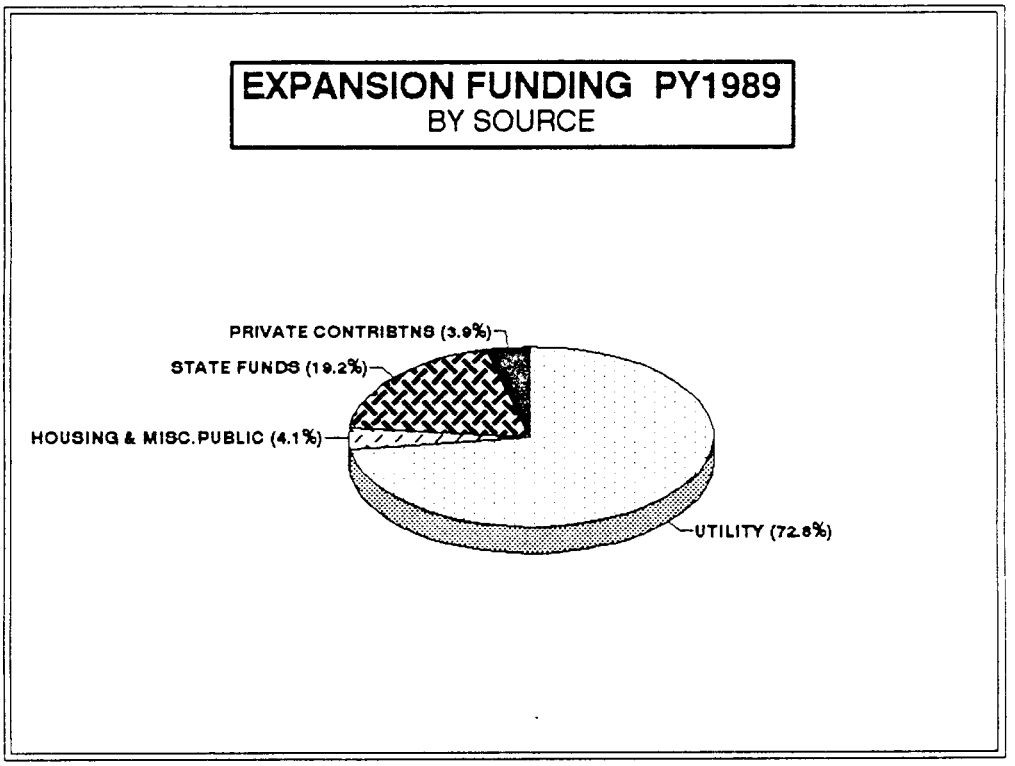
Fig. 5.1.c



The pattern of sources of expansion funding in PY 1989 is substantially different from the 12 year pattern and the pattern in the earliest period. Figure 5.2 shows a detailed breakdown of non-federal resources in PY 1989, totalling $128 million. Utilities, largely those in California, provided the most significant resource or 72 percent of non-federal funds. The sharp increase in state and private contributions over the long-term average is due to the dramatic increases in two states' programs.

From PY 1978 - PY 1985, all non-federal funding was just over 8 percent of all resources, compared to 21 percent in PY 1989.

Fig. 5.2:



CHAPTER 6: THE CHARACTERISTICS OF WEATHERIZED HOUSEHOLDS AND THE NUMBERS SERVED

6.1 Number of Households

The survey respondents reported that 3,895,000 units were weatherized during the PY 1978 - PY 1989 interval. This unduplicated count corresponds to $4.272 billion expended. Responses that did not report both data items were excluded; of the $90 million for which no unit completion figures were available, $27 million was in HHS/WX programs, $15 million in utility programs and over half was from the smaller programs of "other" weatherization housing repair and contributions.

The process used to arrive at an unduplicated count of units completed involved asking respondents to identify the number of units completed by the program on which they were currently reporting in which funding from programs previously reported was used. Units each program reported as having two or more funding sources, were removed from the second program reporting such duplication. This results in undercounting units completed by the HHS/WX and utility programs. Utility units probably received investments as high or higher from DOE resources as from the utility. The HHS/WX may instead have contributed as much as or more than DOE/WAP, as the average costs were similar for both programs. While HHS/WX may have been denied some credit due in the analysis below that assigns units to programs, the result is a more accurate total of all weatherized units.

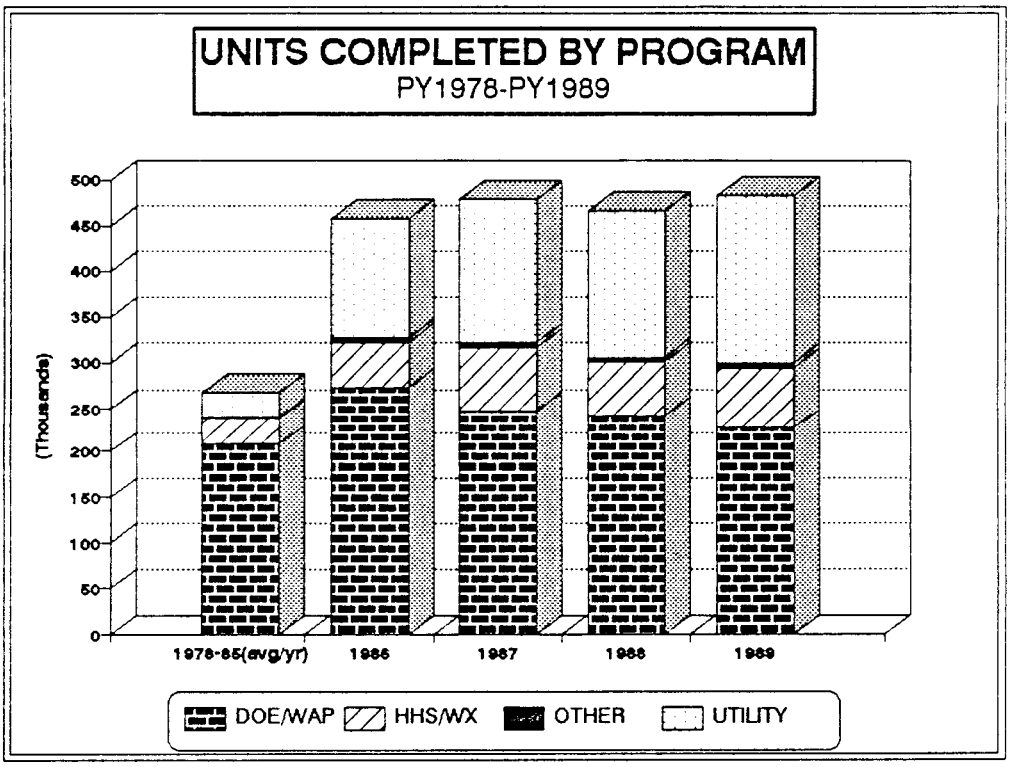
The reported completions are an approximation, but it is not possible to estimate whether the total is high or low because some data sets were biased to undercounting and others to overcounting. Utility unduplicated completions reported were, as noted above, felt to be too high by some state managers. Some large utility programs could not provide any completion totals for the PY 1978 - PY 1985 period, which would lead to an undercount. Most of the funding reported for "other" state and local programs of weatherization could not be associated with completion totals. Some states and utilities did not respond at all and the DOE/WAP completion data available for these states may be an incomplete count of all weatherization. As estimates from respondents were not forthcoming, it is not possible to produce valid alternative estimates of unreported or over-reported completions.

To put these figures in perspective, the statistics published by the American Housing Survey (AHS) reported a total of 90.89 millon housing units were occupied nationwide in 1987. This means that low-income weatherization resources covered in the utility and state surveys have been applied to slightly more than 4.2 percent of the total U.S. occupied housing stock. Of these weatherized units, 2.65 million, representing 2.3 percent, are units completed under the DOE/WAP rules. The figures on completed units are far less reliable than the reported funding totals. More than 20 percent of the units, or 862,648, were reported by utilities as "unduplicated" units -- e.g., those not counted by other programs as a completed unit; interviews found that most utility programs could not verify such conclusions. For both funding and unit completions, only 7 percent of the data were reported to be estimates. However, the level of uncertainty rose to

close to 20 percent as utility respondents sought to estimate how many units of housing might have received resources financed by more than one federal program.

Figure 6.1 shows the units for the entire PY 1978 - PY 1989 time period arranged by the principal program which funded their weatherization services.

Fig. 6.1:



Clearly the state programs administered under DOE/WAP rules dominate the production of units. This dominance is a result of DOE/WAP being both the largest program and the only program which had consistent, nationally-uniform reporting requirements for the entire twelve-year period. However, the utility full-scale programs account for 22 percent of the units reported even though utility expenditures are just 9 percent of the cumulative total. This reflects the considerably lower average utility investment per unit compared to other programs' expenditures.

The total of weatherized units, as reported, should not be compared to the total of 21.35 million units occupied by households below 150 percent of the poverty level to reach the simple conclusion that 18 percent of the eligible households had been recipients of weatherization services by PY 1989. There are two major variables which would invalidate such a calculation.

First, the physical mobility of the poor means the housing stock weatherized and the low-income population may not always match. The AHS reports that of all households below 150 percent of the poverty level, 4.741 million, or 22 percent, moved in the past year. For households below the poverty level itself "movers" represented over 25 percent of all households. Of these "movers", just 10 percent were originally owner-occupants and the rest were renters. Thus, a bias to owner-occupied households may be a bias to units with low turnover.

Without knowing the rate at which weatherized low-income households are moving, what kind of units they are moving into, and whether they are being replaced by other low-income households in the weatherized housing stock, it is impossible to know what proportion of the low-income housing stock remains to be weatherized.

Second, the income mobility of the low-income population means households that qualify for, and receive, low-income weatherization services may not remain qualified over many years. Indeed, the best available longitudinal statistics indicate that, over time, a large proportion of the poverty population moves up and out of poverty, often replaced in the poverty statistics by households whose income slid in the other direction.

The Michigan Panel Studies, (Duncan, 1984), a major longitudinal study of income and poverty, indicated that, over a six-year period, only one in four low-income families remained poor for the entire period. Over 25 percent of the population was below the poverty level for at least one year out of six. Thus, a household that received weatherization assistance may remain in its weatherized dwelling, experience an increase in income, and fall out of the qualified population. We do not know the proportion of the 3.9 million weatherized households for which this has been the outcome. Therefore, no meaningful conclusions can be drawn from available published data about the pool of households still in need of weatherization services.

6.2 Types of Homes

The data available from the utility and state surveys regarding the characteristics of weatherized households is extremely limited and consists largely of the information reported to the Department of Energy, regarding housing tenure, or type of occupancy, and size. Limited information describing 2.84 million weatherized households by tenure was provided, representing 74 percent of all weatherized households reported in the survey.[11]

Only DOE, HHS/WX, and utilities were able to report on the number and type of weatherized units. Other types of programs, whose units represent less than 1 percent of all reported completions, were not asked for such data. The tenure and square footage of the units could only be reported fully for 95 percent of DOE/WAP and just over 60 percent of HHS/WX and 15 percent of utility programs. Even these reports represent estimates in about 20 percent of the units in HHS/WX and 51 percent of the units in utility-reported programs.[12] Therefore, in this section tenure and size data is merely suggestive, especially in the utility sector, and would not be an appropriate basis for policy decisions.

Within the total of 2.84 million households with identified characteristics, 2.27 million, or 80 percent, were living in single-family dwellings. Of this group, approximately 77 percent, or 62 percent of all weatherized households, were living in houses that they owned and 23 percent were renters at the time that weatherization occurred.

Among the population of all renters, 567,000 households or 20 percent of weatherized households, were living in multifamily dwellings. The combined total of renting households, in both single and multifamily dwellings, was 1.08 million, or 38.2 percent of the total weatherized.

The scarcity of descriptive data from the surveys is matched by limited statistics published regarding the population eligible under current eligibility standards for DOE or HHS weatherization. The 21.35 million households living below 150 percent of the OMB poverty level in 1987, though not a precise match, roughly match the DOE/HHS eligibility standards. It provides the basis upon which to draw some "rule-of-thumb" conclusions about the households weatherized as compared to the eligible low-income population at large.

The AHS reported that 11.759 million units, or 55.1 percent of those occupied by households below 150 percent of the poverty level, were rental units. This compares to 38 percent of the weatherized households for which rental tenure was reported in the state and utility surveys.

Owner households comprise 44.9 percent of the units occupied by households below 150 percent of the poverty level in the AHS. The 1.75 million single-family owner households weatherized represent 61.5 percent of the total reported completions over the twelve-year study period. Clearly, the data lead to the conclusion that owner households are somewhat over-represented in the pool of weatherized households as compared to their share of the population as a whole. Concomitantly, 55.1 percent of the units eligible were rentals compared to 38 percent of weatherized units reported.

The major difference among program types was the higher rate of utility multifamily weatherization compared to DOE and HHS programs. By PY 1989, all types of programs were weatherizing nearly equal numbers of rental and owner-occupied units, a considerable change from the PY 1978 - PY 1985 period when nearly 65 percent of weatherizations were in owner-occupied units.

The AHS does shed some additional light on the characteristics of the eligible population. Approximately 3.19 million households report moderate to severe physical problems with their dwellings. Furthermore, of the households below the 150 percent-of-poverty threshold, some 7.33 million or 34 percent, include an elderly person. This compares to 21 percent of households for the population as a whole who are elderly. In a similar vein, 21.6 percent of the low-income households are African-American, though African-Americans represent only 11.3 percent of the total population.

Statistics that describe the weatherized households in a similar way will only be available for Phase II of this study.

Figure 6.2 shows the types of units weatherized in the major programs in the most recent years, PY 1986 - PY 1989. As noted above, DOE/WAP units are overstated because HHS/WX and utilities collected data on smaller proportions of their completions. Only a minority of DOE/WAP programs collected mobile home data. DOE units represent 64 percent of all units shown here.

Figure 6.2 shows that 64.3 percent of completions were single-family homes (including mobile homes), of which over three quarters were owner-occupied. Rental units comprise nearly 43 percent of all completions.

Fig. 6.2:

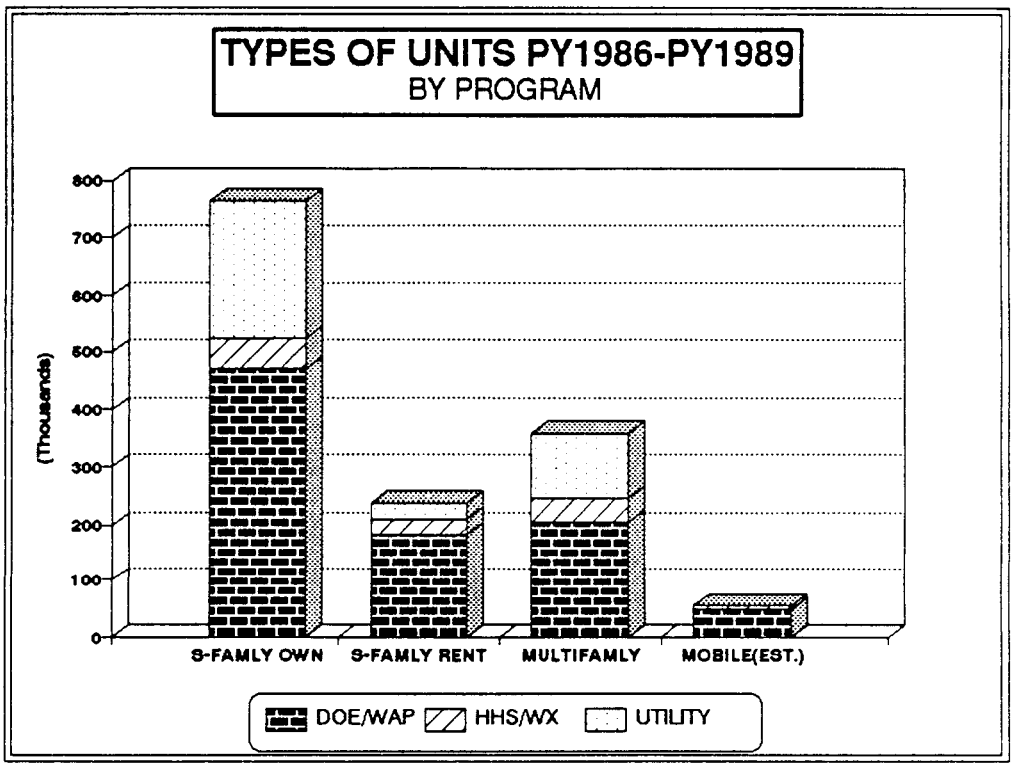


Figure 6.2 illustrates that there are differences between utility reported weatherization and the large federal/state programs. Nearly 30 percent of utility completions were in units utilities designated multifamily units, while 23 percent of DOE units fell in that category.

Table 6.1 shows the detail for the peak production year PY 1989, when these patterns were changing. Clearly DOE/WAP and HHS/WX were increasingly serving rental units.

Table 6.1
Types of Housing Units Completed
By Program PY 1989

Program	S. Family Owned	S. Family Rented	Multifamily	Mobile
DOE	52 %	20 %	21 %	6%
HHS/WX	30 %	19 %	46 %	4%
UTILITY	66 % *	12 %	29 %	----

* This figure includes all BPA single-family homes as those were not broken down by rent/own, but unquestionably many of those were rentals and should be in the center column. The single-family category for utilities includes homes in California with up to four units each. These would be called multifamily in the DOE program.

6.3 Average Expenditures

While this report deals with a narrow range of full-scale Weatherization activities, it is clear that all the completions and programs are not the same. A crude measure of similarities is the average expenditures, although national averages over a decade do not reflect the real expenditures of individual state programs.

As an eleven year average, DOE/WAP invested $1,057 per unit and HHS/WX invested $1,095 while utilities invested $446 in the units they reported. In 1989, the comparable figures were: DOE $1,401, HHS/WX $994, Utilities $389. As a quarter of a million units could, at a minimum be verified as having multiple funding sources, it is helpful to realize that individual units may have had a combination of these investment levels. Table 6.2 shows the average amounts of funding for units weatherized by multiple funding sources over all years and in 1989. Expenditures were weighted averages that reflect the number of completions in each program reporting average costs for combination units.

Table 6.2
Weighted Average Expenditures: Units With Multiple Funding Sources

	1978-1989	1989
HHS/WX and DOE	$2696	$3214
UTILITY and WAP	$2066	——[a]
OTHER and WAP	$2327	$2716

[a]No data available for this combination.

This indicates that the use of national totals and averages masks a wide variety of investments and levels of weatherization. The utility/WAP combination, for example, underscores the relatively lower investment by utility programs. Expectations of energy savings should vary as program inputs are more closely defined.

CHAPTER 7: REGIONAL FACTORS AFFECTING THE SCOPE OF WEATHERIZATION

7.1 The Climate Regions

For purposes of the other four studies that form the DOE/WAP evaluations the U.S. was divided into three major climate zones: (1) the northern tier, cold states that are cold with minimal summer cooling load; (2) the middle tier moderate climate zone which has both significant heating and cooling energy usage; and (3) the southern tier of generally warm climate states with some heating, and substantial cooling. California, in the analytic scheme for the WAP evaluation, was divided into two climate zones (Beschen and Brown, 1991). The analyses below differ in that they consider California as a separate region, since all California data provided are statewide. This chapter's analysis also includes Alaska in the coldest region and Hawaii in the warmest.

For this portion of the study, several factors are examined to see if these climate regions coincide with clear programmatic differences. The subsequent portions will examine census regions and more detailed demographic, energy consumption and housing characteristics.

No data are yet available on the WAP-eligible population by these regions, but state-by-state analysis (Economic Opportunity Research Institute and the Grier Partnership, Villers Advocacy, Washington, D.C., 1988) of the population at 125 percent of OMB poverty suggests the following distribution of low-income households among them:

Table 7.1
1986 Households at 125% Poverty Level
Percent by Climate Region

Cold	10%
Moderate	46%
Hot	34%
California	10%

From Double Jeopardy, Villers Advocacy, Washington, D.C., 1988

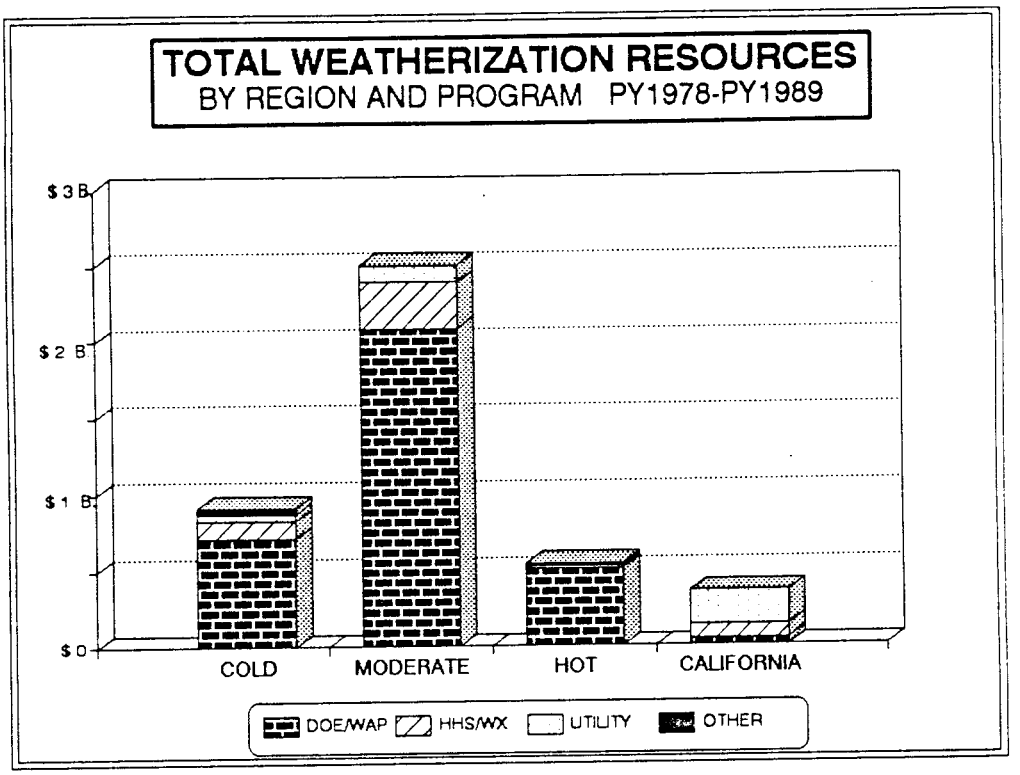
These figures in Table 7.1 are the same as the DOE/WAP eligible population through 1986, when potential eligibility was expanded to the current criterion of 150 percent of poverty. The population in question is smaller than the LIHEAP-eligible population, whose distribution among regions may be different.[13]

Appendix Table A-5 shows the summary results on expenditures and unit types arranged by region. A map of the regions is attached to Table A-5.

7.2 Funding

Clearly there are regional differences, although the causes cannot be inferred from the available data. Figure 7.1 shows total expenditures for PY 1978 to PY 1989 by region as a percentage of the national twelve year totals. The moderate region contains nearly half the states including the populous Northeast and Midwest states. It also had 58 percent of all funding. The cold region raised over 33 percent of the amount of funding that was in the moderate climate region; the moderate region, however, has over four times the low-income population of the coldest region. The hot region had a third of all estimated eligible households, but just 13 percent of all funding.

Fig. 7.1:



A good deal can be explained by examining the regional pattern of sources of funding in the later period PY 1986 - PY 1989.

The hot region lost all significant utility investment with the end of the Tennessee Valley Authority Program in 1988. Since utility-based programs vary with PUCs mandates, the absence of hot region states from the list of states with mandates is consistent with the figures on

programs. On the other hand, this region had disproportionately large investments of another kind by PY 1989: 90 percent of all full-scale weatherization programs that were not DOE, HHS/WX, or utility-based were in the hot region. As discussed in section 3.5 on Contributing Resources above, all private contributions to programs were made in the two colder regions. State-funded weatherization and housing rehabilitation/weatherization programs were located in a few southern states in PY 1989.

California's "regional" results are dominated by the 63 percent of its funds that came from utility-based programs. California was also unique in that 25 percent of all its resources were spent through HHS/WX.

7.3 Units Weatherized

Figure 7.2 shows the weatherized units by region. The distribution of completions varies considerably from the funding distribution. This reflects the lower levels of investment per dwelling in both federal and utility programs in the hot region and California.

Fig. 7.2:

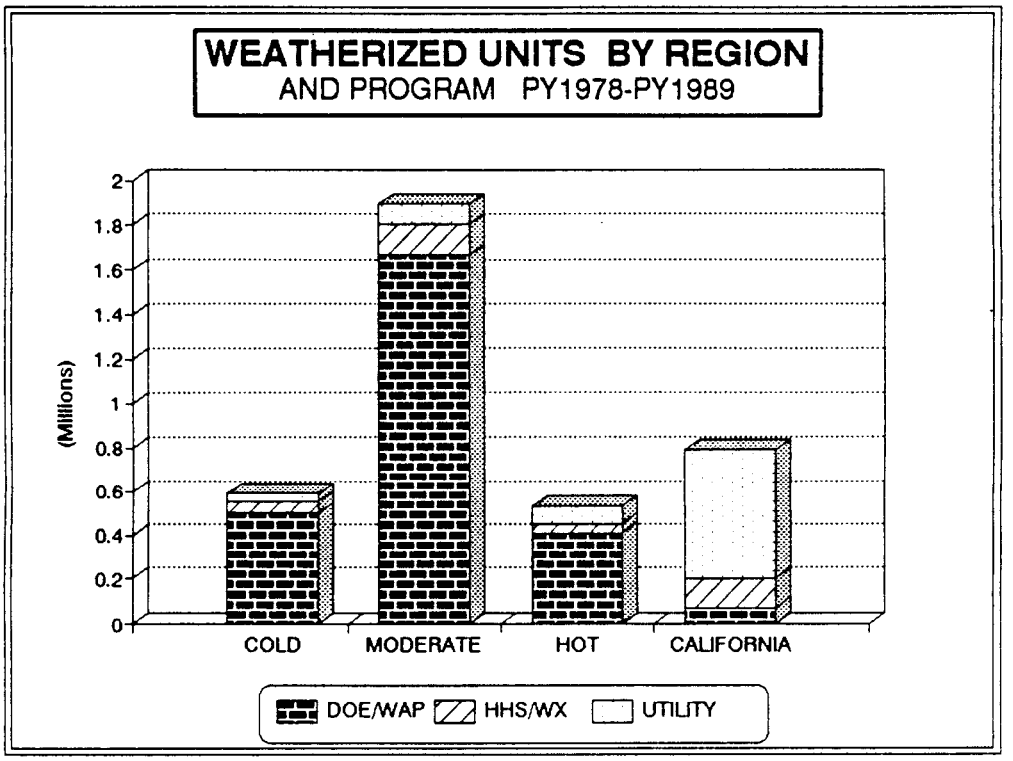


Table 7.2 shows each region's contribution to the national programs. The moderate region had the majority of units weatherized in the DOE/WAP, and therefore half of all reported completions. Seventy-three percent of all utility-weatherized units in the U.S. are in California

and represent 15 percent of all units weatherized; as shown above, average investments in these units are considerably lower than in DOE/WAP and HHS/WX programs. The hot region has the same share of utility-weatherized units as the much larger moderate climate region, but virtually all of them are in one state, Tennessee, and these were weatherized at an average cost of $125.

Table 7.2
Units Completed As A Percentage of Program
By Region PY 1978 - PY 1989

Unduplicated Units by Region	All Regions	Coldest	Moderate	Hot	California
Total Units	**100%**	16%	50%	14%	21%
DOE Units	**100%**	19%	63%	16%	3%
HHS/WX Units	**100%**	15%	38%	11%	36%
Utility Units	**100%**	5%	11%	10%	73%
Other	**100%**	43%	47%	11%	0%

The figures for weatherization completions in "other", predominantly state-funded, full-scale programs are skewed by the inability of the more recent hot-region programs to report any completions to match their proportionately high expenditures.

Variables like the funding formulas of DOE and LIHEAP, the rules governing utility investments, and the lack of data on the number of eligible units make it difficult to draw any policy conclusions or determine where opportunity exists on a regional basis. Phase II will refine and explain these phenomena, based on smaller geographic divisions.

CHAPTER 8: CONCLUSIONS

The DOE/WAP program is the largest single source of low-income weatherization expenditures in the United States. In addition, its policies and regulations are even more dominant in shaping the nation's low-income weatherization activities. As a result, the scope of low-income weatherization programs considerably exceeds the range of activities of the state programs administered as the DOE/WAP.

The 3.9 million low-income units weatherized over the program years 1978 - 1989 represent completion of a significant, though uncertain, percentage of the contemporary low-income housing stock, including an especially large portion of the single-family units in low-income occupancy. However, over 20 percent of these 3.9 million completions represent units weatherized exclusively by utility-based programs in a few states at significantly lower expenditure levels and fewer improvements than the public sector programs provide.

Over the twelve-year period, DOE/WAP appropriations decreased, while PVE, utility, and LIHEAP funding increased. However, DOE's rules determined the way most of those monies were used. The trend at the end of the study period was downward for total funding (particularly after correcting for inflation). Thus, it is unlikely that the PY 1989 levels of $553 million and 455 thousand weatherized units in all programs will be sustained.

For every DOE/WAP dollar spent over the twelve-year period, an additional $0.32 was spent on low-income weatherization by non-federal sources. For every federal dollar (DOE/WAP + LIHEAP + PVE) spent on low-income weatherization, an additional $0.15 was spent on low-income weatherization by non-federal sources. Although the magnitude of this resource leveraging is significant, it represents state and utility expenditures concentrated in a few states. Any expectations of a nationwide flow of utility weatherization contributions to, or similar to, DOE/WAP are not based on historical experience.

There is experience in running large utility and state programs for new initiatives to draw on, but not from a wide variety of locations. Utility programs are in states where low-income weatherization program scope and goals are mandated by regulatory bodies based on energy demand factors in their respective states. Therefore, they may not be comparable to DOE/WAP. In contrast, growing numbers of states instituted programs for housing repair and for collecting private contributions in the last two years of the study, perhaps indicating a new trend.

Comparison between this study and the first portion of the WAP evaluation (Mihlmester, et al., 1992) shows that the state and utility managers who provided these data have not always been informed about local and private programs with initiatives in energy conservation. This means the local non-federal investment in weatherization may well be understated in this review. It also suggests that developing integrated and targeted expansion of weatherization resources will require greater coordination and communication among all providers in the system.

Finally, the study documents that the policies and regulations of DOE's program have been the filter through which funding and public policies for low-income energy conservation have flowed. The design of the DOE program federally and in the states will significantly influence how any expanded resource base will be targeted to eligible households. DOE/WAP rules are likely to be adopted for most public sector weatherization resources: thus, they will likely affect the extent to which utility and housing programs can be integrated with WAP activities.

ENDNOTES

1. Low Income Home Energy Assistance Program Report to Congress, U.S. Dept. of Health & Human Services, Washington, D.C. See Reports for FY 1982 through FY 1989 inclusive.

2. The Department of Energy's Energy Information Administration (EIA) data included all of the utilities whether invest-owned, cooperative or municipal on a state by state basis. Using these data bases NASCSP added the number of residents served in each state by the investor-owned electric and gas companies and then multiplied the resulting number by 75 percent. Surveys were sent to the largest utilities in that state whose residential customers totaled that 75 percent or above of all electric or gas residential customers.

   The lists provided by DOE were checked against lists provided by Edison Electric Institute and American Gas Association to insure that utilities serving large residential populations were not overlooked. Names of contacts in the utilities were generated through EEI, AGA and the National Rural Electric Cooperative Association. Where a contact was not provided by AGA, EEI or NRECA, *Electrical World Director of Utilities: 1991* and *Brown's Directory of North American and International Gas Companies* were used.

   Municipal gas and electric utilities surveyed were the largest in the state. The same applies to electrical co-ops. The Tennessee Valley Authority and Bonneville Power Authority were also surveyed.

   Efforts were made to include all utilities under state PUC mandate. Extensive NASCSP interviewing produced a list of PUC-mandated programs. This included all electric utilities plus the National Fuel Gas and Brooklyn Union Gas Companies of New York, gas and electric utilities in New Jersey, California, Massachusetts, Wisconsin, and Pennsylvania. Additional utilities were surveyed in Michigan and Ohio. Conservation programs were not mandated in these last two states but the PUC had approved conservation programs in a number of the utilities.

   Utilities that had been mentioned in national and utility reports as having low-income weatherization programs were also surveyed. This resulted in many co-ops and municipalities in Georgia being surveyed.

   Additionally, any utility mentioned in NASCSP's survey of the State WAP Managers was sent a follow-up survey and follow-up calls were made to elicit a response.

3. NASCSP interviewed PUC staff in the following states based on a review of the literature on utility weatherization and the advice from experts serving on ORNL's working groups:

California, Wisconsin, Pennsylvania, Minnesota, Ohio, New York, Iowa, Massachusetts, Illinois and Michigan. In addition, TVA and BPA staff were interviewed extensively.

4. The utility sections of the State Managers Survey were merged with the Utility Survey results for the corresponding time period. If state managers reported data for a utility which had responded to the full-scale program section of the utility survey, the response with the most complete data set was selected and the other report dropped. If responses conflicted, both respondents were interviewed, but this occurred in only two cases in all years, one of which involved less than 500 units. Both were resolved.

   State managers generally did not have access to full utility program data, so most data on utility programs originates with utilities. State managers' assistance was solicited in unduplicating utility reports in overlapping service territories. This task was especially complex in the BPA service area.

5. At meetings of state WAP managers in Little Rock, Arkansas, October 2, 1991, those issues were listed and explored in detail. NASCSP has conducted follow-up interviews to clarify points raised. Among those participating were WAP directors from Washington, New York, Ohio, Arkansas and North Carolina. Follow-up interviews were conducted with directors from Washington, Colorado and Ohio.

6. State mangers reported more mandated programs in the PY 1978 - PY 1985 period than did PUCs and utilities. This probably reflects the existence of approved programs which came into being as part of rate cases. These discrepant reports were in Massachusetts, Illinois, Minnesota, Michigan and Washington.

7. One additional utility (Southern Cal. Edison) was reported to have expended a total of over $41 million in programs for low-income people which it identified by letter as belonging in the category of miscellaneous additional resources. Because the utility and California PUC reports vary widely on the size and timing of these expenditures the total is included in the expanded resources described in Chapter 5 below but not in the fiscal information in this section. The total of these reports from all utilities equalled $76.6 million over the twelve years. There was no way to determine an unduplicated number of households served.

8. These were Maine, Georgia and Ohio. Florida, Washington and Wyoming reported small numbers of mixed units in a few program years.

9. Status Report #7: State Uses of Oil Overcharge Funds, National Consumer Law Center, Washington, D.C., July 1990.

10. Irreconcilable discrepancies regarding California utility programs persisted after over a dozen interviews with the state WAP manager, the PUC staff and the three largest utilities involved. Seven utilities reported $260 million in expenditures on the NASCSP survey. (One (So. Cal. Edison) used a letter format.) Those seven and one additional small utility

reported $241 million to the California PUC for the same period. These reports included $17 million more in low-income weatherization expenditures by So. Cal. Edison than were reported to NASCSP. A letter to NASCSP from Mr. Long, California PUC (11/19/90) suggested these may have been low cost no-cost or education investments.

While all So. Cal. Edison investments were categorized as "other" or not full-scale variety at the company's suggestion, there remains a discrepancy in other utility reports. When six utilities are considered, their investments were slightly lower in PUC reports than in the NASCSP reports.

11. The following definitions of household tenure and unit type were used for the survey.

"Single-family" -- a structure that provides living space for one household or family. The structure may be detached, attached on one side (semidetached), or attached on two sides. Attached houses are considered single-family houses as long as the house itself is not divided into more than one housing unit and has an independent outside entrance. A single-family house is contained within walls that go from the basement (or the ground floor, if there is no basement) to the roof. (A mobile home with one or more rooms added is classified as a single-family home.)

"Multi-family" -- means one or more units in a building of two or more units -- a house or building with two to four units i.e. a structure that is divided into living quarters for two, three, or four families or households. This category includes houses originally intended for occupancy by one family (or for some other use) that have since been converted to separate dwellings for two or more families. Typical arrangements in these types of living quarters are separate apartments downstairs and upstairs, or one apartment on each floor. It also includes a building with five or more housing units i.e. a structure that contains living quarters for five or more households.

"Mobile Home" -- a structure that has all the facilities of a dwelling unit but is built on a movable chassis. It may be placed on a permanent or temporary foundation and may contain one room or more. If rooms are added to the structure, it is considered a single-family housing unit.

"Owned/Rented: -- the relationship of the occupants of a housing unit to the structure itself, not to the land on which the structure is located. "Owned" means the owner or co-owner is a member of the household. The housing unit is considered owned if it is mortgaged and not fully paid for. A household is classified "rented" even if the rent is paid by someone not living in the unit.

12. In California, the largest program, Pacific Gas and Electric, counts all buildings of four units or less as "single-family."

13. In its *Report to Congress FY 1989,* op. cit., the HHS estimated 17.4 million households to be at 125 percent of poverty level and 25.2 million households at the higher income ceiling for LIHEAP eligibility.

REFERENCES

Beschen, Darrell A. and M. A. Brown, 1990. *Evaluation Plan for the Weatherization Assistance Program*, ORNL/TM-11668/V1, Oak Ridge National Laboratory, Oak Ridge, Tennessee.

Duncan, Greg J., 1984. *Years of Poverty, Years of Plenty,* Ann Arbor, MI Institute for Special Research, University of Michigan.

Economic Opportunity Research Institute and the Grier Partnership, 1988. *Double Jeopardy: The Impact of Energy Taxes on Low-Income Households*, Washington, D.C. Villers Advocacy Associates.

Economic Opportunity Research Institute and the Grier Partnership, 1986. *Low Income Energy Programs at Mid-Decade: Limits and Opportunities*, Washington, D.C. National Association for State Community Services Programs.

Mihlmester, Philip, W.C. Koehler, Jr., M.A. Beyer, M.A. Brown, and D.A. Beschen, Jr., 1992. *The Characterization of the WAP Network*, ORNL/CON-234, Oak Ridge National Laboratory, Oak Ridge, Tennessee.

APPENDIX A

NATIONAL TOTALS, COMBINED SURVEYS

A-1 FUNDING AND UNDUPLICATED HOUSING UNITS BY PROGRAM

TOTAL FUNDING BY PROGRAMS

	1978 - 1989 ALL-YEAR SUM	1978-1985 TOTAL	1986 TOTAL	1987 TOTAL	1988 TOTAL	1989 TOTAL
TOTAL FUNDING	$4,364,252,972	$2,174,602,211	$460,150,577	$587,352,318	$589,176,623	$552,971,243
DOE/WAP (under DOE rules)	$3,340,393,515	$1,795,024,856	$358,127,612	$408,384,527	$398,920,856	$379,935,664
HHS/WX (not under DOE rules)	$519,727,026	$229,819,672	$42,150,560	$85,626,388	$100,824,583	$61,305,823
Utility Full-Scale Weatherization	$416,887,719	$127,421,750	$49,046,134	$79,823,158	$83,175,103	$77,421,574
Other Full-Scale Weatherization	$59,158,047	$19,733,387	$7,448,654	$5,345,473	$2,324,512	$24,306,021
Housing Repair/Rehab Programs	$17,118,957	$1,869,666	$2,855,239	$6,517,532	$2,066,014	$3,810,506
Other Resources w/ Weatherization	$10,967,708	$732,880	$522,378	$1,655,240	$1,865,555	$6,191,655

PROGRAM TOTALS AS PERCENTAGES OF TOTAL

	1978 - 1989 % ALL-YR SUM	1978-1985 % TOTAL	1986 % TOTAL	1987 % TOTAL	1988 % TOTAL	1989 % TOTAL
TOTAL FUNDING	$4,364,252,972	$2,174,602,211	$460,150,577	$587,352,318	$589,176,623	$552,971,243
DOE/WAP (under DOE rules)	76.54%	82.54%	77.83%	69.53%	67.71%	68.71%
HHS/WX (not under DOE rules)	11.91%	10.57%	9.16%	14.58%	17.11%	11.09%
Utility Full-Scale Weatherization	9.55%	5.86%	10.66%	13.59%	14.12%	14.00%
Other Full-Scale Weatherization	1.36%	0.91%	1.62%	0.91%	0.39%	4.40%
Housing Repair/Rehab Programs	0.39%	0.09%	0.62%	1.11%	0.35%	0.69%
Other Resources w/ Weatherization	0.25%	0.03%	0.11%	0.28%	0.32%	1.12%

UNDUPLICATED TOTAL UNITS REPORTED

	1978 - 1989 ALL-YEAR SUM	1978-1985 TOTAL	1986 TOTAL	1987 TOTAL	1988 TOTAL	1989 TOTAL
TOTAL UNDUPLICATED	3,895,131	2,109,812	437,217	453,258	439,688	455,156
DOE/WAP	2,653,997	1,664,369	272,383	247,652	241,921	227,672
HHS/WX	362,643	206,961	30,667	45,725	36,397	42,893
Utility Full-Scale Weatherization	862,648	232,134	131,096	157,242	159,903	182,273
Other Full-Scale Weatherization	15,843	6,348	3,071	2,639	1,467	2,318

A-2 FUNDING BY SOURCE

FUNDING SOURCES

	1978 - 1989 ALL-YEAR SUM	1978-1985 TOTAL	1986 TOTAL	1987 TOTAL	1988 TOTAL	1989 TOTAL
TOTAL EXPENDITURES	$4,364,252,262	$2,174,602,211	$460,150,577	$587,349,018	$589,176,282	$552,974,174
DOE	$1,967,223,194	$1,291,405,239	$184,399,032	$175,809,431	$168,349,813	$147,259,679
LIHEAP	$1,215,130,254	$656,243,496	$151,345,009	$170,916,520	$121,381,282	$115,243,947
PVE	$627,365,333	$37,651,698	$61,851,931	$145,100,440	$207,643,736	$175,117,528
Utility	$418,067,133	$127,421,750	$49,046,134	$80,270,158	$83,615,103	$77,713,988
State	$102,675,685	$42,523,317	$13,040,392	$13,362,957	$7,147,509	$26,601,510
Housing Repair/Rehabilitation	$6,424,649	$1,869,666	$445,701	$1,700,048	$443,017	$1,966,217
Other - Private	$6,659,454	$732,880	$22,378	$189,464	$352,822	$5,361,910
Other - Public	$20,706,560	$16,754,165	$0	$0	$243,000	$3,709,395

FUNDING SOURCES AS PERCENTAGES OF TOTAL

	1978 - 1989 AS % TOTAL	1978-1985 AS % TOTAL	1986 AS % TOTAL	1987 AS % TOTAL	1988 AS % TOTAL	1989 AS % TOTAL
TOTAL EXPENDITURES	$4,364,252,262	$2,174,602,211	$460,150,577	$587,349,018	$589,176,282	$552,974,174
DOE	45.1%	59.4%	40.1%	29.9%	28.6%	26.6%
LIHEAP	27.8%	30.2%	32.9%	29.1%	20.6%	20.8%
PVE	14.4%	1.7%	13.4%	24.7%	35.2%	31.7%
Utility	9.6%	5.9%	10.7%	13.7%	14.2%	14.1%
State	2.4%	2.0%	2.8%	2.3%	1.2%	4.8%
Housing Repair/Rehabilitation	0.1%	0.1%	0.1%	0.3%	0.1%	0.4%
Other - Private	0.2%	0.0%	0.0%	0.0%	0.1%	1.0%
Other - Public	0.5%	0.8%	0.0%	0.0%	0.0%	0.7%

A-3 TYPES AND NUMBERS OF UNITS

TOTAL UNITS REPORTED

	1978 - 1989 ALL-YEAR SUM	78-85 TOTAL	1986 TOTAL	1987 TOTAL	1988 TOTAL	1989 TOTAL
TOTAL UNITS	4,127,794	2,209,762	473,749	492,203	479,035	473,045
DOE/WAP	2,653,997	1,664,369	272,383	247,652	241,921	227,672
HHS/WX	427,015	225,244	40,536	57,478	48,255	55,502
Utility	1,022,677	311,474	156,757	182,966	185,703	185,777
Other	24,105	8,675	4,073	4,107	3,156	4,094

UNDUPLICATED TOTAL UNITS REPORTED

	1978 - 1989 ALL-YEAR SUM	78-85 TOTAL	1986 TOTAL	1987 TOTAL	1988 TOTAL	1989 TOTAL
TOTAL UNDUPLICATED	3,895,131	2,109,812	437,217	453,258	439,688	455,156
DOE/WAP	2,653,997	1,664,369	272,383	247,652	241,921	227,672
HHS/WX	362,643	206,961	30,667	45,725	36,397	42,893
Utility	862,648	232,134	131,096	157,242	159,903	182,273
Other	15,843	6,348	3,071	2,639	1,467	2,318

RESIDENCE TYPES REPORTED

	1978 - 1989 ALL-YEAR SUM	78-85 TOTAL	1986 TOTAL	1987 TOTAL	1988 TOTAL	1989 TOTAL
ALL RESIDENCE TYPES	2,942,918	1,522,750	317,135	332,510	322,478	448,045
Single-Fam Owner-Occ	1,756,267	990,345	191,313	169,806	159,005	245,798
Single-Fam Rental	517,090	279,193	54,132	60,728	59,736	63,301
Multi-Fam Rental	567,486	207,246	60,295	88,122	90,018	121,805
Mobile Homes	102,075	45,966	11,395	13,854	13,719	17,141

A-3 TYPES AND NUMBERS OF UNITS (continued)

DOE/WAP UNITS (ADMINISTERED BY DOE/WAP PROGRAM UNDER DOE RULES)

	1978 - 1989 ALL-YEAR S	78-85 # states	78-85 TOTAL	1986 # states	1986 TOTAL	1987 # states	1987 TOTAL	1988 # states	1988 TOTAL	1989 # states	1989 TOTAL
TOTAL UNITS	2,653,997	51	1,664,369	51	272,383	51	247,652	51	241,921	50	227,672
Single-Fam Owner-Occ	1,335,383	48	864,823	48	116,391	49	123,609	49	116,884	48	113,676
Single-Fam Rental	431,431	48	247,879	48	45,343	49	45,757	49	47,014	48	45,438
Multi-Fam Rental	392,240	46	187,440	44	49,012	47	53,175	47	55,798	46	46,815
Mobile Homes	90,014	14	42,670	16	10,068	17	11,887	17	11,529	18	13,861
SUM RESIDENCE TYPES	2,249,068		1,342,812		220,814		234,428		231,225		219,790
Sing-Fam Own-Occ %	59.37%		64.40%		52.71%		52.73%		50.55%		51.72%
Sing-Fam Rental %	19.18%		18.46%		20.53%		19.52%		20.33%		20.67%
Mult-Fam Rental %	17.44%		13.96%		22.20%		22.68%		24.13%		21.30%
Mobile Homes %	4.00%		3.18%		4.56%		5.07%		4.99%		6.31%

HHS/WX UNITS (LIHEAP NOT ADMINISTERED UNDER DOE RULES)

	1978 - 1989 ALL-YEAR S	78-85 # states	78-85 TOTAL	1986 # states	1986 TOTAL	1987 # states	1987 TOTAL	1988 # states	1988 TOTAL	1989 # states	1989 TOTAL
TOTAL UNITS	427,015	23	225,244	13	40,536	17	57,478	15	48,255	14	55,502
TOTAL UNDUPLICATED	362,643		206,961		30,667		45,725		36,397		42,893
Single-Fam Owner-Occ	148,225	17	92,174	8	9,535	11	15,858	10	14,482	10	16,176
Single-Fam Rental	44,305	15	17,486	8	4,937	10	6,558	9	5,173	9	10,151
Multi-Fam Rental	54,727	13	13,592	8	5,716	9	4,021	9	6,587	9	24,811
Mobile Homes	10,108	4	2,993	4	1,157	6	1,234	5	1,985	6	2,740
SUM RESIDENCE TYPES	257,365		126,245		21,345		27,671		28,227		53,878
Sing-Fam Own-Occ %	57.59%		73.01%		44.67%		57.31%		51.31%		30.02%
Sing-Fam Rental %	17.21%		13.85%		23.13%		23.70%		18.33%		18.84%
Mult-Fam Rental %	21.26%		10.77%		26.78%		14.53%		23.34%		46.05%
Mobile Homes %	3.93%		2.37%		5.42%		4.46%		7.03%		5.08%

A-3 TYPES AND NUMBERS OF UNITS (continued)

UTILITY FULL SCALE WEATHERIZATION

	1978 - 1989 ALL-YEAR SUM	78-85 TOTALS	1986 TOTALS	1987 TOTALS	1988 TOTALS	1989 TOTALS
TOTAL UNITS	1,022,677	311,474	156,757	182,966	185,703	185,777
TOTAL UNDUPLICATED	862,648	232,134	131,096	157,242	159,903	182,273
Single-Fam Owner-Occ	272,659	33,348	65,387	30,339	27,639	115,946
Single-Fam Rental	41,354	13,828	3,852	8,413	7,549	7,712
Multi-Fam Rental	120,519	6,214	5,567	30,926	27,633	50,179
Mobile Homes	1,953	303	170	734	205	541
SUM RESIDENCE TYPES	436,485	53,693	74,976	70,412	63,026	174,378
Sing-Fam Own-Occ %	62.47%	62.11%	87.21%	43.09%	43.85%	66.49%
Sing-Fam Rental %	9.47%	25.75%	5.14%	11.95%	11.98%	4.42%
Mult-Fam Rental %	27.61%	11.57%	7.43%	43.92%	43.84%	28.78%
Mobile Homes %	0.45%	0.56%	0.23%	1.04%	0.33%	0.31%
UTILITIES		98	56	58	54	64

OTHER SIGNIFICANT FULL SCALE LOW INCOME WEATHERIZATION

	1978 - 1989 ALL-YEAR S	78-85 # states	78-85 TOTAL	1986 # states	1986 TOTAL	1987 # states	1987 TOTAL	1988 # states	1988 TOTAL	1989 # states	1989 TOTAL
TOTAL UNITS	24,105	4	8,675	3	4,073	3	4,107	3	3,156	6	4,094
TOTAL UNDUPLICATED	15,843		6,348		3,071		2,639		1,467		2,318

A-4 FUNDING AND UNDUPLICATED HOUSING UNITS BY PROGRAM, IN REGIONS

TOTAL FUNDING BY PROGRAMS

	1978-1989 ALL REGIONS	1978-1989 COLDEST REGION 1	1978-1989 MODERATE REGION 2	1978-1989 WARM REGION 3	1978-1989 CALIFORNIA REGION 4
TOTAL FUNDING	$4,351,881,348	$913,537,453	$2,526,896,813	$549,272,349	$362,174,733
DOE/WAP (under DOE rules)	$3,340,393,515	$709,730,966	$2,082,003,205	$505,310,262	$43,349,082
HHS/WX (not under DOE rules)	$519,727,026	$112,275,039	$314,459,548	$2,836,954	$90,155,485
Utility Full-Scale Weatherization	$404,516,095	$48,030,834	$111,204,606	$16,610,489	$228,670,166
Other Full-Scale Weatherization	$59,158,047	$26,704,704	$9,678,401	$22,774,942	
Housing Repair/Rehab Programs	$17,118,957	$13,001,466	$2,377,789	$1,739,702	
Other Resources w/ Weatherization	$10,967,708	$3,794,444	$7,173,264		

PROGRAM TOTALS AS PERCENTAGES OF TOTAL

	1978-1989 ALL REGIONS	1978-1989 COLDEST REGION 1	1978-1989 MODERATE REGION 2	1978-1989 WARM REGION 3	1978-1989 CALIFORNIA REGION 4
TOTAL FUNDING	$4,351,881,348	$913,537,453	$2,526,896,813	$549,272,349	$362,174,733
DOE/WAP (under DOE rules)	76.76%	77.69%	82.39%	92.00%	11.97%
HHS/WX (not under DOE rules)	11.94%	12.29%	12.44%	0.52%	24.89%
Utility Full-Scale Weatherization	9.30%	5.26%	4.40%	3.02%	63.14%
Other Full-Scale Weatherization	1.36%	2.92%	0.38%	4.15%	0.00%
Housing Repair/Rehab Programs	0.39%	1.42%	0.09%	0.32%	0.00%
Other Resources w/ Weatherization	0.25%	0.42%	0.28%	0.00%	0.00%

UNDUPLICATED TOTAL UNITS REPORTED

	1978-1989 ALL REGIONS	1978-1989 COLDEST REGION 1	1978-1989 MODERATE REGION 2	1978-1989 WARM REGION 3	1978-1989 CALIFORNIA REGION 4
TOTAL UNDUPLICATED	3,844,746	601,873	1,905,900	538,456	798,517
DOE/WAP	2,653,997	498,981	1,666,395	413,940	74,681
HHS/WX	362,643	55,847	138,998	38,136	129,662
Utility Full-Scale Weatherization	812,263	40,274	93,136	84,679	594,174
Other Full-Scale Weatherization	15,843	6,771	7,371	1,701	

A-4 FUNDING AND UNDUPLICATED HOUSING UNITS BY PROGRAM, IN REGIONS (continued)

TOTAL FUNDING BY PROGRAMS

	1978-85 ALL REGIONS	1978-85 COLDEST REGION 1	1978-85 MODERATE REGION 2	1978-85 WARM REGION 3	1978-85 CALIFORNIA REGION 4
TOTAL FUNDING	$2,174,125,069	$494,827,262	$1,312,871,160	$250,011,764	$116,414,883
DOE/WAP (under DOE rules)	$1,795,024,856	$411,651,768	$1,118,530,033	$238,454,973	$26,388,082
HHS/WX (not under DOE rules)	$229,819,672	$35,892,067	$162,203,997	$1,696,807	$30,026,801
Utility Full-Scale Weatherization	$126,944,608	$26,560,571	$30,621,037	$9,763,000	$60,000,000
Other Full-Scale Weatherization	$19,733,387	$19,573,969	$62,434	$96,984	
Housing Repair/Rehab Programs	$1,869,666	$1,100,000	$769,666		
Other Resources w/ Weatherization	$732,880	$48,887	$683,993		

PROGRAM TOTALS AS PERCENTAGES OF TOTAL

	1978-85 ALL REGIONS	1978-85 COLDEST REGION 1	1978-85 MODERATE REGION 2	1978-85 WARM REGION 3	1978-85 CALIFORNIA REGION 4
TOTAL FUNDING	$2,174,125,069	$494,827,262	$1,312,871,160	$250,011,764	$116,414,883
DOE/WAP (under DOE rules)	82.56%	83.19%	85.20%	95.38%	22.67%
HHS/WX (not under DOE rules)	10.57%	7.25%	12.35%	0.68%	25.79%
Utility Full-Scale Weatherization	5.84%	5.37%	2.33%	3.91%	51.54%
Other Full-Scale Weatherization	0.91%	3.96%	0.00%	0.04%	0.00%
Housing Repair/Rehab Programs	0.09%	0.22%	0.06%	0.00%	0.00%
Other Resources w/ Weatherization	0.03%	0.01%	0.05%	0.00%	0.00%

UNDUPLICATED TOTAL UNITS REPORTED

	1978-85 ALL REGIONS	1978-85 COLDEST REGION 1	1978-85 MODERATE REGION 2	1978-85 WARM REGION 3	1978-85 CALIFORNIA REGION 4
TOTAL UNDUPLICATED	2,093,454	386,103	1,164,973	331,282	211,096
DOE/WAP	1,664,369	318,989	1,069,567	236,649	39,164
HHS/WX	206,961	39,131	78,981	36,917	51,932
Utility Full-Scale Weatherization	215,776	21,802	16,258	57,716	120,000
Other Full-Scale Weatherization	6,348	6,181	167		

A-4 FUNDING AND UNDUPLICATED HOUSING UNITS BY PROGRAM, IN REGIONS (continued)

TOTAL FUNDING BY PROGRAMS

	1986 ALL REGIONS	1986 COLDEST REGION 1	1986 MODERATE REGION 2	1986 WARM REGION 3	1986 CALIFORNIA REGION 4
TOTAL FUNDING	$456,584,614	$94,697,302	$268,776,963	$62,171,613	$30,938,736
DOE/WAP (under DOE rules)	$358,127,612	$75,021,205	$219,010,649	$59,627,758	$4,468,000
HHS/WX (not under DOE rules)	$42,150,560	$7,391,285	$25,288,539		$9,470,736
Utility Full-Scale Weatherization	$45,480,171	$5,863,101	$20,103,215	$2,513,855	$17,000,000
Other Full-Scale Weatherization	$7,448,654	$3,309,578	$4,139,076		
Housing Repair/Rehab Programs	$2,855,239	$2,612,133	$213,106	$30,000	
Other Resources w/ Weatherization	$522,378	$500,000	$22,378		

PROGRAM TOTALS AS PERCENTAGES OF TOTAL

	1986 ALL REGIONS	1986 COLDEST REGION 1	1986 MODERATE REGION 2	1986 WARM REGION 3	1986 CALIFORNIA REGION 4
TOTAL FUNDING	$456,584,614	$94,697,302	$268,776,963	$62,171,613	$30,938,736
DOE/WAP (under DOE rules)	78.44%	79.22%	81.48%	95.91%	14.44%
HHS/WX (not under DOE rules)	9.23%	7.81%	9.41%	0.00%	30.61%
Utility Full-Scale Weatherization	9.96%	6.19%	7.48%	4.04%	54.95%
Other Full-Scale Weatherization	1.63%	3.49%	1.54%	0.00%	0.00%
Housing Repair/Rehab Programs	0.63%	2.76%	0.08%	0.05%	0.00%
Other Resources w/ Weatherization	0.11%	0.53%	0.01%	0.00%	0.00%

UNDUPLICATED TOTAL UNITS REPORTED

	1986 ALL REGIONS	1986 COLDEST REGION 1	1986 MODERATE REGION 2	1986 WARM REGION 3	1986 CALIFORNIA REGION 4
TOTAL UNDUPLICATED	380,223	53,763	205,358	46,422	74,680
DOE/WAP	272,383	46,942	173,805	42,719	8,917
HHS/WX	30,667	2,345	13,899		14,423
Utility Full-Scale Weatherization	74,102	4,288	14,771	3,703	51,340
Other Full-Scale Weatherization	3,071	188	2,883		

A-4 FUNDING AND UNDUPLICATED HOUSING UNITS BY PROGRAM, IN REGIONS (continued)

TOTAL FUNDING BY PROGRAMS

	1987 ALL REGIONS	1987 COLDEST REGION 1	1987 MODERATE REGION 2	1987 WARM REGION 3	1987 CALIFORNIA REGION 4
TOTAL FUNDING	$583,859,607	$115,237,031	$307,295,717	$79,461,006	$81,865,853
DOE/WAP (under DOE rules)	$408,384,527	$77,347,560	$250,874,850	$76,042,117	$4,120,000
HHS/WX (not under DOE rules)	$85,626,388	$25,662,385	$36,336,532	$86,618	$23,540,853
Utility Full-Scale Weatherization	$76,330,447	$5,053,955	$15,005,800	$2,065,692	$54,205,000
Other Full-Scale Weatherization	$5,345,473	$969,202	$4,376,271		
Housing Repair/Rehab Programs	$6,517,532	$5,025,453	$225,500	$1,266,579	
Other Resources w/ Weatherization	$1,655,240	$1,178,476	$476,764		

PROGRAM TOTALS AS PERCENTAGES OF TOTAL

	1987 ALL REGIONS	1987 COLDEST REGION 1	1987 MODERATE REGION 2	1987 WARM REGION 3	1987 CALIFORNIA REGION 4
TOTAL FUNDING	$583,859,607	$115,237,031	$307,295,717	$79,461,006	$81,865,853
DOE/WAP (under DOE rules)	69.95%	67.12%	81.64%	95.70%	5.03%
HHS/WX (not under DOE rules)	14.67%	22.27%	11.82%	0.11%	28.76%
Utility Full-Scale Weatherization	13.07%	4.39%	4.88%	2.60%	66.21%
Other Full-Scale Weatherization	0.92%	0.84%	1.42%	0.00%	0.00%
Housing Repair/Rehab Programs	1.12%	4.36%	0.07%	1.59%	0.00%
Other Resources w/ Weatherization	0.28%	1.02%	0.16%	0.00%	0.00%

UNDUPLICATED TOTAL UNITS REPORTED

	1987 ALL REGIONS	1987 COLDEST REGION 1	1987 MODERATE REGION 2	1987 WARM REGION 3	1987 CALIFORNIA REGION 4
TOTAL UNDUPLICATED	460,856	52,918	187,089	61,893	158,956
DOE/WAP	247,652	44,257	144,703	53,281	5,411
HHS/WX	45,725	4,391	18,391	98	22,845
Utility Full-Scale Weatherization	164,840	4,270	21,356	8,514	130,700
Other Full-Scale Weatherization	2,639		2,639		

A-4 FUNDING AND UNDUPLICATED HOUSING UNITS BY PROGRAM, IN REGIONS (continued)

TOTAL FUNDING BY PROGRAMS

	1988 ALL REGIONS	1988 COLDEST REGION 1	1988 MODERATE REGION 2	1988 WARM REGION 3	1988 CALIFORNIA REGION 4
TOTAL FUNDING	$585,762,639	$105,765,904	$343,974,123	$66,105,293	$69,917,319
DOE/WAP (under DOE rules)	$398,920,856	$73,538,960	$257,397,395	$63,820,501	$4,164,000
HHS/WX (not under DOE rules)	$100,824,583	$23,195,426	$63,106,162		$14,522,995
Utility Full-Scale Weatherization	$79,761,119	$4,721,652	$22,124,554	$1,684,589	$51,230,324
Other Full-Scale Weatherization	$2,324,512	$1,242,139	$487,293	$595,080	
Housing Repair/Rehab Programs	$2,066,014	$1,834,391	$226,500	$5,123	
Other Resources w/ Weatherization	$1,865,555	$1,233,336	$632,219		

PROGRAM TOTALS AS PERCENTAGES OF TOTAL

	1988 ALL REGIONS	1988 COLDEST REGION 1	1988 MODERATE REGION 2	1988 WARM REGION 3	1988 CALIFORNIA REGION 4
TOTAL FUNDING	$585,762,639	$105,765,904	$343,974,123	$66,105,293	$69,917,319
DOE/WAP (under DOE rules)	68.10%	69.53%	74.83%	96.54%	5.96%
HHS/WX (not under DOE rules)	17.21%	21.93%	18.35%	0.00%	20.77%
Utility Full-Scale Weatherization	13.62%	4.46%	6.43%	2.55%	73.27%
Other Full-Scale Weatherization	0.40%	1.17%	0.14%	0.90%	0.00%
Housing Repair/Rehab Programs	0.35%	1.73%	0.07%	0.01%	0.00%
Other Resources w/ Weatherization	0.32%	1.17%	0.18%	0.00%	0.00%

UNDUPLICATED TOTAL UNITS REPORTED

	1988 ALL REGIONS	1988 COLDEST REGION 1	1988 MODERATE REGION 2	1988 WARM REGION 3	1988 CALIFORNIA REGION 4
TOTAL UNDUPLICATED	450,711	53,311	173,250	51,845	172,305
DOE/WAP	241,921	44,099	144,700	38,432	14,690
HHS/WX	36,397	5,697	14,011		16,689
Utility Full-Scale Weatherization	170,926	3,515	13,777	12,708	140,926
Other Full-Scale Weatherization	1,467		762	705	

A-4 FUNDING AND UNDUPLICATED HOUSING UNITS BY PROGRAM, IN REGIONS (continued)

TOTAL FUNDING BY PROGRAMS

	1989 ALL REGIONS	1989 COLDEST REGION 1	1989 MODERATE REGION 2	1989 WARM REGION 3	1989 CALIFORNIA REGION 4
TOTAL FUNDING	$551,549,419	$103,009,954	$293,978,850	$91,522,673	$63,037,942
DOE/WAP (under DOE rules)	$379,935,664	$72,171,473	$236,190,278	$67,364,913	$4,209,000
HHS/WX (not under DOE rules)	$61,305,823	$20,133,876	$27,524,318	$1,053,529	$12,594,100
Utility Full-Scale Weatherization	$75,999,750	$5,831,555	$23,350,000	$583,353	$46,234,842
Other Full-Scale Weatherization	$24,306,021	$1,609,816	$613,327	$22,082,878	
Housing Repair/Rehab Programs	$3,810,506	$2,429,489	$943,017	$438,000	
Other Resources w/ Weatherization	$6,191,655	$833,745	$5,357,910		

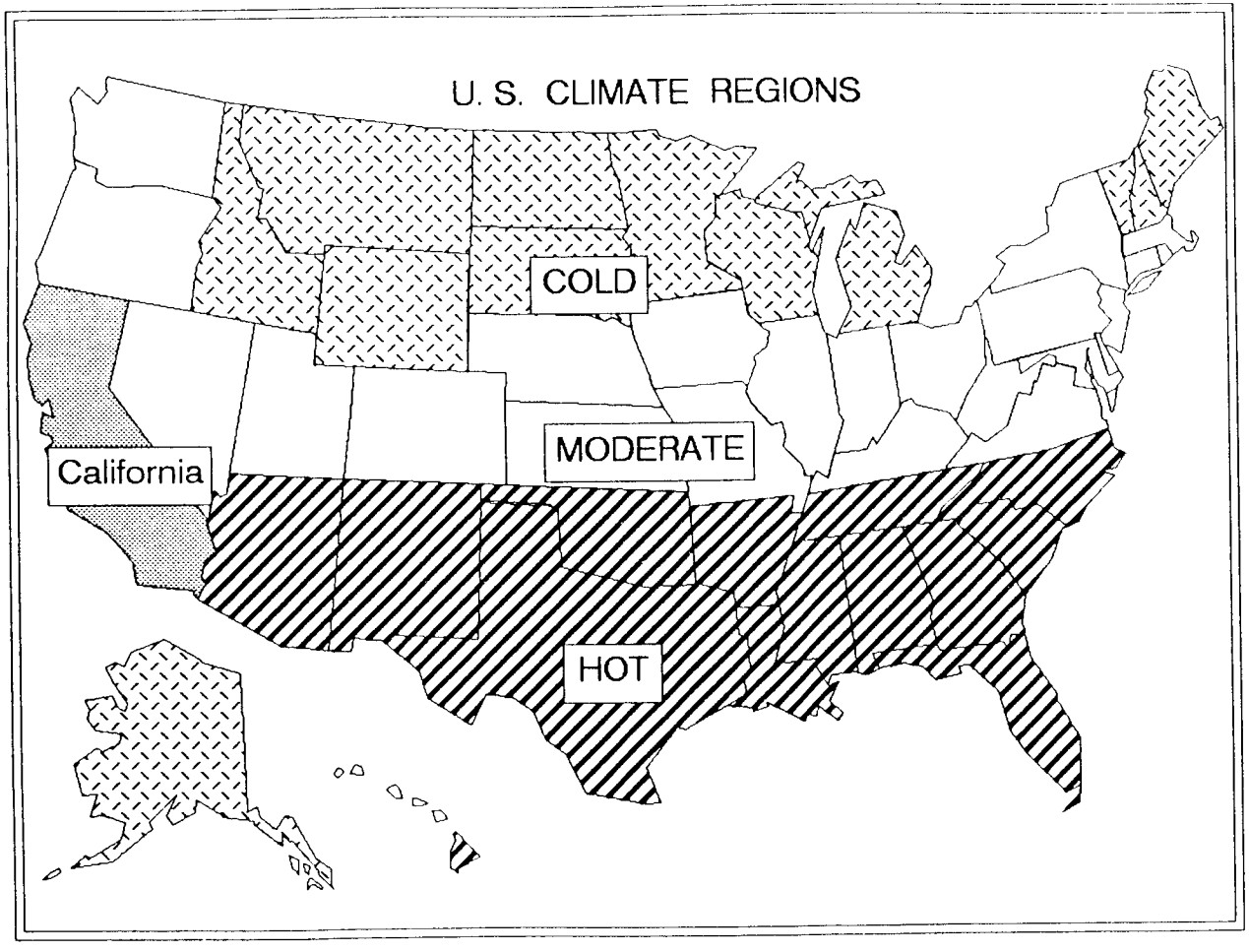
PROGRAM TOTALS AS PERCENTAGES OF TOTAL

	1989 ALL REGIONS	1989 COLDEST REGION 1	1989 MODERATE REGION 2	1989 WARM REGION 3	1989 CALIFORNIA REGION 4
TOTAL FUNDING	$551,549,419	$103,009,954	$293,978,850	$91,522,673	$63,037,942
DOE/WAP (under DOE rules)	68.89%	70.06%	80.34%	73.60%	6.68%
HHS/WX (not under DOE rules)	11.12%	19.55%	9.36%	1.15%	19.98%
Utility Full-Scale Weatherization	13.78%	5.66%	7.94%	0.64%	73.34%
Other Full-Scale Weatherization	4.41%	1.56%	0.21%	24.13%	0.00%
Housing Repair/Rehab Programs	0.69%	2.36%	0.32%	0.48%	0.00%
Other Resources w/ Weatherization	1.12%	0.81%	1.82%	0.00%	0.00%

UNDUPLICATED TOTAL UNITS REPORTED

	1989 ALL REGIONS	1989 COLDEST REGION 1	1989 MODERATE REGION 2	1989 WARM REGION 3	1989 CALIFORNIA REGION 4
TOTAL UNDUPLICATED	459,502	55,778	175,230	47,014	181,480
DOE/WAP	227,672	44,694	133,620	42,859	6,499
HHS/WX	42,893	4,283	13,716	1,121	23,773
Utility Full-Scale Weatherization	186,619	6,399	26,974	2,038	151,208
Other Full-Scale Weatherization	2,318	402	920	996	

A-5



A-5 TYPES AND NUMBERS OF UNITS, IN REGIONS

TOTAL UNITS REPORTED

	1978-1989 ALL REGIONS	1978-1989 COLDEST REGION 1	1978-1989 MODERATE REGION 2	1978-1989 WARM REGION 3	1978-1989 CALIFORNIA REGION 4
TOTAL UNITS	4,006,482	631,152	1,981,249	595,564	798,517
DOE/WAP	2,653,997	498,981	1,666,395	413,940	74,681
HHS/WX	427,015	67,687	182,196	47,470	129,662
UTILITY	901,365	50,086	124,652	132,453	594,174
OTHER	24,105	14,398	8,006	1,701	

UNDUPLICATED TOTAL UNITS REPORTED

	1978-1989 ALL REGIONS	1978-1989 COLDEST REGION 1	1978-1989 MODERATE REGION 2	1978-1989 WARM REGION 3	1978-1989 CALIFORNIA REGION 4
TOTAL UNDUPLICATED	3,844,746	601,873	1,905,900	538,456	798,517
DOE/WAP	2,653,997	498,981	1,666,395	413,940	74,681
HHS/WX	362,643	55,847	138,998	38,136	129,662
Utility	812,263	40,274	93,136	84,679	594,174
Other	15,843	6,771	7,371	1,701	

TOTAL DOLLARS WITH UNITS

	1978-1989 ALL REGIONS	1978-1989 COLDEST REGION 1	1978-1989 MODERATE REGION 2	1978-1989 WARM REGION 3	1978-1989 CALIFORNIA REGION 4
TOTAL $ w/ UNITS	$4,272,558,174	$862,962,018	$2,519,985,760	$527,435,663	$362,174,733
DOE/WAP	$3,340,393,515	$709,730,966	$2,082,003,205	$505,310,262	$43,349,082
HHS/WX	$493,198,501	$87,596,514	$312,609,548	$2,836,954	$90,155,485
Utility	$402,305,095	$41,329,834	$115,694,606	$16,610,489	$228,670,166
Other	$36,661,063	$24,304,704	$9,678,401	$2,677,958	

RESIDENCE TYPES REPORTED

	1978-1989 ALL REGIONS	1978-1989 COLDEST REGION 1	1978-1989 MODERATE REGION 2	1978-1989 WARM REGION 3	1978-1989 CALIFORNIA REGION 4
ALL RESIDENCE TYPES	2,644,888	567,400	1,541,330	436,567	99,591
Single-Family Owner-Occ	1,566,556	365,808	808,262	356,672	35,814
Single-Family Rental	501,973	114,827	308,541	57,690	20,915
Multi-Family Rental	471,348	66,288	351,516	10,682	42,862
Mobile Homes	105,011	20,477	73,011	11,523	

A-5 TYPES AND NUMBERS OF UNITS, IN REGIONS (continued)

DOE/WAP UNITS (ADMINISTERED BY DOE/WAP PROGRAM UNDER DOE RULES)

	1978-1989 ALL REGIONS	1978-1989 COLDEST REGION 1	1978-1989 MODERATE REGION 2	1978-1989 WARM REGION 3	1978-1989 CALIFORNIA REGION 4
TOTAL UNITS	2,653,997	498,981	1,666,395	413,940	74,681
TOTAL $ w/ UNITS	$3,340,393,515	$709,730,966	$2,082,003,205	$505,310,262	$43,349,082
Sum Single-Family Owner-Occ	1,335,383	308,900	671,541	322,673	32,269
Sum Single-Family Rental	431,431	88,709	272,044	54,110	16,568
Sum Multi-Family Rental	392,240	56,220	298,512	10,527	26,981
Sum Mobile Homes	90,015	15,323	64,197	10,495	
SUM RESIDENCE TYPES	2,249,069	469,152	1,306,294	397,805	75,818
% ALL REGIONS SUM TYPES		20.86%	58.08%	17.69%	3.37%
% All Regions Sum S-F Own-Occ		23.13%	50.29%	24.16%	2.42%
% All Regions Sum S-F Rental		20.56%	63.06%	12.54%	3.84%
% All Regions Sum M-F Rental		14.33%	76.10%	2.68%	6.88%
% All Regions Sum Mobile Homes		17.02%	71.32%	11.66%	

A-5 TYPES AND NUMBERS OF UNITS, IN REGIONS (continued)

HHS/WX UNITS (LIHEAP NOT ADMINISTERED UNDER DOE RULES)

	1978-1989 ALL REGIONS	1978-1989 COLDEST REGION 1	1978-1989 MODERATE REGION 2	1978-1989 WARM REGION 3	1978-1989 CALIFORNIA REGION 4
TOTAL UNITS	427,015	67,687	182,196	47,470	129,662
TOTAL UNDUPLICATED	362,643	55,847	138,998	38,136	129,662
TOTAL $ w/ UNITS	$493,198,501	$87,596,514	$312,609,548	$2,836,954	$90,155,485
Sum Single-Family Owner-Occ	148,225	38,955	71,726	33,999	3,545
Sum Single-Family Rental	44,305	12,935	23,443	3,580	4,347
Sum Multi-Family Rental	54,727	5,765	32,926	155	15,881
Sum Mobile Homes	9,817	3,871	4,918	1,028	
SUM RESIDENCE TYPES	257,074	61,526	133,013	38,762	23,773
% ALL REGIONS SUM TYPES		23.93%	51.74%	15.08%	9.25%
% All Regions Sum S-F Own-Occ		26.28%	48.39%	22.94%	2.39%
% All Regions Sum S-F Rental		29.20%	52.91%	8.08%	9.81%
% All Regions Sum M-F Rental		10.53%	60.16%	0.28%	29.02%
% All Regions Sum Mobile Homes		39.43%	50.09%	10.47%	

A-5 TYPES AND NUMBERS OF UNITS, IN REGIONS (continued)

UTILITY FULL SCALE WEATHERIZATION

	1978-1989 ALL REGIONS	1978-1989 COLDEST REGION 1	1978-1989 MODERATE REGION 2	1978-1989 WARM REGION 3	1978-1989 CALIFORNIA REGION 4
TOTAL UNITS	901,365	50,086	124,652	132,453	594,174
TOTAL UNDUPLICATED	812,263	40,274	93,136	84,679	594,174
TOTAL $ w/ UNITS	$402,305,095	$41,329,834	$115,694,606	$16,610,489	$228,670,166
Sum Single-Family Owner-Occ	82,948	17,953	64,995		
Sum Single-Family Rental	26,237	13,183	13,054		
Sum Multi-Family Rental	24,381	4,303	20,078		
Sum Mobile Homes	5,179	1,283	3,896		
SUM RESIDENCE TYPES	138,745	36,722	102,023		
% ALL REGIONS SUM TYPES		26.47%	73.53%		
% All Regions Sum S-F Own-Occ		21.64%	78.36%		
% All Regions Sum S-F Rental		50.25%	49.75%		
% All Regions Sum M-F Rental		17.65%	82.35%		
% All Regions Sum Mobile Homes		24.77%	75.23%		

OTHER SIGNIFICANT FULL SCALE LOW INCOME WEATHERIZATION

	1978-1989 ALL REGIONS	1978-1989 COLDEST REGION 1	1978-1989 MODERATE REGION 2	1978-1989 WARM REGION 3	1978-1989 CALIFORNIA REGION 4
TOTAL UNITS	24,105	14,398	8,006	1,701	
TOTAL UNDUPLICATED	15,843	6,771	7,371	1,701	
TOTAL $ w/ UNITS	$36,661,063	$24,304,704	$9,678,401	$2,677,958	

A-5 TYPES AND NUMBERS OF UNITS, IN REGIONS (continued)

TOTAL UNITS REPORTED

	1978-85 ALL REGIONS	1978-85 COLDEST REGION 1	1978-85 MODERATE REGION 2	1978-85 WARM REGION 3	1978-85 CALIFORNIA REGION 4
TOTAL UNITS	2,143,412	394,128	1,179,958	358,230	211,096
DOE/WAP	1,664,369	318,989	1,069,567	236,649	39,164
HHS/WX	225,244	41,619	85,442	46,251	51,932
UTILITY	245,124	25,012	24,782	75,330	120,000
OTHER	8,675	8,508	167		

UNDUPLICATED TOTAL UNITS REPORTED

	1978-85 ALL REGIONS	1978-85 COLDEST REGION 1	1978-85 MODERATE REGION 2	1978-85 WARM REGION 3	1978-85 CALIFORNIA REGION 4
TOTAL UNDUPLICATED	2,093,454	386,103	1,164,973	331,282	211,096
DOE/WAP	1,664,369	318,989	1,069,567	236,649	39,164
HHS/WX	206,961	39,131	78,981	36,917	51,932
UTILITY	215,776	21,802	16,258	57,716	120,000
OTHER	6,348	6,181	167		

TOTAL DOLLARS WITH UNITS

	1978-85 ALL REGIONS	1978-85 COLDEST REGION 1	1978-85 MODERATE REGION 2	1978-85 WARM REGION 3	1978-85 CALIFORNIA REGION 4
TOTAL $ w/ UNITS	$2,164,524,539	$486,977,375	$1,311,217,501	$249,914,780	$116,414,883
DOE/WAP	$1,795,024,856	$411,651,768	$1,118,530,033	$238,454,973	$26,388,082
HHS/WX	$229,819,672	$35,892,067	$162,203,997	$1,696,807	$30,026,801
Utility	$120,043,608	$19,859,571	$30,421,037	$9,763,000	$60,000,000
Other	$19,636,403	$19,573,969	$62,434		

RESIDENCE TYPES REPORTED

	1978-85 ALL REGIONS	1978-85 COLDEST REGION 1	1978-85 MODERATE REGION 2	1978-85 WARM REGION 3	1978-85 CALIFORNIA REGION 4
ALL RESIDENCE TYPES	1,511,329	349,697	857,532	264,936	39,164
Single-Family Owner-Occ	981,164	243,463	490,636	222,434	24,631
Single-Family Rental	279,053	71,974	167,404	31,505	8,170
Multi-Family Rental	205,146	25,018	169,250	4,515	6,363
Mobile Homes	45,966	9,242	30,242	6,482	

A-5 TYPES AND NUMBERS OF UNITS, IN REGIONS (continued)

DOE/WAP UNITS (ADMINISTERED BY DOE/WAP PROGRAM UNDER DOE RULES)

	1978-85 ALL REGIONS	1978-85 COLDEST REGION 1	1978-85 MODERATE REGION 2	1978-85 WARM REGION 3	1978-85 CALIFORNIA REGION 4
TOTAL UNITS	1,664,369	318,989	1,069,567	236,649	39,164
TOTAL $ w/ UNITS	$1,795,024,856	$411,651,768	$1,118,530,033	$238,454,973	$26,388,082
Sum Single-Family Owner-Occ	864,823	207,243	444,514	188,435	24,631
Sum Single-Family Rental	247,879	53,009	158,775	27,925	8,170
Sum Multi-Family Rental	187,440	20,687	156,030	4,360	6,363
Sum Mobile Homes	42,670	7,205	30,011	5,454	
SUM RESIDENCE TYPES	1,342,812	288,144	789,330	226,174	39,164
% ALL REGIONS SUM TYPES		21.46%	58.78%	16.84%	2.92%
% All Regions Sum S-F Own-Occ		23.96%	51.40%	21.79%	2.85%
% All Regions Sum S-F Rental		21.39%	64.05%	11.27%	3.30%
% All Regions Sum M-F Rental		11.04%	83.24%	2.33%	3.39%
% All Regions Sum Mobile Homes		16.89%	70.33%	12.78%	

A-5 TYPES AND NUMBERS OF UNITS, IN REGIONS (continued)

HHS/WX UNITS (LIHEAP NOT ADMINISTERED UNDER DOE RULES)

	1978-85 ALL REGIONS	1978-85 COLDEST REGION 1	1978-85 MODERATE REGION 2	1978-85 WARM REGION 3	1978-85 CALIFORNIA REGION 4
TOTAL UNITS	225,244	41,619	85,442	46,251	51,932
TOTAL UNDUPLICATED	206,961	39,131	78,981	36,917	51,932
TOTAL $ w/ UNITS	$229,819,672	$35,892,067	$162,203,997	$1,696,807	$30,026,801
Sum Single-Family Owner-Occ	92,174	27,206	30,969	33,999	
Sum Single-Family Rental	17,486	9,421	4,485	3,580	
Sum Multi-Family Rental	13,592	3,052	10,385	155	
Sum Mobile Homes	2,993	1,807	158	1,028	
SUM RESIDENCE TYPES	126,245	41,486	45,997	38,762	
% ALL REGIONS SUM TYPES		32.86%	36.43%	30.70%	
% All Regions Sum S-F Own-Occ		29.52%	33.60%	36.89%	
% All Regions Sum S-F Rental		53.88%	25.65%	20.47%	
% All Regions Sum M-F Rental		22.45%	76.41%	1.14%	
% All Regions Sum Mobile Homes		60.37%	5.28%	34.35%	

A-5 TYPES AND NUMBERS OF UNITS, IN REGIONS (continued)

UTILITY FULL SCALE WEATHERIZATION

	1978-85 ALL REGIONS	1978-85 COLDEST REGION 1	1978-85 MODERATE REGION 2	1978-85 WARM REGION 3	1978-85 CALIFORNIA REGION 4
TOTAL UNITS	245,124	25,012	24,782	75,330	120,000
TOTAL UNDUPLICATED	215,776	21,802	16,258	57,716	120,000
TOTAL $ w/ UNITS	$120,043,608	$19,859,571	$30,421,037	$9,763,000	$60,000,000
Sum Single-Family Owner-Occ	24,167	9,014	15,153		
Sum Single-Family Rental	13,688	9,544	4,144		
Sum Multi-Family Rental	4,114	1,279	2,835		
Sum Mobile Homes	303	230	73		
SUM RESIDENCE TYPES	42,272	20,067	22,205		
% ALL REGIONS SUM TYPES		47.47%	52.53%		
% All Regions Sum S-F Own-Occ		37.30%	62.70%		
% All Regions Sum S-F Rental		69.73%	30.27%		
% All Regions Sum M-F Rental		31.09%	68.91%		
% All Regions Sum Mobile Homes		75.91%	24.09%		

OTHER SIGNIFICANT FULL SCALE LOW INCOME WEATHERIZATION

	1978-85 ALL REGIONS	1978-85 COLDEST REGION 1	1978-85 MODERATE REGION 2	1978-85 WARM REGION 3	1978-85 CALIFORNIA REGION 4
TOTAL UNITS	8,675	8,508	167		
TOTAL UNDUPLICATED UNITS	6,348	6,181	167		
TOTAL $ w/ UNITS	$19,636,403	$19,573,969	$62,434		

A-5 TYPES AND NUMBERS OF UNITS, IN REGIONS (continued)

TOTAL UNITS REPORTED

	1986 ALL REGIONS	1986 COLDEST REGION 1	1986 MODERATE REGION 2	1986 WARM REGION 3	1986 CALIFORNIA REGION 4
TOTAL UNITS	414,227	58,500	216,055	64,992	74,680
DOE/WAP	272,383	46,942	173,805	42,719	8,917
HHS/WX	40,536	3,939	22,174	0	14,423
UTILITY	97,235	6,429	17,193	22,273	51,340
OTHER	4,073	1,190	2,883		

UNDUPLICATED TOTAL UNITS REPORTED

	1986 ALL REGIONS	1986 COLDEST REGION 1	1986 MODERATE REGION 2	1986 WARM REGION 3	1986 CALIFORNIA REGION 4
TOTAL UNDUPLICATED	380,223	53,763	205,358	46,422	74,680
DOE/WAP	272,383	46,942	173,805	42,719	8,917
HHS/WX	30,667	2,345	13,899		14,423
UTILITY	74,102	4,288	14,771	3,703	51,340
OTHER	3,071	188	2,883		

TOTAL DOLLARS WITH UNITS

	1986 ALL REGIONS	1986 COLDEST REGION 1	1986 MODERATE REGION 2	1986 WARM REGION 3	1986 CALIFORNIA REGION 4
TOTAL $ w/ UNITS	$450,806,997	$89,185,169	$268,541,479	$62,141,613	$30,938,736
DOE/WAP	$358,127,612	$75,021,205	$219,010,649	$59,627,758	$4,468,000
HHS/WX	$42,150,560	$7,391,285	$25,288,539		$9,470,736
Utility	$45,480,171	$5,863,101	$20,103,215	$2,513,855	$17,000,000
Other	$5,048,654	$909,578	$4,139,076		

RESIDENCE TYPES REPORTED

	1986 ALL REGIONS	1986 COLDEST REGION 1	1986 MODERATE REGION 2	1986 WARM REGION 3	1986 CALIFORNIA REGION 4
ALL RESIDENCE TYPES	266,442	54,779	163,525	39,274	8,864
Single-Family Owner-Occ	139,616	31,159	74,547	31,554	2,356
Single-Family Rental	54,132	10,575	35,585	5,822	2,150
Multi-Family Rental	58,850	10,655	42,964	873	4,358
Mobile Homes	13,844	2,390	10,429	1,025	

A-5 TYPES AND NUMBERS OF UNITS, IN REGIONS (continued)

DOE/WAP UNITS (ADMINISTERED BY DOE/WAP PROGRAM UNDER DOE RULES)

	1986 ALL REGIONS	1986 COLDEST REGION 1	1986 MODERATE REGION 2	1986 WARM REGION 3	1986 CALIFORNIA REGION 4
TOTAL UNITS	272,383	46,942	173,805	42,719	8,917
TOTAL $ w/ UNITS	$358,127,612	$75,021,205	$219,010,649	$59,627,758	$4,468,000
Sum Single-Family Owner-Occ	116,391	26,893	55,588	31,554	2,356
Sum Single-Family Rental	45,343	8,978	28,393	5,822	2,150
Sum Multi-Family Rental	49,012	9,590	34,191	873	4,358
Sum Mobile Homes	10,068	1,788	7,255	1,025	
SUM RESIDENCE TYPES	220,814	47,249	125,427	39,274	8,864
% ALL REGIONS SUM TYPES		21.40%	56.80%	17.79%	4.01%
% All Regions Sum S-F Own-Occ		23.11%	47.76%	27.11%	2.02%
% All Regions Sum S-F Rental		19.80%	62.62%	12.84%	4.74%
% All Regions Sum M-F Rental		19.57%	69.76%	1.78%	8.89%
% All Regions Sum Mobile Homes		17.76%	72.06%	10.18%	

A-5 TYPES AND NUMBERS OF UNITS, IN REGIONS (continued)

HHS/WX UNITS (LIHEAP NOT ADMINISTERED UNDER DOE RULES)

	1986 ALL REGIONS	1986 COLDEST REGION 1	1986 MODERATE REGION 2	1986 WARM REGION 3	1986 CALIFORNIA REGION 4
TOTAL UNITS	40,536	3,939	22,174		14,423
TOTAL UNDUPLICATED	30,667	2,345	13,899		14,423
TOTAL $ w/ UNITS	$42,150,560	$7,391,285	$25,288,539		$9,470,736
Sum Single-Family Owner-Occ	9,535	1,705	7,830		
Sum Single-Family Rental	4,937	336	4,601		
Sum Multi-Family Rental	5,716	138	5,578		
Sum Mobile Homes	1,157	405	752		
SUM RESIDENCE TYPES	21,345	2,584	18,761		
% ALL REGIONS SUM TYPES		12.11%	87.89%		
% All Regions Sum S-F Own-Occ		17.88%	82.12%		
% All Regions Sum S-F Rental		6.81%	93.19%		
% All Regions Sum M-F Rental		2.41%	97.59%		
% All Regions Sum Mobile Homes		35.00%	65.00%		

A-5 TYPES AND NUMBERS OF UNITS, IN REGIONS (continued)

UTILITY FULL SCALE WEATHERIZATION

	1986 ALL REGIONS	1986 COLDEST REGION 1	1986 MODERATE REGION 2	1986 WARM REGION 3	1986 CALIFORNIA REGION 4
TOTAL UNITS	97,235	6,429	17,193	22,273	51,340
TOTAL UNDUPLICATED	74,102	4,288	14,771	3,703	51,340
TOTAL $ w/ UNITS	$45,480,171	$5,863,101	$20,103,215	$2,513,855	$17,000,000
Sum Single-Family Owner-Occ	13,690	2,561	11,129		
Sum Single-Family Rental	3,852	1,261	2,591		
Sum Multi-Family Rental	4,122	927	3,195		
Sum Mobile Homes	2,619	197	2,422		
SUM RESIDENCE TYPES	24,283	4,946	19,337		
% ALL REGIONS SUM TYPES		20.37%	79.63%		
% All Regions Sum S-F Own-Occ		18.71%	81.29%		
% All Regions Sum S-F Rental		32.74%	67.26%		
% All Regions Sum M-F Rental		22.49%	77.51%		
% All Regions Sum Mobile Homes		7.52%	92.48%		

OTHER SIGNIFICANT FULL SCALE LOW INCOME WEATHERIZATION

	1986 ALL REGIONS	1986 COLDEST REGION 1	1986 MODERATE REGION 2	1986 WARM REGION 3	1986 CALIFORNIA REGION 4
TOTAL UNITS	4,073	1,190	2,883		
TOTAL UNDUPLICATED UNITS	3,071	188	2,883		
TOTAL $ w/ UNITS	$5,048,654	$909,578	$4,139,076		

A-5 TYPES AND NUMBERS OF UNITS, IN REGIONS (continued)

TOTAL UNITS REPORTED

	1987 ALL REGIONS	1987 COLDEST REGION 1	1987 MODERATE REGION 2	1987 WARM REGION 3	1987 CALIFORNIA REGION 4
TOTAL UNITS	492,110	59,812	199,859	73,483	158,956
DOE/WAP	247,652	44,257	144,703	53,281	5,411
HHS/WX	57,478	8,176	26,359	98	22,845
UTILITY	182,873	6,136	25,933	20,104	130,700
OTHER	4,107	1,243	2,864		

UNDUPLICATED TOTAL UNITS REPORTED

	1987 ALL REGIONS	1987 COLDEST REGION 1	1987 MODERATE REGION 2	1987 WARM REGION 3	1987 CALIFORNIA REGION 4
TOTAL UNDUPLICATED	460,856	52,918	187,089	61,893	158,956
DOE/WAP	247,652	44,257	144,703	53,281	5,411
HHS/WX	45,725	4,391	18,391	98	22,845
UTILITY	164,840	4,270	21,356	8,514	130,700
OTHER	2,639		2,639		

TOTAL DOLLARS WITH UNITS

	1987 ALL REGIONS	1987 COLDEST REGION 1	1987 MODERATE REGION 2	1987 WARM REGION 3	1987 CALIFORNIA REGION 4
TOTAL $ w/ UNITS	$570,554,442	$99,510,709	$310,983,453	$78,194,427	$81,865,853
DOE/WAP	$408,384,527	$77,347,560	$250,874,850	$76,042,117	$4,120,000
HHS/WX	$75,553,995	$16,139,992	$35,786,532	$86,618	$23,540,853
Utility	$81,270,447	$5,053,955	$19,945,800	$2,065,692	$54,205,000
Other	$5,345,473	$969,202	$4,376,271		

RESIDENCE TYPES REPORTED

	1987 ALL REGIONS	1987 COLDEST REGION 1	1987 MODERATE REGION 2	1987 WARM REGION 3	1987 CALIFORNIA REGION 4
ALL RESIDENCE TYPES	289,425	53,231	181,397	48,616	6,181
Single-Family Owner-Occ	157,481	30,528	87,524	38,053	1,376
Single-Family Rental	55,356	10,844	35,573	7,406	1,533
Multi-Family Rental	63,056	9,760	48,071	1,953	3,272
Mobile Homes	13,532	2,099	10,229	1,204	

A-5 TYPES AND NUMBERS OF UNITS, IN REGIONS (continued)

DOE/WAP UNITS (ADMINISTERED BY DOE/WAP PROGRAM UNDER DOE RULES)

	1987 ALL REGIONS	1987 COLDEST REGION 1	1987 MODERATE REGION 2	1987 WARM REGION 3	1987 CALIFORNIA REGION 4
TOTAL UNITS	247,652	44,257	144,703	53,281	5,411
TOTAL $ w/ UNITS	$408,384,527	$77,347,560	$250,874,850	$76,042,117	$4,120,000
Sum Single-Family Owner-Occ	123,609	25,344	58,836	38,053	1,376
Sum Single-Family Rental	45,757	9,167	27,651	7,406	1,533
Sum Multi-Family Rental	53,175	8,456	39,494	1,953	3,272
Sum Mobile Homes	11,887	1,629	9,054	1,204	
SUM RESIDENCE TYPES	234,428	44,596	135,035	48,616	6,181
% ALL REGIONS SUM TYPES		19.02%	57.60%	20.74%	2.64%
% All Regions Sum S-F Own-Occ		20.50%	47.60%	30.78%	1.11%
% All Regions Sum S-F Rental		20.03%	60.43%	16.19%	3.35%
% All Regions Sum M-F Rental		15.90%	74.27%	3.67%	6 15%
% All Regions Sum Mobile Homes		13.70%	76.17%	10.13%	

A-5 TYPES AND NUMBERS OF UNITS, IN REGIONS (continued)

HHS/WX UNITS (LIHEAP NOT ADMINISTERED UNDER DOE RULES)

	1987 ALL REGIONS	1987 COLDEST REGION 1	1987 MODERATE REGION 2	1987 WARM REGION 3	1987 CALIFORNIA REGION 4
TOTAL UNITS	57,478	8,176	26,359	98	22,845
TOTAL UNDUPLICATED	45,725	4,391	18,391	98	22,845
TOTAL $ w/ UNITS	$75,553,995	$16,139,992	$35,786,532	$86,618	$23,540,853
Sum Single-Family Owner-Occ	15,858	3,027	12,831		
Sum Single-Family Rental	6,558	640	5,918		
Sum Multi-Family Rental	4,021	651	3,370		
Sum Mobile Homes	942	470	472		
SUM RESIDENCE TYPES	27,379	4,788	22,591		
% ALL REGIONS SUM TYPES		17.49%	82.51%		
% All Regions Sum S-F Own-Occ		19.09%	80.91%		
% All Regions Sum S-F Rental		9.76%	90.24%		
% All Regions Sum M-F Rental		16.19%	83.81%		
% All Regions Sum Mobile Homes		49.89%	50.11%		

A-5 TYPES AND NUMBERS OF UNITS, IN REGIONS (continued)

UTILITY FULL SCALE WEATHERIZATION

	1987 ALL REGIONS	1987 COLDEST REGION 1	1987 MODERATE REGION 2	1987 WARM REGION 3	1987 CALIFORNIA REGION 4
TOTAL UNITS	182,873	6,136	25,933	20,104	130,700
TOTAL UNDUPLICATED	164,840	4,270	21,356	8,514	130,700
TOTAL $ w/ UNITS	$81,270,447	$5,053,955	$19,945,800	$2,065,692	$54,205,000
Sum Single-Family Owner-Occ	18,014	2,157	15,857		
Sum Single-Family Rental	3,041	1,037	2,004		
Sum Multi-Family Rental	5,860	653	5,207		
Sum Mobile Homes	703		703		
SUM RESIDENCE TYPES	27,618	3,847	23,771		
% ALL REGIONS SUM TYPES		13.93%	86.07%		
% All Regions Sum S-F Own-Occ		11.97%	88.03%		
% All Regions Sum S-F Rental		34.10%	65.90%		
% All Regions Sum M-F Rental		11.14%	88.86%		
% All Regions Sum Mobile Homes			100.00%		

OTHER SIGNIFICANT FULL SCALE LOW INCOME WEATHERIZATION

	1987 ALL REGIONS	1987 COLDEST REGION 1	1987 MODERATE REGION 2	1987 WARM REGION 3	1987 CALIFORNIA REGION 4
TOTAL UNITS	4,107	1,243	2,864		
TOTAL UNDUPLICATED UNITS	2,639		2,639		
TOTAL $ w/ UNITS	$5,345,473	$969,202	$4,376,271		

A-5 TYPES AND NUMBERS OF UNITS, IN REGIONS (continued)

TOTAL UNITS REPORTED

	1988 ALL REGIONS	1988 COLDEST REGION 1	1988 MODERATE REGION 2	1988 WARM REGION 3	1988 CALIFORNIA REGION 4
TOTAL UNITS	474,602	58,605	191,847	51,845	172,305
DOE/WAP	241,921	44,099	144,700	38,432	14,690
HHS/WX	48,255	7,361	24,205		16,689
UTILITY	181,270	5,721	21,915	12,708	140,926
OTHER	3,156	1,424	1,027	705	

UNDUPLICATED TOTAL UNITS REPORTED

	1988 ALL REGIONS	1988 COLDEST REGION 1	1988 MODERATE REGION 2	1988 WARM REGION 3	1988 CALIFORNIA REGION 4
TOTAL UNDUPLICATED	450,711	53,311	173,250	51,845	172,305
DOE/WAP	241,921	44,099	144,700	38,432	14,690
HHS/WX	36,397	5,697	14,011		16,689
UTILITY	170,926	3,515	13,777	12,708	140,926
OTHER	1,467		762	705	

TOTAL DOLLARS WITH UNITS

	1988 ALL REGIONS	1988 COLDEST REGION 1	1988 MODERATE REGION 2	1988 WARM REGION 3	1988 CALIFORNIA REGION 4
TOTAL $ w/ UNITS	$572,918,454	$94,435,561	$342,465,404	$66,100,170	$69,917,319
DOE/WAP	$398,920,856	$73,538,960	$257,397,395	$63,820,501	$4,164,000
HHS/WX	$91,911,967	$14,932,810	$62,456,162		$14,522,995
Utility	$79,761,119	$4,721,652	$22,124,554	$1,684,589	$51,230,324
Other	$2,324,512	$1,242,139	$487,293	$595,080	

RESIDENCE TYPES REPORTED

	1988 ALL REGIONS	1988 COLDEST REGION 1	1988 MODERATE REGION 2	1988 WARM REGION 3	1988 CALIFORNIA REGION 4
ALL RESIDENCE TYPES	281,362	53,415	174,263	38,973	14,711
Single-Family Owner-Occ	145,309	30,565	81,320	30,502	2,922
Single-Family Rental	54,905	9,890	35,512	6,434	3,069
Multi-Family Rental	67,459	10,190	47,157	1,392	8,720
Mobile Homes	13,689	2,770	10,274	645	

A-5 TYPES AND NUMBERS OF UNITS, IN REGIONS (continued)

DOE/WAP UNITS (ADMINISTERED BY DOE/WAP PROGRAM UNDER DOE RULES)

	1988 ALL REGIONS	1988 COLDEST REGION 1	1988 MODERATE REGION 2	1988 WARM REGION 3	1988 CALIFORNIA REGION 4
TOTAL UNITS	241,921	44,099	144,700	38,432	14,690
TOTAL $ w/ UNITS	$398,920,856	$73,538,960	$257,397,395	$63,820,501	$4,164,000
Sum Single-Family Owner-Occ	116,884	24,451	59,009	30,502	2,922
Sum Single-Family Rental	47,014	7,884	29,627	6,434	3,069
Sum Multi-Family Rental	55,798	8,790	36,896	1,392	8,720
Sum Mobile Homes	11,529	2,123	8,761	645	
SUM RESIDENCE TYPES	231,225	43,248	134,293	38,973	14,711
% ALL REGIONS SUM TYPES		18.70%	58.08%	16.86%	6.36%
% All Regions Sum S-F Own-Occ		20.92%	50.49%	26.10%	2.50%
% All Regions Sum S-F Rental		16.77%	63.02%	13.69%	6.53%
% All Regions Sum M-F Rental		15.75%	66.12%	2.49%	15.63%
% All Regions Sum Mobile Homes		18.41%	75.99%	5.59%	

A-5 TYPES AND NUMBERS OF UNITS, IN REGIONS (continued)

HHS/WX UNITS (LIHEAP NOT ADMINISTERED UNDER DOE RULES)

	1988 ALL REGIONS	1988 COLDEST REGION 1	1988 MODERATE REGION 2	1988 WARM REGION 3	1988 CALIFORNIA REGION 4
TOTAL UNITS	48,255	7,361	24,205		16,689
TOTAL UNDUPLICATED	36,397	5,697	14,011		16,689
TOTAL $ w/ UNITS	$91,911,967	$14,932,810	$62,456,162		$14,522,995
Sum Single-Family Owner-Occ	14,482	4,231	10,251		
Sum Single-Family Rental	5,173	1,003	4,170		
Sum Multi-Family Rental	6,587	849	5,738		
Sum Mobile Homes	1,985	647	1,338		
SUM RESIDENCE TYPES	28,227	6,730	21,497		
% ALL REGIONS SUM TYPES		23.84%	76.16%		
% All Regions Sum S-F Own-Occ		29.22%	70.78%		
% All Regions Sum S-F Rental		19.39%	80.61%		
% All Regions Sum M-F Rental		12.89%	87.11%		
% All Regions Sum Mobile Homes		32.59%	67.41%		

A-5 TYPES AND NUMBERS OF UNITS, IN REGIONS (continued)

UTILITY FULL SCALE WEATHERIZATION

	1988 ALL REGIONS	1988 COLDEST REGION 1	1988 MODERATE REGION 2	1988 WARM REGION 3	1988 CALIFORNIA REGION 4
TOTAL UNITS	181,270	5,721	21,915	12,708	140,926
TOTAL UNDUPLICATED	170,926	3,515	13,777	12,708	140,926
TOTAL $ w/ UNITS	$79,761,119	$4,721,652	$22,124,554	$1,684,589	$51,230,324
Sum Single-Family Owner-Occ	13,943	1,883	12,060		
Sum Single-Family Rental	2,718	1,003	1,715		
Sum Multi-Family Rental	5,074	551	4,523		
Sum Mobile Homes	175		175		
SUM RESIDENCE TYPES	21,910	3,437	18,473		
% ALL REGIONS SUM TYPES		15.69%	84.31%		
% All Regions Sum S-F Own-Occ		13.50%	86.50%		
% All Regions Sum S-F Rental		36.90%	63.10%		
% All Regions Sum M-F Rental		10.86%	89.14%		
% All Regions Sum Mobile Homes			100.00%		

OTHER SIGNIFICANT FULL SCALE LOW INCOME WEATHERIZATION

	1988 ALL REGIONS	1988 COLDEST REGION 1	1988 MODERATE REGION 2	1988 WARM REGION 3	1988 CALIFORNIA REGION 4
TOTAL UNITS	3,156	1,424	1,027	705	
TOTAL UNDUPLICATED UNITS	1,467		762	705	
TOTAL $ w/ UNITS	$2,324,512	$1,242,139	$487,293	$595,080	

A-5 TYPES AND NUMBERS OF UNITS, IN REGIONS (continued)

TOTAL UNITS REPORTED

	1989 ALL REGIONS	1989 COLDEST REGION 1	1989 MODERATE REGION 2	1989 WARM REGION 3	1989 CALIFORNIA REGION 4
TOTAL UNITS	482,131	60,107	193,530	47,014	181,480
DOE/WAP	227,672	44,694	133,620	42,859	6,499
HHS/WX	55,502	6,592	24,016	1,121	23,773
UTILITY	194,863	6,788	34,829	2,038	151,208
OTHER	4,094	2,033	1,065	996	

UNDUPLICATED TOTAL UNITS REPORTED

	1989 ALL REGIONS	1989 COLDEST REGION 1	1989 MODERATE REGION 2	1989 WARM REGION 3	1989 CALIFORNIA REGION 4
TOTAL UNDUPLICATED	459,502	55,778	175,230	47,014	181,480
DOE/WAP	227,672	44,694	133,620	42,859	6,499
HHS/WX	42,893	4,283	13,716	1,121	23,773
UTILITY	186,619	6,399	26,974	2,038	151,208
OTHER	2,318	402	920	996	

TOTAL DOLLARS WITH UNITS

	1989 ALL REGIONS	1989 COLDEST REGION 1	1989 MODERATE REGION 2	1989 WARM REGION 3	1989 CALIFORNIA REGION 4
TOTAL $ w/ UNITS	$513,753,742	$92,853,204	$286,777,923	$71,084,673	$63,037,942
DOE/WAP	$379,935,664	$72,171,473	$236,190,278	$67,364,913	$4,209,000
HHS/WX	$53,762,307	$13,240,360	$26,874,318	$1,053,529	$12,594,100
Utility	$75,749,750	$5,831,555	$23,100,000	$583,353	$46,234,842
Other	$4,306,021	$1,609,816	$613,327	$2,082,878	

RESIDENCE TYPES REPORTED

	1989 ALL REGIONS	1989 COLDEST REGION 1	1989 MODERATE REGION 2	1989 WARM REGION 3	1989 CALIFORNIA REGION 4
ALL RESIDENCE TYPES	296,329	56,278	164,613	44,768	30,671
Single-Family Owner-Occ	142,986	30,093	74,235	34,129	4,529
Single-Family Rental	58,527	11,544	34,467	6,523	5,993
Multi-Family Rental	76,837	10,665	44,074	1,949	20,149
Mobile Homes	17,979	3,976	11,837	2,167	

A-5 TYPES AND NUMBERS OF UNITS, IN REGIONS (continued)

DOE/WAP UNITS (ADMINISTERED BY DOE/WAP PROGRAM UNDER DOE RULES)

	1989	1989 COLDEST	1989 MODERATE	1989 WARM	1989 CALIFORNIA
	ALL REGIONS	REGION 1	REGION 2	REGION 3	REGION 4
TOTAL UNITS	227,672	44,694	133,620	42,859	6,499
TOTAL $ w/ UNITS	$379,935,664	$72,171,473	$236,190,278	$67,364,913	$4,209,000
Sum Single-Family Owner-Occ	113,676	24,969	53,594	34,129	984
Sum Single-Family Rental	45,438	9,671	27,598	6,523	1,646
Sum Multi-Family Rental	46,815	8,697	31,901	1,949	4,268
Sum Mobile Homes	13,861	2,578	9,116	2,167	
SUM RESIDENCE TYPES	219,790	45,915	122,209	44,768	6,898
% ALL REGIONS SUM TYPES		20.89%	55.60%	20.37%	3.14%
% All Regions Sum S-F Own-Occ		21.97%	47.15%	30.02%	0.87%
% All Regions Sum S-F Rental		21.28%	60.74%	14.36%	3.62%
% All Regions Sum M-F Rental		18.58%	68.14%	4.16%	9.12%
% All Regions Sum Mobile Homes		18.60%	65.77%	15.63%	

A-5 TYPES AND NUMBERS OF UNITS, IN REGIONS (continued)

HHS/WX UNITS (LIHEAP NOT ADMINISTERED UNDER DOE RULES)

	1989 ALL REGIONS	1989 COLDEST REGION 1	1989 MODERATE REGION 2	1989 WARM REGION 3	1989 CALIFORNIA REGION 4
TOTAL UNITS	55,502	6,592	24,016	1,121	23,773
TOTAL UNDUPLICATED	42,893	4,283	13,716	1,121	23,773
TOTAL $ w/ UNITS	$53,762,307	$13,240,360	$26,874,318	$1,053,529	$12,594,100
Sum Single-Family Owner-Occ	16,176	2,786	9,845		3,545
Sum Single-Family Rental	10,151	1,535	4,269		4,347
Sum Multi-Family Rental	24,811	1,075	7,855		15,881
Sum Mobile Homes	2,740	542	2,198		
SUM RESIDENCE TYPES	53,878	5,938	24,167		23,773
% ALL REGIONS SUM TYPES		11.02%	44.85%		44.12%
% All Regions Sum S-F Own-Occ		17.22%	60.86%		21.92%
% All Regions Sum S-F Rental		15.12%	42.05%		42.82%
% All Regions Sum M-F Rental		4.33%	31.66%		64.01%
% All Regions Sum Mobile Homes		19.78%	80.22%		

A-5 TYPES AND NUMBERS OF UNITS, IN REGIONS (continued)

UTILITY FULL SCALE WEATHERIZATION

	1989 ALL REGIONS	1989 COLDEST REGION 1	1989 MODERATE REGION 2	1989 WARM REGION 3	1989 CALIFORNIA REGION 4
TOTAL UNITS	194,863	6,788	34,829	2,038	151,208
TOTAL UNDUPLICATED	186,619	6,399	26,974	2,038	151,208
TOTAL $ w/ UNITS	$75,749,750	$5,831,555	$23,100,000	$583,353	$46,234,842
Sum Single-Family Owner-Occ	13,134	2,338	10,796		
Sum Single-Family Rental	2,938	338	2,600		
Sum Multi-Family Rental	5,211	893	4,318		
Sum Mobile Homes	1,379	856	523		
SUM RESIDENCE TYPES	22,662	4,425	18,237		
% ALL REGIONS SUM TYPES		19.53%	80.47%		
% All Regions Sum S-F Own-Occ		17.80%	82.20%		
% All Regions Sum S-F Rental		11.50%	88.50%		
% All Regions Sum M-F Rental		17.14%	82.86%		
% All Regions Sum Mobile Homes		62.07%	37.93%		

OTHER SIGNIFICANT FULL SCALE LOW INCOME WEATHERIZATION

	1989 ALL REGIONS	1989 COLDEST REGION 1	1989 MODERATE REGION 2	1989 WARM REGION 3	1989 CALIFORNIA REGION 4
TOTAL UNITS	4,094	2,033	1,065	996	
TOTAL UNDUPLICATED UNITS	2,318	402	920	996	
TOTAL $ w/ UNITS	$4,306,021	$1,609,816	$613,327	$2,082,878	

APPENDIX B

STATE MANAGERS SURVEY: TOTALS BY YEAR

UTILITY SURVEY: TOTALS BY YEAR

PROGRAM YEARS 1978-85

STATE:S: 51

THE SCOPE OF FULL SCALE LOW INCOME WEATHERIZATION PROGRAMS

STATE MANAGERS' SURVEY

TOTALS REPORTED

1. DOE/WAP. Include data from all funding sources administered by the state DOE/WAP program under DOE Rules.

A. Total PY 78-85 funds $1,795,024,856

Please itemize any non DOE/WAP funds administered under DOE rules in this total:

aa. PVE	$27,069,494
ab. LIHEAP	$439,620,841
ac. STATE	$22,789,930
ad. Other (please specify source)	$14,139,352

B. Total PY 78-85 units 1,664,369

Unit types	no. of units
single family own.-occ.	864,823
single family rental	247,879
multi-family rental	187,440
mobile homes	42,670

No. Responding: 18

2. LIHEAP not administered under DOE rules. Include all funding sources administered through the LIHEAP weatherization program. Please enter PY 78-85 dates if different from DOE/WAP: _____

A. Total PY 78-85 funds $229,819,672

Please itemize any Non-HHS funds included in this total:

aa. PVE	$ 10.582.204
ab. STATE	$ 0
ac. Other (please specify source)	$ 2,614,813

B. Total PY 78-85 units 225,244

ba. How many if any of these units were also units reported in 1B. above? (estimate if necessary) 18,283

bb.

Unit types	no. of units
single family own.-occ	92,174
single family rental	17,486
multi-family rental	13,592
mobile homes	2,993

No. Responding: 15

C. Brief description of program purposes

	(check if applicable)
ca. same as DOE but exceeds DOE cost limits	4
cb. heating system work not permitted under state DOE program plan	9
cc. other: (please describe)	7

STATE:_____

3. Utility Full Scale Weatherization for eligible households. (Please enter dates used by most utilities which are comparable to PY 78-85 DOE/WAP: _____)

A. Total PY 78-85 funds $ 29,394,055
Please list names of utilities included in this count:

1. (22)
2. _____
3. _____
4. _____
5. _____

B. Total PY 78-85 units 7,054

ba. Of these units, how many are listed above in: 1B. 2,500 2B. 0
Please estimate how many, if any, of the total number of units represent re-weatherization of DOE, PVE or LIHEAP units completed in previous years:
0

bb.

Unit types	no. of units
single family own.-occ.	1,478
single family rental	88
multi-family	500
mobile home	250

No. Responding: 10

C. Were the utility programs listed in 3.A. mandated by the State P.U.C.? Yes 7 No 3

D. Brief description of utility programs' relationships, if any, to DOE/WAP. Check if applicable.

	Check if Yes	No. of Utilities	Est. Value
1. Use DOE subgrantees to implement	4	4	$ 0
2. Contribute material to DOE program	1	1	$ 0
3. Contribute services to DOE program	0	0	$ 0
4. Contribute funds to DOE program	1	1	$ 0
5. Other. (Please specify)	2	5	$ 0

_____

4. Other significant full-scale low income weatherization: Please list any program(s) not listed in A, B, or C, if any, which contributed 10% or more of funding available for full-scale weatherization in PY 78-85.

A. Program Name	Total PY 78-85 Funds	B. Total Units	Units also included in items above	
			No. of units	No. of Item
1. (3)	$ 19,733,387	8,675	2,327	
2. _____	$ _____	_____	_____	_____

C. Brief program descriptions. (Use additional pages if necessary. Please include any data available on types of units.)

1. (4) _____
2. _____

5. If any housing repair or rehabilitation programs contributed funding to any units listed in items 1-4 above, please list:

Rehab. Program Name	Total $	Total Units Above	Energy Program Name
(4)	$1,869,666	4,671	(2)

6. If some units are entered as having multiple funding sources under items 1.B, 2.B, 3.B, and 4.B above, please enter the average cost for expenditures on such "mixed" units. Estimate if necessary.

a.	Units with DOE and LIHEAP funds (item 2.ba)	$ 2,285	(n=9)
b.	Units with DOE and utility funds (item 3.ba.1)	$ 1,000	(n=1)
c.	Units with LIHEAP utility funds (item 3.ba.2)	$	
d.	Units with LIHEAP, DOE & utility funds (item 3.ba.3)	$	
e.	Units with "Other" program funds & DOE (item 4.B)	$ 1,962	(n=3)
f.	Other combinations (please specify):		
	_____	$ 1,294	(n=2)

7. Resources combined with Full-Scale Weatherization

a. Please check off state, local, or private and landlord contributions which were combined with, and add to, the resources of any of the full scale low-income weatherization programs above, but which were not themselves full-scale programs.

	Type of Support (check all that apply)							
Please List Funds' Source	No-cost/ Low-cost	Materials	Funds	Labor	Other	No. of Units	Est. Value	Combined with which Program?
(5)	0	2	0	4	0	5,263	$732,880	(5)
							$	
							$	
							$	

(use more pages if necessary)

Please circle any of the above which, in your judgement, would not have been available to eligible households without the existence of the Weatherization Assistance Program.

If you entered data on Items 3 or 4, please answer the following:

Can the availability and/or scope of the full scale utility programs or other programs listed in Items 3 and 4 be attributed to existence of the DOE Weatherization Assistance Program? Yes 8 No 0

If yes, please explain briefly (1)

PROGRAM YEAR 1986

STATE: S: 5.

THE SCOPE OF FULL SCALE LOW INCOME WEATHERIZATION PROGRAMS

STATE MANAGERS' SURVEY

TOTALS REPORTED

1. DOE/WAP. Include data from all funding sources administered by the state DOE/WAP program under DOE Rules.

A. Total PY 86 funds $ 358,127,612

Please itemize any non DOE/WAP funds administered under DOE rules in this total:

aa. PVE	$ 57,351,931
ab. LIHEAP	$ 113,194,449
ac. STATE	$ 3,182,200
ad. Other (please specify source)	$ 0

B. Total PY 86 units 272,383

Unit types	no. of units
single family own.-occ.	116,391
single family rental	45,343
multi-family rental	49,012
mobile homes	10,068

No. Responding: 14

2. LIHEAP not administered under DOE rules. Include all funding sources administered through the LIHEAP weatherization program. Please enter PY 86 dates if different from DOE/WAP: _____

A. Total PY 86 funds $ 46,150,560

Please itemize any Non-HHS funds included in this total:

aa. PVE	$ 4,000,000
ab. STATE	$ 0
ac. Other (please specify source)	$ 0

B. Total PY 86 units 40,536

ba. How many if any of these units were also units reported in 1B. above? (estimate if necessary) 9,869

bb. Unit types	no. of units
single family own.-occ	9,535
single family rental	4,937
multi-family rental	5,716
mobile homes	1,157

No. Responding: 13

C. Brief description of program purposes

	(check if applicable)
ca. same as DOE but exceeds DOE cost limits	6
cb. heating system work not permitted under state DOE program plan	9
cc. other: (please describe)	7

STATE:_____

3. Utility Full Scale Weatherization for eligible households. (Please enter dates used by most utilities which are comparable to PY 86 DOE/WAP: _____)

A. Total PY 86 Funds $ 9,976,263

Please list names of utilities included in this count:

1. (11)
2. _____
3. _____
4. _____
5. _____

B. Total PY 86 Units 18,830

ba. Of these units, how many are listed above in: 1B. 1,228 2B. 128
Please estimate how many, if any, of the total number of units represent re-weatherization of DOE, PVE or LIHEAP units completed in previous years: 128

bb.

Unit types	no. of units
single family own.-occ.	924
single family rental	412
multi-family	251
mobile home	114

No. Responding: 5

C. Were the utility programs listed in 3.A. mandated by the State P.U.C.? Yes 4 No 1

D. Brief description of utility programs' relationships, if any, to DOE/WAP. Check if applicable.

	Check if Yes	No. of Utilities	Est. Value
1. Use DOE subgrantees to implement	6	8	$ 206,863
2. Contribute material to DOE program	1	1	$ 0
3. Contribute services to DOE program	0	0	$ 0
4. Contribute funds to DOE program	1	1	$ 0
5. Other. (Please specify)	2	5	$ 0

_____

4. Other significant full-scale low income weatherization: Please list any program(s) not listed in A, B, or C, if any, which contributed 10% or more of funding available for full-scale weatherization in PY 86.

A. Program Name	Total PY 86 Funds	B. Total Units	Units also included in items above	
			No. of units	No. of Item
1. (5)	$ 7,448,654	4,073	1,002	
2. _____	$ _____	_____	_____	_____

C. Brief program descriptions. (Use additional pages if necessary. Please include any data available on types of units.)

1. (3) _____
2. _____

5. If any housing repair or rehabilitation programs contributed funding to any units listed in items 1-4 above, please list

Rehab. Program Name	Total $	Total Units Above	Energy Program Name
(11)	$2,855,239	2,586	8

6. If some units are entered as having multiple funding sources under items 1.B, 2.B, 3.B, and 4.B above, please enter the average cost for expenditures on such "mixed" units. Estimate if necessary.

a.	Units with DOE and LIHEAP funds (item 2.ba)	$ 2,725	(n=5)
b.	Units with DOE and utility funds (item 3.ba.1)	$ 2,120	(n=1)
c.	Units with LIHEAP utility funds (item 3.ba.2)	$ 2,411	(n=2)
d.	Units with LIHEAP, DOE & utility funds (item 3.ba.3)	$	
e.	Units with "Other" program funds & DOE (item 4.B)	$ 2,450	(n=2)
f.	Other combinations (please specify):		
	_____	$ 2,100	(n=2)

7. Resources combined with Full-Scale Weatherization

a. Please check off state, local, or private and landlord contributions which were combined with, and add to, the resources of any of the full scale low-income weatherization programs above, but which were not themselves full-scale programs.

	Type of Support (check all that apply)							
Please List Funds' Source	No-cost/ Low-cost	Materials	Funds	Labor	Other	No. of Units	Est. Value	Combined with which Program?
(4)	0	3	0	4	0	208	$ 522,378	(4)
							$	
							$	
							$	

(use more pages if necessary)

Please circle any of the above which, in your judgement, would not have been available to eligible households without the existence of the Weatherization Assistance Program.

If you entered data on Items 3 or 4, please answer the following:

Can the availability and/or scope of the full scale utility programs or other programs listed in Items 3 and 4 be attributed to existence of the DOE Weatherization Assistance Program? Yes 6 No 1

If yes, please explain briefly (0)

PROGRAM YEAR 1987

STATE: S: 50

THE SCOPE OF FULL SCALE LOW INCOME WEATHERIZATION PROGRAMS

STATE MANAGERS' SURVEY

TOTALS REPORTED

1. DOE/WAP Include data from all funding sources administered by the state DOE/WAP program under DOE Rules.

A. Total PY 87 funds $ 408,384,527

B. Total PY 87 units 247,652

Unit types	no. of units
single family own.-occ.	123,609
single family rental	45,757
multi-family rental	53,175
mobile homes	11,887

Please itemize any non DOE/WAP funds administered under DOE rules in this total:

aa. PVE $ 130,228,194

ab. LIHEAP $ 99,346,902

ac. STATE $ 3,000,000

ad. Other $ 0
(please specify source)

No. Responding: 19

2. LIHEAP not administered under DOE rules. Include all funding sources administered through the LIHEAP weatherization program. Please enter PY 87 dates if different from DOE/WAP:

A. Total PY 87 funds $ 85,626,388

B. Total PY 87 units 57,478

Please itemize any Non-HHS funds included in this total:

aa. PVE $ 13,856,770

ab. STATE $ 200,000

ac. Other $ 0
(please specify source)

ba. How many if any of these units were also units reported in 1B. above? (estimate if necessary) 11,753

bb.

Unit types	no. of units
single family own.-occ	15,858
single family rental	6,558
multi-family rental	4,021
mobile homes	1,234

No. Responding: 16

C. Brief description of program purposes

	(check if applicable)
ca. same as DOE but exceeds DOE cost limits	7
cb. heating system work not permitted under state DOE program plan	8
cc. other: (please describe)	8

STATE:_____

3. Utility Full Scale Weatherization for eligible households. (Please enter dates used by most utilities which are comparable to PY 87 DOE/WAP: _____)

A. Total PY 87 Funds $ 2,862,209

B. Total PY 87 Units 4,132

Please list names of utilities included in this count:

1. (12)
2. _____
3. _____
4. _____
5. _____

ba. Of these units, how many are listed above in: 1B. 2,170 2B. 170
Please estimate how many, if any, of the total number of units represent re-weatherization of DOE, PVE or LIHEAP units completed in previous years:
170

bb.

Unit types	no. of units
single family own.-occ.	1,464
single family rental	687
multi-family	456
mobile home	203

No. Responding: 3

C. Were the utility programs listed in 3.A. mandated by the State P.U.C.? Yes 3 No _____

D. Brief description of utility programs' relationships, if any, to DOE/WAP. Check if applicable.

	Check if Yes	No. of Utilities	Est. Value
1. Use DOE subgrantees to implement	5	5	$ 275,809
2. Contribute material to DOE program	2	1	$ 0
3. Contribute services to DOE program	0	0	$ 0
4. Contribute funds to DOE program	1	1	$ 0
5. Other. (Please specify)	2	5	$ 0

_____

4. Other significant full-scale low income weatherization: Please list any program(s) not listed in A, B, or C, if any, which contributed 10% or more of funding available for full-scale weatherization in PY 87.

A. Program Name	Total PY 87 Funds	B. Total Units	Units also included in items above	
			No. of units	No. of Item
1. (5)	$ 5,345,473	4,107	1,468	
2. _____	$ _____	_____	_____	_____

C. Brief program descriptions. (Use additional pages if necessary. Please include any data available on types of units.)

1. (3) _____
2. _____

5. If any housing repair or rehabilitation programs contributed funding to any units listed in items 1-4 above, please list.

Rehab. Program Name	Total $	Total Units Above	Energy Program Name
(12)	$ 6,517,532	3,963	(9)

6. If some units are entered as having multiple funding sources under items 1.B, 2.B, 3.B, and 4.B above, please enter the average cost for expenditures on such "mixed" units. Estimate if necessary.

a.	Units with DOE and LIHEAP funds (item 2.ba)	$ 3,131	(n=3)
b.	Units with DOE and utility funds (item 3.ba.1)	$ 2,306	(n=2)
c.	Units with LIHEAP utility funds (item 3.ba.2)	$ 2,726	(n=2)
d.	Units with LIHEAP, DOE & utility funds (item 3.ba.3)	$ 3,000	(n=1)
e.	Units with "Other" program funds & DOE (item 4.B)	$ 2,250	(n=1)
f.	Other combinations (please specify):		
	_____	$ 1,825	(n=3)

7. Resources combined with Full-Scale Weatherization

a. Please check off state, local, or private and landlord contributions which were combined with, and add to, the resources of any of the full scale low-income weatherization programs above, but which were not themselves full-scale programs.

	Type of Support (check all that apply)							
Please List Funds' Source	No-cost/ Low-cost	Materials	Funds	Labor	Other	No. of Units	Est. Value	Combined with which Program?
(11)	0	5	1	7	0	4,072	$ 1,655,240	(9)
							$	
							$	
(use more pages if necessary)							$	

Please circle any of the above which, in your judgement, would not have been available to eligible households without the existence of the Weatherization Assistance Program.

If you entered data on Items 3 or 4, please answer the following:

Can the availability and/or scope of the full scale utility programs or other programs listed in Items 3 and 4 be attributed to existence of the DOE Weatherization Assistance Program? Yes 7 No 1

If yes, please explain briefly (0)

PROGRAM YEAR 1988

STATE: [illegible]

THE SCOPE OF FULL SCALE LOW INCOME WEATHERIZATION PROGRAMS

STATE MANAGERS' SURVEY

TOTALS REPORTED

1. DOE/WAP. Include data from all funding sources administered by the state DOE/WAP program under DOE Rules.

A. Total PY 88 funds $ 398,920,856

Please itemize any non DOE/WAP funds administered under DOE rules in this total:

aa. PVE	$ 173,209,048
ab. LIHEAP	$ 53,918,995
ac. STATE	$ 3,200,000
ad. Other (please specify source)	$ 243,000

B. Total PY 88 units 241,921

Unit types	no. of units
single family own.-occ.	116,88-
single family rental	47,01-
multi-family rental	55,798
mobile homes	11,529

No. Responding: 17

2. LIHEAP not administered under DOE rules. Include all funding sources administered through the LIHEAP weatherization program. Please enter PY 88 dates if different from DOE/WAP: _____

A. Total PY 88 funds $ 100,824,583

Please itemize any Non-HHS funds included in this total:

aa. PVE	$ 33,362,296
ab. STATE	$ 0
ac. Other (please specify source)	$ 0

B. Total PY 88 units 48,255

ba. How many if any of these units were also units reported in 1B. above? (estimate if necessary) 11,858

bb.

Unit types	no. of units
single family own.-occ	14,482
single family rental	5,173
multi-family rental	6,587
mobile homes	1,985

No. Responding: 16

C. Brief description of program purposes (check if applicable)

ca. same as DOE but exceeds DOE cost limits	7
cb. heating system work not permitted under state DOE program plan	10
cc. other: (please describe) _____	5

STATE:_____

3. Utility Full Scale Weatherization for eligible households. (Please enter dates used by most utilities which are comparable to PY 88 DOE/WAP: _____)

A. Total PY 88 Funds $ 16,318,184

B. Total PY 88 Units 20,477

Please list names of utilities included in this count:

1. (14)
2. _____
3. _____
4. _____
5. _____

ba. Of these units, how many are listed above in: 1B. 3,200 2B. 0
Please estimate how many, if any, of the total number of units represent re-weatherization of DOE, PVE or LIHEAP units completed in previous years: 0

bb.

Unit types	no. of units
single family own.-occ.	1,631
single family rental	984
multi-family	640
mobile home	323

No. Responding: 5

C. Were the utility programs listed in 3.A mandated by the State P.U.C.? Yes 4 No 1

D. Brief description of utility programs' relationships, if any, to DOE/WAP. Check if applicable.

	Check if Yes	No. of Utilities	Est. Value
1. Use DOE subgrantees to implement	6	6	$ 0
2. Contribute material to DOE program	1	1	$ 0
3. Contribute services to DOE program	0	0	$ 0
4. Contribute funds to DOE program	1	1	$ 0
5. Other. (Please specify)	2	5	$ 0

_____

4. Other significant full-scale low income weatherization: Please list any program(s) not listed in A, B, or C, if any, which contributed 10% or more of funding available for full-scale weatherization in PY 88.

A. Program Name	Total PY 88 Funds	B. Total Units	Units also included in items above	
			No. of units	No. of Item
1. (4)	$ 2,324,512	3,156	1,689	
2. _____	$ _____	_____	_____	_____

C. Brief program descriptions. (Use additional pages if necessary. Please include any data available on types of units.)

1. (2)
2. _____

STATE: ____

5. If any housing repair or rehabilitation programs contributed funding to any units listed in items 1-4 above, please list:

Rehab. Program Name	Total $	Total Units Above	Energy Program Name
(11)	$2,066,014	1,809	(8)

6. If some units are entered as having multiple funding sources under items 1.B, 2.B, 3.B, and 4.B above, please enter the average cost for expenditures on such "mixed" units. Estimate if necessary.

a.	Units with DOE and LIHEAP funds (item 2.ba)	$ 3,002	(n=4)
b.	Units with DOE and utility funds (item 3.ba.1)	$ 2,600	(n=1)
c.	Units with LIHEAP utility funds (item 3.ba.2)	$ 3,000	(n=1)
d.	Units with LIHEAP, DOE & utility funds (item 3.ba.3)	$ 3,000	(n=1)
e.	Units with "Other" program funds & DOE (item 4.B)	$ 2,472	(n=1)
f.	Other combinations (please specify): _____	$ 1,923	(n=3)

7. Resources combined with Full-Scale Weatherization

a. Please check off state, local, or private and landlord contributions which were combined with, and add to, the resources of any of the full scale low-income weatherization programs above, but which were not themselves full-scale programs.

	Type of Support (check all that apply)							
Please List Funds' Source	No-cost/ Low-cost	Materials	Funds	Labor	Other	No. of Units	Est. Value	Combined with which Program?
(10)	0	6	1	7	0	4,536	$ 1,865,555	(9)
							$	
							$	
							$	

(use more pages if necessary)

Please circle any of the above which, in your judgement, would not have been available to eligible households without the existence of the Weatherization Assistance Program.

If you entered data on Items 3 or 4, please answer the following:

Can the availability and/or scope of the full scale utility programs or other programs listed in Items 3 and 4 be attributed to existence of the DOE Weatherization Assistance Program? Yes 7 No 1

If yes, please explain briefly (0)

PROGRAM YEAR 1989

STATE: S: 5

THE SCOPE OF FULL SCALE LOW INCOME WEATHERIZATION PROGRAMS

STATE MANAGERS' SURVEY

TOTALS REPORTED

1. DOE/WAP. Include data from all funding sources administered by the state DOE/WAP program under DOE Rules.

A. Total PY 89 funds $ 379,935,664

Please itemize any non DOE/WAP funds administered under DOE rules in this total:

aa. PVE	$ 170,450,735
ab. LIHEAP	$ 58,065,855
ac. STATE	$ 450,000
ad. Other (please specify source)	$ 3,709,395

B. Total PY 89 units 227,672

Unit types	no. of units
single family own.-occ.	113,676
single family rental	45,438
multi-family rental	46,815
mobile homes	13,861

No. Responding: 16

2. LIHEAP not administered under DOE rules. Include all funding sources administered through the LIHEAP weatherization program. Please enter PY 89 dates if different from DOE/WAP: _____

A. Total PY 89 funds $ 61,305,823

Please itemize any Non-HHS funds included in this total:

aa. PVE	$ 4,127,731
ab. STATE	$ 0
ac. Other (please specify source)	$ 0

B. Total PY 89 units 55,502

ba. How many if any of these units were also units reported in 1B. above? (estimate if necessary) 12,609

bb.

Unit types	no. of units
single family own.-occ	16,176
single family rental	10,151
multi-family rental	24,811
mobile homes	2,740

No. Responding: 15

C. Brief description of program purposes (check if applicable)

ca. same as DOE but exceeds DOE cost limits	6
cb. heating system work not permitted under state DOE program plan	12
cc. other: (please describe) _____	5

STATE: _____

3. Utility Full Scale Weatherization for eligible households. (Please enter dates used by most utilities which are comparable to PY 89 DOE/WAP: _____)

A. Total PY 89 Funds $ 16,566,966

B. Total PY 89 Units 15,779

Please list names of utilities included in this count:

1. (14)
2. _____
3. _____
4. _____
5. _____

ba. Of these units, how many are listed above in: 1B. 1,350 2B. 0
Please estimate how many, if any, of the total number of units represent re-weatherization of DOE, PVE or LIHEAP units completed in previous years: 0

bb.

Unit types	no. of units
single family own.-occ.	687
single family rental	411
multi-family	275
mobile home	138

No. Responding: 4

C. Were the utility programs listed in 3.A. mandated by the State P.U.C? Yes 3 No 1

D. Brief description of utility programs' relationships, if any, to DOE/WAP. Check if applicable.

	Check if Yes	No. of Utilities	Est. Value
1. Use DOE subgrantees to implement	5	6	$ 0
2. Contribute material to DOE program	1	1	$ 0
3. Contribute services to DOE program	0	0	$ 0
4. Contribute funds to DOE program	0	0	$ 0
5. Other. (Please specify)	2	5	$ 0

_____

4. Other significant full-scale low income weatherization: Please list any program(s) not listed in A, B, or C, if any, which contributed 10% or more of funding available for full-scale weatherization in PY 89.

A. Program Name	Total PY 89 Funds	B. Total Units	Units also included in items above	
			No. of units	No. of Item
1. (9)	$ 24,306,021	4,094	1,776	
2. _____	$ _____	_____	_____	_____

C. Brief program descriptions. (Use additional pages if necessary. Please include any data available on types of units.)

1. (5) _____
2. _____

STATE:_____

5. If any housing repair or rehabilitation programs contributed funding to any units listed in items 1-4 above, please list:

Rehab. Program Name	Total $	Total Units Above	Energy Program Name
(13)	$3,810,506	2,069	(7)

6. If some units are entered as having multiple funding sources under items 1.B, 2.B, 3.B, and 4.B above, please enter the average cost for expenditures on such "mixed" units. Estimate if necessary.

a.	Units with DOE and LIHEAP funds (item 2.ba)	$ 3,214	(n=2)
b.	Units with DOE and utility funds (item 3.ba.1)	$	
c.	Units with LIHEAP utility funds (item 3.ba.2)	$	
d.	Units with LIHEAP, DOE & utility funds (item 3.ba.3)	$	
e.	Units with "Other" program funds & DOE (item 4.B)	$ 2,716	(n=2)
f.	Other combinations (please specify):		
		$ 2,267	(n=4)

7. Resources combined with Full-Scale Weatherization

a. Please check off state, local, or private and landlord contributions which were combined with, and add to, the resources of any of the full scale low-income weatherization programs above, but which were not themselves full-scale programs.

	Type of Support (check all that apply)							
Please List Funds' Source	No-cost/ Low-cost	Materials	Funds	Labor	Other	No. of Units	Est. Value	Combined with which Program?
(17)	0	9	1	10	3	1,540	$ 6,191,655	(16)
							$	
							$	
							$	

(use more pages if necessary)

Please circle any of the above which, in your judgement, would not have been available to eligible households without the existence of the Weatherization Assistance Program.

If you entered data on items 3 or 4, please answer the following:

Can the availability and/or scope of the full scale utility programs or other programs listed in items 3 and 4 be attributed to existence of the DOE Weatherization Assistance Program? Yes 11 No 1

If yes, please explain briefly (1)

PY 1978-85
mo/yr - mo/yr

Company Name _____

No. Responding: 98

US DEPARTMENT OF ENERGY
WEATHERIZATION ASSISTANCE EVALUATION

THE SCOPE OF UTILITY LOW INCOME WEATHERIZATION PROGRAMS

1. Please provide the following data on any **full scale low income weatherization** (see instructions) offered in PY 1978-85. If your company did not run such programs, please go to Question 3.

A. Total funds spent on weatherization program: $ 113,803,660 (n=24)

B. Total units completed in whole or in part with utility resources: 306,719 (n=24)

Unit Types (n=15)	No. of Units
1. single family, owner occupied	53,005
2. single family, rental	23,564
3. multi-family, rental	38,103
4. mobile homes	303

C. Was the program mandated by the body that regulates the utility?

Yes	No
11	0

D. If any of the units listed in item B above involved combining your program with publicly-funded program resources, please indicate the following:

1. Number of units among those in 1.B. with combined utility and public program resources: 76,840 (n=11)

2. The publicly funded program(s):

	Please Check
a. U.S. Department of Energy Weatherization	5
b. U.S. Department of Health and Human Services Low-Income Home Energy Assistance Program's Weatherization (LIHEAP)	4
c. State program (please give name) _____	4
d. Other (please specify) _____	6

E. If this utility program used local agencies which are also Department of Energy Weatherization subcontractors as its subcontractors, please check here. 13

F. Please check any of the measures below offered by the utility weatherization program as part of a full scale weatherization program.

1. Insulation, heat loss
   - a. attic insulation 22
   - b. wall insulation 11
   - c. basement insulation 9
   - d. wrap water heater/ducts 24
   - e. other (please specify) 11

2. Air or water leakage
   - a. weatherstrip/caulk 24
   - b. window replacement 8
   - c. storm windows/doors 15
   - d. home repairs 10
   - e. other (please specify) 7

3. Heating system
   - a. repair/tune up 5
   - b. replacement 5
   - c. other 1

4. Hot water system
   - a. repair/tune up 5
   - b. replacement 2
   - c. other 1

5. Major appliance replacement 0

6. Lighting measures 1

7. Miscelllaneous
   - a. water saving measures 7
   - b. cooling measures 1
   - c. other (please specify) 2

2. In addition to the activities above, did the company in PY 1978-85 donate energy conservation resources directly to public sector low-income weatherization programs? If yes, please indicate:

Total funding $_____ No. of units assisted _____

Type of Resource (please check all applicable)

cash	_____	equipment	_____
materials	_____	training	_____
personnel	_____	Other (please specify)	_____
vehicles	_____		

Program receiving resources (please check all applicable)

Department of Energy Weatherization _____

State Program (please name) _____

Other (please specify) _____

3. If your company provided other forms of energy conservation assistance to low income households at no charge, please indicate below:

Measure	Check If Yes	No. of Low Income Recipient Households (Only)	Average Cost Per Household Max/Min
blower door test	0	0	
heating system performance test	8	6,251	$55/8
cooling system performance test	1	0	
heating/cooling system safety test	2	800	
indoor air quality instrumented test	2	27	$25/25
light bulbs, lighting measures	3	0	$25/25
attic insulation	8	26,610	$25/25
wall insulation	6	0	
heating system:			
repair/tune up	7	1,978	$561/70
replacement	4	251	$1,680/1,500
water heater:			
repair/tune up	3	175	
replacement			
window replacement	3	0	
storm windows/door	12	29	$25/25
home repairs	5	0	$25/25
caulk or weather strip	17	61,976	$50/6
low cost/no cost kit	9	26,004	$80/4
water system wrap up	6	69	$12/7
duct wrap up	3	615	
client education/information			
if yes: by mail	15	332,055	$397/0.04
at home training	18	21,542	$150/10
center based training	7	240	$100/10
cooling measures	2	0	
major appliance replacement	2	0	
Other (please specify)	3	35	$30/30

PY 1986
mo/yr - mo/yr

Company Name _____

No. Responding: 57

US DEPARTMENT OF ENERGY
WEATHERIZATION ASSISTANCE EVALUATION

THE SCOPE OF UTILITY LOW INCOME WEATHERIZATION PROGRAMS

1. Please provide the following data on any **full scale low income weatherization** (see instructions) offered in PY 1986. If your company did not run such programs, please go to Question 3.

A. Total funds spent on weatherization program: $ 40,069,871 (n=22)

B. Total units completed in whole or in part with utility resources: 136,868 (n=23)

Unit Types (n=18)	No. of Units
1. single family, owner occupied	73,645
2. single family, rental	8,755
3. multi-family, rental	35,788
4. mobile homes	170

C. Was the program mandated by the body that regulates the utility?

Yes	No
11	16

D. If any of the units listed in item B above involved combining your program with publicly-funded program resources, please indicate the following:

1. Number of units among those in 1.B. with combined utility and public program resources: 22,274 (n=10)

2. The publicly funded program(s):

	Please Check
a. U.S. Department of Energy Weatherization	4
b. U.S. Department of Health and Human Services Low-Income Home Energy Assistance Program's Weatherization (LIHEAP)	5
c. State program (please give name) _____	7
d. Other (please specify) _____	4

E. If this utility program used local agencies which are also Department of Energy Weatherization subcontractors as its subcontractors, please check here. 10

1986

F. Please check any of the measures below offered by the utility weatherization program as part of a full scale weatherization program.

1. Insulation, heat loss
   - a. attic insulation 21
   - b. wall insulation 10
   - c. basement insulation 9
   - d. wrap water heater/ducts 22
   - e. other (please specify) 10

2. Air or water leakage
   - a. weatherstrip/caulk 25
   - b. window replacement 9
   - c. storm windows/doors 15
   - d. home repairs 12
   - e. other (please specify) 10

3. Heating system
   - a. repair/tune up 7
   - b. replacement 5
   - c. other 0

4. Hot water system
   - a. repair/tune up 5
   - b. replacement 4
   - c. other 0

5. Major appliance replacement 0

6. Lighting measures 1

7. Miscelllaneous
   - a. water saving measures 8
   - b. cooling measures 1
   - c. other (please specify) 2

2. In addition to the activities above, did the company in PY 1986 donate energy conservation resources directly to public sector low-income weatherization programs? If yes, please indicate:

Total funding $_____ No. of units assisted _____

Type of Resource (please check all applicable)

cash	_____	equipment	_____
materials	_____	training	_____
personnel	_____	Other (please specify)	_____
vehicles	_____		

Program receiving resources (please check all applicable)

Department of Energy Weatherization _____

State Program (please name) _____

Other (please specify) _____

3. If your company provided other forms of energy conservation assistance to low income households at no charge, please indicate below:

Measure	Check If Yes	No. of Low Income Recipient Households (Only)	Average Cost Per Household Max/Min
blower door test	3	1,050	$50/50
heating system performance test	8	3,042	$100/9
cooling system performance test	1	0	
heating/cooling system safety test	4	4,375	$30/30
indoor air quality instrumented test	3	9	$25/25
light bulbs, lighting measures	2	0	$30/30
attic insulation	8	11,728	$30/30
wall insulation	6	0	$30/30
heating system:			
repair/tune up	8	1,331	$590/75
replacement	6	204	$1,680/906
water heater:			
repair/tune up	5	503	$30/30
replacement			
window replacement	4	0	$17/17
storm windows/door	9	0	$500/500
home repairs	7	0	$500/30
caulk or weather strip	16	43,337	$250/4
low cost/no cost kit	10	13,876	$147/0
water system wrap up	10	2,206	$59/9
duct wrap up	3	48	$20/20
client education/information			
if yes: by mail	15	89,432	$381/0.03
at home training	18	5,247	$166/30
center based training	6	40	$100/100
cooling measures	1	0	
major appliance replacement	1	0	
Other (please specify)	6	113	$62/32

PY 1987
mo/yr - mo/yr

Company Name _____

No. Responding: 59

US DEPARTMENT OF ENERGY
WEATHERIZATION ASSISTANCE EVALUATION

THE SCOPE OF UTILITY LOW INCOME WEATHERIZATION PROGRAMS

1. Please provide the following data on any **full scale low income weatherization** (see instructions) offered in PY 1987. If your company did not run such programs, please go to Question 3.

A. Total funds spent on weatherization program — $ 78,900,949 (n=30)

B. Total units completed in whole or in part with utility resources — 182,042 (n=31)

Unit Types (n=23)	No. of Units
1. single family, owner occupied	30,664
2. single family, rental	8,492
3. multi-family, rental	31,316
4. mobile homes	734

C. Was the program mandated by the body that regulates the utility?

Yes	No
12	20

D. If any of the units listed in item B above involved combining your program with publicly-funded program resources, please indicate the following:

1. Number of units among those in 1.B. with combined utility and public program resources — 25,717 (n=16)

2. The publicly funded program(s):

	Please Check
a. U.S. Department of Energy Weatherization	7
b. U.S. Department of Health and Human Services Low-Income Home Energy Assistance Program's Weatherization (LIHEAP)	8
c. State program (please give name) _____	8
d. Other (please specify) _____	5

E. If this utility program used local agencies which are also Department of Energy Weatherization subcontractors as its subcontractors, please check here. — 14

F. Please check any of the measures below offered by the utility weatherization program as part of a **full scale weatherization** program.

1. Insulation, heat loss
   - a. attic insulation 29
   - b. wall insulation 15
   - c. basement insulation 16
   - d. wrap water heater/ducts 28
   - e. other (please specify) 13

2. Air or water leakage
   - a. weatherstrip/caulk 30
   - b. window replacement 16
   - c. storm windows/doors 21
   - d. home repairs 15
   - e. other (please specify) 10

3. Heating system
   - a. repair/tune up 10
   - b. replacement 7
   - c. other 0

4. Hot water system
   - a. repair/tune up 5
   - b. replacement 4
   - c. other 2

5. Major appliance replacement 0

6. Lighting measures 3

7. Miscelllaneous
   - a. water saving measures 8
   - b. cooling measures 0
   - c. other (please specify) 3

2. In addition to the activities above, did the company in PY 1987 donate energy conservation resources directly to public sector low-income weatherization programs? If yes, please indicate:

Total funding $_____ No. of units assisted _____

Type of Resource (please check all applicable)

cash	_____	equipment	_____
materials	_____	training	_____
personnel	_____	Other (please specify)	_____
vehicles	_____		

Program receiving resources (please check all applicable)

Department of Energy Weatherization _____

State Program (please name) _____

Other (please specify) _____

3. If your company provided other forms of energy conservation assistance to low income households at no charge, please indicate below:

Measure	Check If Yes	No. of Low Income Recipient Households (Only)	Average Cost Per Household Max/Min
blower door test	5	1,301	$538/50
heating system performance test	7	3,500	$35/9
cooling system performance test	1	0	
heating/cooling system safety test	4	4,075	$35/35
indoor air quality instrumented test	3	9	$25/25
light bulbs, lighting measures	3	77	$376/30
attic insulation	11	7,869	$630/30
wall insulation	9	77	$630/30
heating system:			
repair/tune up	7	1,030	$90/90
replacement	6	315	$1,500/906
water heater:			
repair/tune up	5	530	$30/30
replacement			
window replacement	5	0	$20/20
storm windows/door	9	0	$500/500
home repairs	7	0	$500/30
caulk or weather strip	18	41,583	$30/4
low cost/no cost kit	12	15,565	$186/4
water system wrap up	10	2,431	$59/9
duct wrap up	6	44	$20/20
client education/information			
if yes: by mail	17	92,719	$775/0.03
at home training	17	7,631	$150/30
center based training	8	690	$100/93
cooling measures	2	0	
major appliance replacement	2	0	
Other (please specify)	6	240	$500/34

_____

_____

PY 1988
mo/yr - mo/yr

Company Name _____

_____

No. Responding: 55

US DEPARTMENT OF ENERGY
WEATHERIZATION ASSISTANCE EVALUATION

THE SCOPE OF UTILITY LOW INCOME WEATHERIZATION PROGRAMS

1. Please provide the following data on any **full scale low income weatherization** (see instructions) offered in PY 1988. If your company did not run such programs, please go to Question 3.

A. Total funds spent on weatherization program: $ 77,561,119 (n=31)

B. Total units completed in whole or in part with utility resources: 178,238 (n=29)

Unit Types (n=22)	No. of Units
1. single family, owner occupied	28,104
2. single family, rental	7,669
3. multi-family, rental	28,223
4. mobile homes	205

C. Was the program mandated by the body that regulates the utility?

Yes	No
14	16

D. If any of the units listed in item B above involved combining your program with publicly-funded program resources, please indicate the following:

1. Number of units among those in 1.B. with combined utility and public program resources: 21,600 (n=15)

2. The publicly funded program(s):

	Please Check
a. U.S. Department of Energy Weatherization	5
b. U.S. Department of Health and Human Services Low-Income Home Energy Assistance Program's Weatherization (LIHEAP)	5
c. State program (please give name) _____	11
d. Other (please specify) _____	6

E. If this utility program used local agencies which are also Department of Energy Weatherization subcontractors as its subcontractors, please check here. 16

1988

F. Please check any of the measures below offered by the utility weatherization program as part of a **full scale weatherization** program.

1. Insulation, heat loss
   - a. attic insulation 29
   - b. wall insulation 15
   - c. basement insulation 15
   - d. wrap water heater/ducts 26
   - e. other (please specify) 11

2. Air or water leakage
   - a. weatherstrip/caulk 29
   - b. window replacement 13
   - c. storm windows/doors 21
   - d. home repairs 16
   - e. other (please specify) 12

3. Heating system
   - a. repair/tune up 13
   - b. replacement 14
   - c. other 2

4. Hot water system
   - a. repair/tune up 8
   - b. replacement 6
   - c. other 4

5. Major appliance replacement 0

6. Lighting measures 2

7. Miscelllaneous
   - a. water saving measures 10
   - b. cooling measures 2
   - c. other (please specify) 4

2. In addition to the activities above, did the company in PY 1988 donate energy conservation resources directly to public sector low-income weatherization programs? If yes, please indicate:

Total funding $_____ No. of units assisted _____

Type of Resource (please check all applicable)

cash	_____	equipment	_____
materials	_____	training	_____
personnel	_____	Other (please specify)	_____
vehicles	_____		

Program receiving resources (please check all applicable)

Department of Energy Weatherization _____

State Program (please name) _____

Other (please specify) _____

3. If your company provided other forms of energy conservation assistance to low income households at no charge, please indicate below:

Measure	Check If Yes	No. of Low Income Recipient Households (Only)	Average Cost Per Household Max/Min
blower door test	6	7,629	$538/50
heating system performance test	9	9,110	$35/9
cooling system performance test	2	0	
heating/cooling system safety test	5	6,915	$35/35
indoor air quality instrumented test	2	0	
light bulbs, lighting measures	3	10,164	$326/7
attic insulation	10	9,336	$1,265/1,265
wall insulation	8	5	$945/945
heating system:			
repair/tune up	8	6,046	$95/65
replacement	11	1,846	$1,800/691
water heater:			
repair/tune up	6	3,530	$45/30
replacement			
window replacement	6	175	$320/320
storm windows/door	7	0	
home repairs	5	0	
caulk or weather strip	18	40,418	$6/4
low cost/no cost kit	14	16,633	$182/4
water system wrap up	15	4,502	$490/9
duct wrap up	9	9	
client education/information			
if yes: by mail	17	93,336	$40/0.03
at home training	18	4,336	$180/40
center based training	7	867	$180/93
cooling measures	3	3,372	$550/550
major appliance replacement	4	323	$500/500
Other (please specify)	6	86	$62/35
_____			
_____			

PY 1989
mo/yr - mo/yr

Company Name _____

No. Responding: 65

US DEPARTMENT OF ENERGY
WEATHERIZATION ASSISTANCE EVALUATION

THE SCOPE OF UTILITY LOW INCOME WEATHERIZATION PROGRAMS

1. Please provide the following data on any **full scale low income weatherization** (see instructions) offered in PY 1989. If your company did not run such programs, please go to Question 3.

A. Total funds spent on weatherization program: $ 72,824,507 (n=37)

B. Total units completed in whole or in part with utility resources: 180,457 (n=37)

Unit Types (n=24)	No. of Units
1. single family, owner occupied	115,946
2. single family, rental	7,712
3. multi-family, rental	50,179
4. mobile homes	541

C. Was the program mandated by the body that regulates the utility?

Yes	No
15	21

D. If any of the units listed in item B above involved combining your program with publicly-funded program resources, please indicate the following:

1. Number of units among those in 1.B. with combined utility and public program resources: 9,954 (n=18)

2. The publicly funded program(s):

	Please Check
a. U.S. Department of Energy Weatherization	10
b. U.S. Department of Health and Human Services Low-Income Home Energy Assistance Program's Weatherization (LIHEAP)	10
c. State program (please give name) _____	12
d. Other (please specify) _____	6

E. If this utility program used local agencies which are also Department of Energy Weatherization subcontractors as its subcontractors, please check here. 18

1989

F. Please check any of the measures below offered by the utility weatherization program as part of a **full scale weatherization** program.

1. Insulation, heat loss
   - a. attic insulation 33
   - b. wall insulation 20
   - c. basement insulation 19
   - d. wrap water heater/ducts 31
   - e. other (please specify) 12

2. Air or water leakage
   - a. weatherstrip/caulk 31
   - b. window replacement 18
   - c. storm windows/doors 22
   - d. home repairs 17
   - e. other (please specify) 11

3. Heating system
   - a. repair/tune up 15
   - b. replacement 15
   - c. other 1

4. Hot water system
   - a. repair/tune up 9
   - b. replacement 8
   - c. other 2

5. Major appliance replacement 0

6. Lighting measures 5

7. Miscelllaneous
   - a. water saving measures 13
   - b. cooling measures 3
   - c. other (please specify) 4

2. In addition to the activities above, did the company in PY 1989 donate energy conservation resources directly to public sector low-income weatherization programs? If yes, please indicate:

Total funding $_____ No. of units assisted _____

Type of Resource (please check all applicable)

cash	_____	equipment	_____
materials	_____	training	_____
personnel	_____	Other (please specify)	_____
vehicles	_____		

Program receiving resources (please check all applicable)

Department of Energy Weatherization _____

State Program (please name) _____

Other (please specify) _____

1989

3. If your company provided other forms of energy conservation assistance to low income households at no charge, please indicate below:

Measure	Check If Yes	No. of Low Income Recipient Households (Only)	Average Cost Per Household Max/Min
blower door test	7	7,634	$538/50
heating system performance test	10	8,549	$35/9
cooling system performance test	2	0	
heating/cooling system safety test	6	6,749	$100/35
indoor air quality instrumented test	2	0	
light bulbs, lighting measures	5	21,021	$293/12
attic insulation	11	3	$1,317/250
wall insulation	9	1	$1,317/1,317
heating system:			
repair/tune up	12	6,031	$183/65
replacement	12	8,902	$1,975/876
water heater:			
repair/tune up	9	2,848	$380/30
replacement			
window replacement	6	0	
storm windows/door	10	0	
home repairs	6	0	
caulk or weather strip	21	34,160	$15/4
low cost/no cost kit	14	13,971	$173/4
water system wrap up	17	5,771	$504/9
duct wrap up	11	320	$2/2
client education/information			
if yes: by mail	18	88,306	$40/0.03
at home training	24	5,811	$230/30
center based training	6	1,322	$230/93
cooling measures	4	4,321	$550/550
major appliance replacement	6	817	$3,000/257
Other (please specify)	7	437	$433/12
_____			
_____			

APPENDIX C

DETAILED UTILITY RESPONSES

UTILITY FULL SCALE LOW INCOME WEATHERIZATION: PYs 1978-85

ST	UTILITY COMPANY NAME	UTIL TYPEa	1.A TOTAL FUNDS	1.B TOTAL UNITS	1.B.1 SING FAM OWNER OCC	1.B.2 SING FAM RENTAL	1.B.3 MULT FAM RENTAL	1.B.4 MOBILE HOMES	KEY: 1=YES 0= NO 1.C MANDATED PROGRAM
AL	AL Power Co	2	$132,000	511					
AL	Alagasco	1							
AL	Joe Wheeler EMC	7							
AK	AK Power & Telephone	2							
AK	Chugach Elec Assoc	7							
AZ	Salt River Project								
CA	City of Long Beach Gas Dept	4							
CA	City of Los Angeles	5							
CA	Pacific Gas & Electric	3	$60,000,000	120,000					1
CA	Plumas Sierra REC	7							
CA	Southern CA Gas Co	1		61,282	19,657	9,736	31,889		1
CO	Colorado Springs Util	6							
CT	Connecticut Nat Gas Co	1							
FL	Florida Power & Light	2							
FL	Jacksonville Elec Auth	5							
FL	Peoples' Gas System Inc	1							
GA	Carroll EMC	7							
GA	Georgia Power Co.	2							
GA	Hart EMC	7							
GA	Ocmulge EMC	7							
GA	Oconee EMC	7							
GA	Snapping Shoals EMC	7							
HI	Gasco, Inc	1							
ID	City of ID Falls Elec Dept	5							
IL	IA-IL Gas & Elec	3							
IL	Illinois Power Co.	3	$291,500	460					
IL	Northern Illinois Gas Co	1							
IN	C of Anderson Mun L & P	5							
IN	PSI Energy	2							
IA	Eastern IA Light & Power Coop	7							
IA	Iowa Power	2		2,113					
KS	Board of Public Utilities	5							
KS	Midwest Energy Inc	7							
KS	United Cities Gas Co	1							
KY	Louisville Gas & Elec Co	3							
KY	South Kentucky REC	7							
LA	Louisianna Pow & Light Co	3	$20,000						
MD	Southern MD EC	7	$2,500	29		24		5	
MI	Detroit Edison	2	$1,708,061	3,222					1
MI	IN MI Power Co	2							
MI	MI Consolidated Gas Co	1	$7,000,000	13,000	5,200	7,800			1
MN	Minnegasco	1							
MN	Northern States Power	1	$1,500,000	3,600	1,500	1,500	500	100	1

UTILITY FULL SCALE LOW INCOME WEATHERIZATION: PYs 1978-85

KEY: 1=YES
0= NO

ST	UTILITY COMPANY NAME	UTIL TYPEa	1.A TOTAL FUNDS	1.B TOTAL UNITS	1.B.1 SING FAM OWNER OCC	1.B.2 SING FAM RENTAL	1.B.3 MULT FAM RENTAL	1.B.4 MOBILE HOMES	1.C MANDATED PROGRAM
MS	City of Vicksburg	1							
MS	Entex, Div of ARKLA	1							
MO	Kansas City Power & Light	2							
MO	Springfield City Utilities	6							
MO	Union Electric Co	3							
NE	Dawson County Pub Pow	5							
NE	Minnegasco	1							
NE	Niobra Valley EMC	7							
NE	Omaha Pub Power	5							
NV	Southwest Gas Co	1	$88,615	638					1
NH	NH Electric Coop	7							
NJ	Jersey Central Pow & Light Co	2	$451,039	1,285	1,175	110			1
NM	Gas Company of New Mexico	1							
NY	Brooklyn Union Gas Co	1							
NY	City of Jamestown	5							
NY	Consolidated Edison	2							
NY	Great Falls Gas Co	1							
NY	Niagra Mohawk Power Co	3							
NY	Otsego EC	7							
NY	Sherburne	5							
NY	Village of Akron	5							
NY	Village of Churchville	5							
NY	Village of Silver Springs	5							
NY	Village of Tupper Lake	5							
NC	Blue Ridge Electric Corp	7	$2,400		6				
NC	City of Wilson	5	$6,300	210	70	140			
ND	Valley City Public Works	5							
OH	Columbia Gas of Ohio	1	$400,000	3,000	2,250	450			
OH	East Ohio Gas Co	1							
OH	South Central Power Co	7							
OK	Edmond Public Works Authority	5							
OK	OK Gas & Electric Co	3	$704,737	3,088	3,088				
OR	Consumers Power	7	$32,691	27					
OR	Eugene Water & Electric	5	$1,051,870	846	422	211	145	68	
PA	Central Elec Coop Inc	7							
PA	Peoples Natural Gas Co	1							
PA	Philadelphia Gas Works	4	$2,099,267	4,197	848	3,349			
SC	Comm of Public Works	6							
SD	Minnegasco	1							
TN	Memphis Lght, Gas & Water Div	6	$5,500,000	8,100	6,000		2,100		
TN	TN Valley Authority	5	$3,309,000	62,783					
TX	City Public Service	5							
UT	City of Provo	5							

UTILITY FULL SCALE LOW INCOME WEATHERIZATION: PYs 1978-85

ST	UTILITY COMPANY NAME	UTIL TYPEa	1.A TOTAL FUNDS	1.B TOTAL UNITS	1.B.1 SING FAM OWNER OCC	1.B.2 SING FAM RENTAL	1.B.3 MULT FAM RENTAL	1.B.4 MOBILE HOMES	KEY: 1=YES 0= NO 1.C MANDATED PROGRAM
UT	Mountain Fuel	1							
VA	City of Danville	6							
VA	Northern VA Elec Coop	7							
VA	Northern Va Natural Gas	1							
WA	Seattle City Light Dept	5	$10,065,670	6,420	6,420				1
WI	Northern States Power Co	3	$726,100	1,441	684		670	71	1
WI	Wisconsin Electric Power Co	2	$3,660,410	2,069	1,657	244	109	59	1
WI	Wisconsin Gas Company	1	$5,265,000	1,680					1
WY	Cheyenne Light,Fuel & Power	3							
WY	City of Gillette	5							
WY	Tri-County Electric	7							
BP	Bonneville Power Admin		$9,786,500	6,718	4,028		2,690		
N		**98**	**24**	**24**	**15**	**10**	**7**	**5**	**11**
TOTAL			**$113,803,660**	**306,719**	**53,005**	**23,564**	**38,103**	**303**	

a: *KEY TO UTILITY TYPE: 1 Gas, 2 Electric, 3 Combination, 4 Public Gas, 5 Public Electric, 6 Public Combination, 7 Rural Coop*

UTILITY FULL SCALE LOW INCOME WEATHERIZATION: PYs 1978-85

ST	UTILITY COMPANY NAME	1.D.1 COMBINED RESOURCE UNITS	1.D.2.a DOE WEATHERZ	1.D.2.b LIHEAP	1.D.2.c STATE	1.D.2.c STATE PROG NAME	1.D.2.d OTHER	1.D.2.d OTHER SPECIFIED
AL	AL Power Co				1	AL Dept Econ & Comm Af	1	Birmingham City
AL	Alagasco	all		1				
AL	Joe Wheeler EMC							
AK	AK Power & Telephone							
AK	Chugach Elec Assoc							
AZ	Salt River Project							
CA	City of Long Beach Gas Dept							
CA	City of Los Angeles							
CA	Pacific Gas & Electric							
CA	Plumas Sierra REC							
CA	Southern CA Gas Co							
CO	Colorado Springs Util							
CT	Connecticut Nat Gas Co							
FL	Florida Power & Light							
FL	Jacksonville Elec Auth							
FL	Peoples' Gas System Inc							
GA	Carroll EMC							
GA	Georgia Power Co.							
GA	Hart EMC							
GA	Ocmulge EMC							
GA	Oconee EMC							
GA	Snapping Shoals EMC							
HI	Gasco, Inc							
ID	City of ID Falls Elec Dept							
IL	IA-IL Gas & Elec							
IL	Illinois Power Co.							
IL	Northern Illinois Gas Co					IL home WAP		
IN	C of Anderson Mun L & P							
IN	PSI Energy							
IA	Eastern IA Light & Power Coop							
IA	Iowa Power	2,113	1					
KS	Board of Public Utilities							
KS	Midwest Energy Inc							
KS	United Cities Gas Co							
KY	Louisville Gas & Elec Co							
KY	South Kentucky REC							
LA	Louisianna Pow & Light Co							
MD	Southern MD EC	29					1	CAA Wx Program
MI	Detroit Edison							
MI	IN MI Power Co							
MI	MI Consolidated Gas Co							
MN	Minnegasco							
MN	Northern States Power	2,000	1	1				

UTILITY FULL SCALE LOW INCOME WEATHERIZATION: PYs 1978-85

ST	UTILITY COMPANY NAME	1.D.1 COMBINED RESOURCE UNITS	1.D.2.a DOE WEATHERZ	1.D.2.b LIHEAP	1.D.2.c STATE	1.D.2.c STATE PROG NAME	1.D.2.d OTHER	1.D.2.d OTHER SPECIFIED
MS	City of Vicksburg							
MS	Entex, Div of ARKLA							
MO	Kansas City Power & Light							
MO	Springfield City Utilities							
MO	Union Electric Co							
NE	Dawson County Pub Pow							
NE	Minnegasco							
NE	Niobra Valley EMC							
NE	Omaha Pub Power							
NV	Southwest Gas Co							
NH	NH Electric Coop							
NJ	Jersey Central Pow & Light Co				1	Low-I Direct Grant Program		
NM	Gas Company of New Mexico							
NY	Brooklyn Union Gas Co							
NY	City of Jamestown							
NY	Consolidated Edison							
NY	Great Falls Gas Co							
NY	Niagra Mohawk Power Co							
NY	Otsego EC							
NY	Sherburne							
NY	Village of Akron							
NY	Village of Churchville							
NY	Village of Silver Springs							
NY	Village of Tupper Lake							
NC	Blue Ridge Electric Corp							
NC	City of Wilson	210			1	Altern. Energy Corp		
ND	Valley City Public Works							
OH	Columbia Gas of Ohio							
OH	East Ohio Gas Co							
OH	South Central Power Co							
OK	Edmond Public Works Authority							
OK	OK Gas & Electric Co							
OR	Consumers Power	27						
OR	Eugene Water & Electric	846	1	1			1	Bonneville Power Adm
PA	Central Elec Coop Inc							
PA	Peoples Natural Gas Co							
PA	Philadelphia Gas Works	4,197	1					
SC	Comm of Public Works							
SD	Minnegasco							
TN	Memphis Lght, Gas & Water Div							
TN	TN Valley Authority	62,783			1	TN State CAA		
TX	City Public Service							
UT	City of Provo							

UTILITY FULL SCALE LOW INCOME WEATHERIZATION: PYs 1978-85

ST	UTILITY COMPANY NAME		1.D.1 COMBINED RESOURCE UNITS	1.D.2.a DOE WEATHERZ	1.D.2.b LIHEAP	1.D.2.c STATE	1.D.2.c STATE PROG NAME	1.D.2.d OTHER	1.D.2.d OTHER SPECIFIED	
UT	Mountain Fuel									
VA	City of Danville									
VA	Northern VA Elec Coop									
VA	Northern Va Natural Gas									
WA	Seattle City Light Dept		3,425					1	Bonneville	
WI	Northern States Power Co							1	solar bank HUD	
WI	Wisconsin Electric Power Co		1,210					1	HUD Solar Bank	
WI	Wisconsin Gas Company									
WY	Cheyenne Light,Fuel & Power									
WY	City of Gillette									
WY	Tri-County Electric									
BP	Bonneville Power Admin			1	1					
N		**98**	**11**	**5**	**4**	**4**		**5**	**6**	**6**
TOTAL			**76,840**							

UTILITY FULL SCALE LOW INCOME WEATHERIZATION: PYs 1978-85

ST	UTILITY COMPANY NAME	1.E USED DOE SUBCONTRCTRS	1.F.1.a ATTIC INSUL	1.F.1.b WALL INSUL	1.F.1.c BASEMENT INSUL	1.F.1.d WRAP DUCTS	1.F.1.e OTHER INSUL	1.F.1.e OTHER-SPECIFIED
AL	AL Power Co					1	1	
AL	Alagasco							
AL	Joe Wheeler EMC							
AK	AK Power & Telephone							
AK	Chugach Elec Assoc							
AZ	Salt River Project							
CA	City of Long Beach Gas Dept							
CA	City of Los Angeles							
CA	Pacific Gas & Electric	1	1			1		
CA	Plumas Sierra REC							
CA	Southern CA Gas Co	1	1			1		
CO	Colorado Springs Util							
CT	Connecticut Nat Gas Co							
FL	Florida Power & Light							
FL	Jacksonville Elec Auth							
FL	Peoples' Gas System Inc							
GA	Carroll EMC							
GA	Georgia Power Co.							
GA	Hart EMC							
GA	Ocmulge EMC							
GA	Oconee EMC							
GA	Snapping Shoals EMC							
HI	Gasco, Inc							
ID	City of ID Falls Elec Dept							
IL	IA-IL Gas & Elec							
IL	Illinois Power Co.		1			1		
IL	Northern Illinois Gas Co	1	1	1			1	floor,thermotimer,etc
IN	C of Anderson Mun L & P							
IN	PSI Energy							
IA	Eastern IA Light & Power Coop							
IA	Iowa Power	1	1	1				
KS	Board of Public Utilities							
KS	Midwest Energy Inc							
KS	United Cities Gas Co							
KY	Louisville Gas & Elec Co							
KY	South Kentucky REC							
LA	Louisianna Pow & Light Co	0				1	1	see survey
MD	Southern MD EC					1		
MI	Detroit Edison	1	1			1	1	attic ventilation
MI	IN MI Power Co							
MI	MI Consolidated Gas Co	1	1					
MN	Minnegasco							
MN	Northern States Power					1		

UTILITY FULL SCALE LOW INCOME WEATHERIZATION: PYs 1978-85

ST	UTILITY COMPANY NAME	1.E USED DOE SUBCONTRCTRS	1.F.1.a ATTIC INSUL	1.F.1.b WALL INSUL	1.F.1.c BASEMENT INSUL	1.F.1.d WRAP DUCTS	1.F.1.e OTHER INSUL	1.F.1.e OTHER-SPECIFIED
MS	City of Vicksburg							
MS	Entex, Div of ARKLA							
MO	Kansas City Power & Light							
MO	Springfield City Utilities							
MO	Union Electric Co							
NE	Dawson County Pub Pow							
NE	Minnegasco							
NE	Niobra Valley EMC							
NE	Omaha Pub Power							
NV	Southwest Gas Co	1	1			1		
NH	NH Electric Coop							
NJ	Jersey Central Pow & Light Co		1		1	1		
NM	Gas Company of New Mexico							
NY	Brooklyn Union Gas Co							
NY	City of Jamestown							
NY	Consolidated Edison							
NY	Great Falls Gas Co		1	1	1	1		
NY	Niagra Mohawk Power Co							
NY	Otsego EC							
NY	Sherburne							
NY	Village of Akron							
NY	Village of Churchville							
NY	Village of Silver Springs							
NY	Village of Tupper Lake							
NC	Blue Ridge Electric Corp		1	1	1	1		
NC	City of Wilson					1	1	PVC foam tape
ND	Valley City Public Works							
OH	Columbia Gas of Ohio	1				1		
OH	East Ohio Gas Co							
OH	South Central Power Co							
OK	Edmond Public Works Authority							
OK	OK Gas & Electric Co		1			1		
OR	Consumers Power	1	1	1	1	1		
OR	Eugene Water & Electric	1	1	1	1	1	1	Conversion Windows
PA	Central Elec Coop Inc							
PA	Peoples Natural Gas Co							
PA	Philadelphia Gas Works	1	1			1		
SC	Comm of Public Works							
SD	Minnegasco							
TN	Memphis Lght, Gas & Water Div		1			1	1	Floor Insulation
TN	TN Valley Authority		1			1	1	floor
TX	City Public Service							
UT	City of Provo							

UTILITY FULL SCALE LOW INCOME WEATHERIZATION: PYs 1978-85

ST	UTILITY COMPANY NAME		1.E USED DOE SUBCONTRCTRS	1.F.1.a ATTIC INSUL	1.F.1.b WALL INSUL	1.F.1.c BASEMENT INSUL	1.F.1.d WRAP DUCTS	1.F.1.e OTHER INSUL	1.F.1.e OTHER-SPECIFIED	
UT	Mountain Fuel									
VA	City of Danville									
VA	Northern VA Elec Coop									
VA	Northern Va Natural Gas									
WA	Seattle City Light Dept		1	1	1	1	1	1	underfloor, pipewrap	
WI	Northern States Power Co		1	1	1	1	1	1	foundation/crawlspace	
WI	Wisconsin Electric Power Co			1	1	1	1			
WI	Wisconsin Gas Company			1	1					
WY	Cheyenne Light,Fuel & Power									
WY	City of Gillette									
WY	Tri-County Electric									
BP	Bonneville Power Admin			1	1	1	1	1	radon mitigation	
N TOTAL		**98**	**13**	**22**	**11**	**9**	**24**	**11**		**10**

UTILITY FULL SCALE LOW INCOME WEATHERIZATION: PYs 1978-85

ST	UTILITY COMPANY NAME	1.F.2.a WEATHER-STRIP/ CAULK	1.F.2.b WINDOW REPLACE	1.F.2.c STORM WINDOWS /DOORS	1.F.2.d HOME REPAIRS	1.F.2.e OTHER LEAKAGE	1.F.2.e OTHER SPECIFIED	1.F.3.a HEATING REPAIR	1.F.3.b HEATING REPLACE	1.F.3.b HEATING OTHER
AL	AL Power Co	1	1			1	seal open spaces			
AL	Alagasco	1		1						
AL	Joe Wheeler EMC									
AK	AK Power & Telephone									
AK	Chugach Elec Assoc									
AZ	Salt River Project									
CA	City of Long Beach Gas Dept									
CA	City of Los Angeles									
CA	Pacific Gas & Electric	1			1					
CA	Plumas Sierra REC									
CA	Southern CA Gas Co	1	1	1	1					
CO	Colorado Springs Util									
CT	Connecticut Nat Gas Co									
FL	Florida Power & Light									
FL	Jacksonville Elec Auth									
FL	Peoples' Gas System Inc									
GA	Carroll EMC									
GA	Georgia Power Co.									
GA	Hart EMC									
GA	Ocmulge EMC									
GA	Oconee EMC									
GA	Snapping Shoals EMC									
HI	Gasco, Inc									
ID	City of ID Falls Elec Dept									
IL	IA-IL Gas & Elec									
IL	Illinois Power Co.	1		1		1	replace glass & door thresholds			
IL	Northern Illinois Gas Co	1		1	1					
IN	C of Anderson Mun L & P									
IN	PSI Energy									
IA	Eastern IA Light & Power Coop							1	1	
IA	Iowa Power									
KS	Board of Public Utilities									
KS	Midwest Energy Inc									
KS	United Cities Gas Co									
KY	Louisville Gas & Elec Co									
KY	South Kentucky REC									
LA	Louisianna Pow & Light Co			1		1	see survey			
MD	Southern MD EC	1		1						
MI	Detroit Edison									
MI	IN MI Power Co									
MI	MI Consolidated Gas Co									
MN	Minnegasco									
MN	Northern States Power	1			1			1	1	

UTILITY FULL SCALE LOW INCOME WEATHERIZATION: PYs 1978-85

ST	UTILITY COMPANY NAME	1.F.2.a WEATHER-STRIP/ CAULK	1.F.2.b WINDOW REPLACE	1.F.2.c STORM WINDOWS /DOORS	1.F.2.d HOME REPAIRS	1.F.2.e OTHER LEAKAGE	1.F.2.e OTHER SPECIFIED	1.F.3.a HEATING REPAIR	1.F.3.b HEATING REPLACE	1.F.3.b HEATING OTHER
MS	City of Vicksburg									
MS	Entex, Div of ARKLA									
MO	Kansas City Power & Light									
MO	Springfield City Utilities									
MO	Union Electric Co									
NE	Dawson County Pub Pow									
NE	Minnegasco									
NE	Niobra Valley EMC									
NE	Omaha Pub Power									
NV	Southwest Gas Co	1			1					
NH	NH Electric Coop									
NJ	Jersey Central Pow & Light Co	1								
NM	Gas Company of New Mexico									
NY	Brooklyn Union Gas Co									
NY	City of Jamestown									
NY	Consolidated Edison									
NY	Great Falls Gas Co	1	1	1						
NY	Niagra Mohawk Power Co								1	
NY	Otsego EC									
NY	Sherburne									
NY	Village of Akron									
NY	Village of Churchville									
NY	Village of Silver Springs									
NY	Village of Tupper Lake									
NC	Blue Ridge Electric Corp			1						
NC	City of Wilson	1		1		1	electric outlet sealers			
ND	Valley City Public Works									
OH	Columbia Gas of Ohio	1								
OH	East Ohio Gas Co							1		
OH	South Central Power Co									
OK	Edmond Public Works Authority									
OK	OK Gas & Electric Co	1	1			1	thresholds, reglaze windows			
OR	Consumers Power	1	1	1	1					
OR	Eugene Water & Electric	1	1	1	1					
PA	Central Elec Coop Inc									
PA	Peoples Natural Gas Co									
PA	Philadelphia Gas Works	1								
SC	Comm of Public Works									
SD	Minnegasco									
TN	Memphis Lght, Gas & Water Div	1		1	1					
TN	TN Valley Authority	1		1						
TX	City Public Service									
UT	City of Provo									

UTILITY FULL SCALE LOW INCOME WEATHERIZATION: PYs 1978-85

ST	UTILITY COMPANY NAME		1.F.2.a WEATHER-STRIP/ CAULK	1.F.2.b WINDOW REPLACE	1.F.2.c STORM WINDOWS /DOORS	1.F.2.d HOME REPAIRS	1.F.2.e OTHER LEAKAGE	1.F.2.e OTHER SPECIFIED		1.F.3.a HEATING REPAIR	1.F.3.b HEATING REPLACE	1.F.3.b HEATING OTHER
UT	Mountain Fuel											
VA	City of Danville											
VA	Northern VA Elec Coop											
VA	Northern Va Natural Gas											
WA	Seattle City Light Dept		1			1						
WI	Northern States Power Co		1	1	1	1	1	blower door		1	1	1
WI	Wisconsin Electric Power Co		1									
WI	Wisconsin Gas Company		1							1	1	
WY	Cheyenne Light,Fuel & Power											
WY	City of Gillette											
WY	Tri-County Electric											
BP	Bonneville Power Admin		1	1	1		1	replacements glazing				
N		**98**	**24**	**8**	**15**	**10**	**7**		**7**	**5**	**5**	**1**
TOTAL												

UTILITY FULL SCALE LOW INCOME WEATHERIZATION: PYs 1978-85

ST	UTILITY COMPANY NAME	1.F.4.a HOT WATER REPAIR	1.F.4.b HOT WATER REPLACE	1.F.4.b HOT WATER OTHER	1.F.5 APPLIANCE REPLACE	1.F.6 LIGHTING MEASURES	1.F.7.a WATER SAVING MEASURES	1.F.7.b COOLING MEASURES	1.F.7.C OTHER MEASURES	1.F.7.C OTHER SPECIFIED
AL	AL Power Co									
AL	Alagasco						1	1	1	faucet aerators
AL	Joe Wheeler EMC									
AK	AK Power & Telephone									
AK	Chugach Elec Assoc									
AZ	Salt River Project									
CA	City of Long Beach Gas Dept									
CA	City of Los Angeles									
CA	Pacific Gas & Electric									
CA	Plumas Sierra REC									
CA	Southern CA Gas Co									
CO	Colorado Springs Util									
CT	Connecticut Nat Gas Co									
FL	Florida Power & Light									
FL	Jacksonville Elec Auth									
FL	Peoples' Gas System Inc									
GA	Carroll EMC									
GA	Georgia Power Co.									
GA	Hart EMC									
GA	Ocmulge EMC									
GA	Oconee EMC									
GA	Snapping Shoals EMC									
HI	Gasco, Inc									
ID	City of ID Falls Elec Dept									
IL	IA-IL Gas & Elec									
IL	Illinois Power Co.									
IL	Northern Illinois Gas Co									
IN	C of Anderson Mun L & P									
IN	PSI Energy									
IA	Eastern IA Light & Power Coop									
IA	Iowa Power									
KS	Board of Public Utilities									
KS	Midwest Energy Inc									
KS	United Cities Gas Co									
KY	Louisville Gas & Elec Co									
KY	South Kentucky REC									
LA	Louisianna Pow & Light Co									
MD	Southern MD EC									
MI	Detroit Edison									
MI	IN MI Power Co									
MI	MI Consolidated Gas Co									
MN	Minnegasco									
MN	Northern States Power	1					1			

UTILITY FULL SCALE LOW INCOME WEATHERIZATION: PYs 1978-85

ST	UTILITY COMPANY NAME	1.F.4.a HOT WATER REPAIR	1.F.4.b HOT WATER REPLACE	1.F.4.b HOT WATER OTHER	1.F.5 APPLIANCE REPLACE	1.F.6 LIGHTING MEASURES	1.F.7.a WATER SAVING MEASURES	1.F.7.b COOLING MEASURES	1.F.7.C OTHER MEASURES	1.F.7.C OTHER SPECIFIED
MS	City of Vicksburg									
MS	Entex, Div of ARKLA									
MO	Kansas City Power & Light									
MO	Springfield City Utilities									
MO	Union Electric Co									
NE	Dawson County Pub Pow									
NE	Minnegasco									
NE	Niobra Valley EMC									
NE	Omaha Pub Power						1			
NV	Southwest Gas Co									
NH	NH Electric Coop						1			
NJ	Jersey Central Pow & Light Co									
NM	Gas Company of New Mexico									
NY	Brooklyn Union Gas Co									
NY	City of Jamestown									
NY	Consolidated Edison									
NY	Great Falls Gas Co			1						
NY	Niagra Mohawk Power Co									
NY	Otsego EC									
NY	Sherburne									
NY	Village of Akron									
NY	Village of Churchville									
NY	Village of Silver Springs									
NY	Village of Tupper Lake									
NC	Blue Ridge Electric Corp									
NC	City of Wilson									
ND	Valley City Public Works									
OH	Columbia Gas of Ohio		1							
OH	East Ohio Gas Co									
OH	South Central Power Co									
OK	Edmond Public Works Authority									
OK	OK Gas & Electric Co									
OR	Consumers Power						1			
OR	Eugene Water & Electric						1			
PA	Central Elec Coop Inc									
PA	Peoples Natural Gas Co									
PA	Philadelphia Gas Works									
SC	Comm of Public Works									
SD	Minnegasco									
TN	Memphis Lght, Gas & Water Div									
TN	TN Valley Authority									
TX	City Public Service									
UT	City of Provo									

UTILITY FULL SCALE LOW INCOME WEATHERIZATION: PYs 1978-85

ST	UTILITY COMPANY NAME		1.F.4.a HOT WATER REPAIR	1.F.4.b HOT WATER REPLACE	1.F.4.b HOT WATER OTHER	1.F.5 APPLIANCE REPLACE	1.F.6 LIGHTING MEASURES	1.F.7.a WATER SAVING MEASURES	1.F.7.b COOLING MEASURES	1.F.7.C OTHER MEASURES	1.F.7.C OTHER SPECIFIED	
UT	Mountain Fuel											
VA	City of Danville											
VA	Northern VA Elec Coop											
VA	Northern Va Natural Gas											
WA	Seattle City Light Dept											
WI	Northern States Power Co		1	1			1			1	Electric WH wrap	
WI	Wisconsin Electric Power Co		1	1								
WI	Wisconsin Gas Company		1									
WY	Cheyenne Light,Fuel & Power											
WY	City of Gillette											
WY	Tri-County Electric											
BP	Bonneville Power Admin							1				
N TOTAL		**98**	**5**	**2**	**1**	**0**	**1**	**7**	**1**	**2**		**2**

UTILITY FULL SCALE LOW INCOME WEATHERIZATION: PY 1986

KEY: 1=YES
0= NO

ST	UTILITY COMPANY NAME	UTIL TYPEa	1.A TOTAL FUNDS	1.B TOTAL UNITS	1.B.1 SING FAM OWNER OCC	1.B.2 SING FAM RENTAL	1.B.3 MULT FAM RENTAL	1.B.4 MOBILE HOMES	1.C MANDATED PROGRAM
AL	AL Power Co	2	$478,000	2,595					0
AL	Alagasco	1							0
AK	Chugach Elec Assoc	7							
CA	Pacific Gas & Electric	3	$17,000,000	51,340	50,098		1,242		1
CA	Plumas Sierra REC	7							
CA	Southern CA Gas Co	1		43,285	8,161	4,903	30,221		1
CT	Connecticut Nat Gas	1							
FL	Jacksonville Elec Auth	5							
GA	Carroll EMC	7							
GA	Georgia Power Co.	2							
GA	Habersham EMC	7							
GA	Ocmulgee EMC	7							
IL	IA-Il Gas & Elec	3							
IL	Illinois Power	3	$81,493	137					0
IL	Northern Illinois Gas Co	1							1
IA	Iowa Power	2							
KS	Board of Public Utilities	5							
KY	Kentucky Power Co	2		97	97				0
KY	Louisville Gas & Elec Co	3							
LA	Louisianna Pow & Light Co	3	$40,000						0
ME	Central Maine Power Co	2							
MI	MI Consolidated Gas Co	1	$10,000	200	100	100			0
MN	Minnegasco	1							
MN	Northern States Power	1	$850,000	3,000	1,500	1,000	400	100	1
MS	Entex, Div of ARKLA	1							
MO	Springfield City Utilities	6							
MO	Union Electric	3							
NV	Southwest Gas Co	1	$58,632	220					1
NJ	Jersey Central Pow & Light	2	$1,376,717	2,927	2,700	227			1
NY	Great Falls Gas Co	1							
NY	Niagra Mohawk Power Co	3							
NY	Orange&Rockland Util	3	$2,350	5	5				0
NC	City of Wilson	5							
ND	Cass County EC	7							
OH	Columbia Gas of Ohio	1			2,323	1,252			1
OH	Columbus Southern Power	2							
OH	East Ohio Gas Co	1							
OH	Ohio Edison Co	2							
OH	South Central Power Co	7							

UTILITY FULL SCALE LOW INCOME WEATHERIZATION: PY 1986

ST	UTILITY COMPANY NAME	UTIL TYPEa	1.A TOTAL FUNDS	1.B TOTAL UNITS	1.B.1 SING FAM OWNER OCC	1.B.2 SING FAM RENTAL	1.B.3 MULT FAM RENTAL	1.B.4 MOBILE HOMES	KEY: 1=YES 0= NO 1.C MANDATED PROGRAM
OK	OK Gas & Elec Co	3	$299,223	1,192	1,192				0
OR	Consumers Power	7	$16,361	9					0
OR	Eugene Water & Electric	5	$649,194	561	180	142	239		0
PA	Central Electric Coop Inc	7							0
PA	Columbia Gas of PA	1	$405,000	1,350	1,350				0
PA	Peoples Natural Gas Co	4							
PA	Philadelphia Gas Works	1	$532,000	970		970			0
SC	Comm of Public Works	6							
TN	Memphis Lght,Water & Gas Div	6	$710,000	610	407		203		0
TN	TN Valley Authority	5	$928,000	17,614					0
VA	Northern VA Natural Gas	1							
VA	Virginia Power	2	$30,000	38	38				0
WA	Seattle City Light	5	$1,662,400	1,104	1,104				1
WI	Northern States Power	3	$478,800	667	346		280	41	1
WI	WI Electric Power Co	2	$1,386,402	1,052	615	161	247	29	1
WI	Wisconsin Gas Co	1	$3,137,899	1,510					1
WY	Cheyenne Light,Fuel & Power	3							
BP	Bonneville Power		$9,937,400	6,385	3,429		2,956		
N		**57**	**22**	**23**	**18**	**8**	**8**	**3**	**11**
TOTAL			**$40,069,871**	**136,868**	**73,645**	**8,755**	**35,788**	**170**	

a: *KEY TO UTILITY TYPE: 1 Gas, 2 Electric, 3 Combination, 4 Public Gas, 5 Public Electric, 6 Public Combination, 7 Rural Coop*

UTILITY FULL SCALE LOW INCOME WEATHERIZATION: PY 1986

ST	UTILITY COMPANY NAME	1.D.1 COMBINED RESOURCE UNITS	1.D.2.a DOE WEATHERZ	1.D.2.b LIHEAP	1.D.2.c STATE	1.D.2.c STATE PROG NAME	1.D.2.d OTHER	1.D.2.d OTHER SPECIFIED
AL	AL Power Co				1	AL Dept Econ & Comm Aff		
AL	Alagasco	all		1				
AK	Chugach Elec Assoc							
CA	Pacific Gas & Electric							
CA	Plumas Sierra REC							
CA	Southern CA Gas Co							
CT	Connecticut Nat Gas							
FL	Jacksonville Elec Auth							
GA	Carroll EMC							
GA	Georgia Power Co.							
GA	Habersham EMC							
GA	Ocmulgee EMC							
IL	IA-Il Gas & Elec							
IL	Illinois Power							
IL	Northern Illinois Gas Co				1	IL home WAP		
IA	Iowa Power							
KS	Board of Public Utilities							
KY	Kentucky Power Co	97		1	1	CAAs		
KY	Louisville Gas & Elec Co							
LA	Louisianna Pow & Light Co							
ME	Central Maine Power Co							
MI	MI Consolidated Gas Co	200						
MN	Minnegasco							
MN	Northern States Power	1,800	1	1				
MS	Entex, Div of ARKLA							
MO	Springfield City Utilities							
MO	Union Electric							
NV	Southwest Gas Co							
NJ	Jersey Central Pow & Light				1	Low-I Direct Grant Program		
NY	Great Falls Gas Co							
NY	Niagra Mohawk Power Co							
NY	Orange&Rockland Util							
NC	City of Wilson							
ND	Cass County EC							
OH	Columbia Gas of Ohio							
OH	Columbus Southern Power							
OH	East Ohio Gas Co							
OH	Ohio Edison Co							
OH	South Central Power Co							

UTILITY FULL SCALE LOW INCOME WEATHERIZATION: PY 1986

ST	UTILITY COMPANY NAME		1.D.1 COMBINED RESOURCE UNITS	1.D.2.a DOE WEATHERZ	1.D.2.b LIHEAP	1.D.2.c STATE	1.D.2.c STATE PROG NAME		1.D.2.d OTHER	1.D.2.d OTHER SPECIFIED	
OK	OK Gas & Elec Co										
OR	Consumers Power		9						1	Bonneville	
OR	Eugene Water & Electric		339	1	1						
PA	Central Electric Coop Inc										
PA	Columbia Gas of PA										
PA	Peoples Natural Gas Co										
PA	Philadelphia Gas Works		970			1			1	Phil Housing Devel Corp	
SC	Comm of Public Works										
TN	Memphis Lght,Water & Gas Div										
TN	TN Valley Authority		17,614			1	TN State CAA				
VA	Northern VA Natural Gas										
VA	Virginia Power			1		1	Crater Area Agency On Aging				
WA	Seattle City Light		1,104						1	Bonneville	
WI	Northern States Power										
WI	WI Electric Power Co		141						1	HUD solar bank	
WI	Wisconsin Gas Co										
WY	Cheyenne Light,Fuel & Power										
BP	Bonneville Power			1	1						
N		**57**	**10**	**4**	**5**	**7**		**6**	**4**		**4**
TOTAL			**22,274**								

UTILITY FULL SCALE LOW INCOME WEATHERIZATION: PY 1986

ST	UTILITY COMPANY NAME	1.E USED DOE SUBCONTRCTRS	1.F.1.a ATTIC INSUL	1.F.1.b WALL INSUL	1.F.1.c BASEMENT INSUL	1.F.1.d WRAP DUCTS	1.F.1.e OTHER INSUL	1.F.1.e OTHER-SPECIFIED
AL	AL Power Co					1		
AL	Alagasco							
AK	Chugach Elec Assoc							
CA	Pacific Gas & Electric		1			1		
CA	Plumas Sierra REC							
CA	Southern CA Gas Co	1	1			1		
CT	Connecticut Nat Gas							
FL	Jacksonville Elec Auth							
GA	Carroll EMC							
GA	Georgia Power Co.							
GA	Habersham EMC							
GA	Ocmulgee EMC							
IL	IA-Il Gas & Elec							
IL	Illinois Power		1			1		
IL	Northern Illinois Gas Co	1	1	1			1	floor, timer, skirting
IA	Iowa Power							
KS	Board of Public Utilities							
KY	Kentucky Power Co	1				1	1	Plastic over windows
KY	Louisville Gas & Elec Co							
LA	Louisianna Pow & Light Co					1	1	see survey
ME	Central Maine Power Co							
MI	MI Consolidated Gas Co	1						
MN	Minnegasco							
MN	Northern States Power		1	1		1		
MS	Entex, Div of ARKLA							
MO	Springfield City Utilities							
MO	Union Electric							
NV	Southwest Gas Co	1	1			1		
NJ	Jersey Central Pow & Light		1		1	1		
NY	Great Falls Gas Co							
NY	Niagra Mohawk Power Co							
NY	Orange&Rockland Util		1		1	1		
NC	City of Wilson							
ND	Cass County EC							
OH	Columbia Gas of Ohio	1	1					
OH	Columbus Southern Power							
OH	East Ohio Gas Co							
OH	Ohio Edison Co							
OH	South Central Power Co							

UTILITY FULL SCALE LOW INCOME WEATHERIZATION: PY 1986

ST	UTILITY COMPANY NAME		1.E USED DOE SUBCONTRCTRS	1.F.1.a ATTIC INSUL	1.F.1.b WALL INSUL	1.F.1.c BASEMENT INSUL	1.F.1.d WRAP DUCTS	1.F.1.e OTHER INSUL	1.F.1.e OTHER-SPECIFIED	
OK	OK Gas & Elec Co			1			1			
OR	Consumers Power		1	1	1	1	1			
OR	Eugene Water & Electric		1	1	1	1	1	1	conversion windows	
PA	Central Electric Coop Inc									
PA	Columbia Gas of PA						1			
PA	Peoples Natural Gas Co									
PA	Philadelphia Gas Works			1			1	1	garage ceiling	
SC	Comm of Public Works									
TN	Memphis Lght,Water & Gas Div			1			1			
TN	TN Valley Authority			1			1	1	floor	
VA	Northern VA Natural Gas									
VA	Virginia Power			1	1		1	1	roof and step repair	
WA	Seattle City Light		1	1	1	1	1	1	undrflr/pipewrp/clokthermo	
WI	Northern States Power		1	1	1	1	1	1	foundation/floor/crawlspace	
WI	WI Electric Power Co			1	1	1	1			
WI	Wisconsin Gas Co			1	1	1				
WY	Cheyenne Light,Fuel & Power									
BP	Bonneville Power			1	1	1	1	1	radon	
N		**57**	**10**	**21**	**10**	**9**	**22**	**10**		**10**
TOTAL										

UTILITY FULL SCALE LOW INCOME WEATHERIZATION: PY 1986

ST	UTILITY COMPANY NAME	1.F.2.a WEATHER-STRIP/ CAULK	1.F.2.b WINDOW REPLACE	1.F.2.c STORM WINDOWS /DOORS	1.F.2.d HOME REPAIRS	1.F.2.e OTHER LEAKAGE	1.F.2.e OTHER SPECIFIED	1.F.3.a HEATING REPAIR	1.F.3.b HEATING REPLACE	1.F.3.b HEATING OTHER
AL	AL Power Co	1	1			1				
AL	Alagasco	1		1						
AK	Chugach Elec Assoc									
CA	Pacific Gas & Electric	1			1					
CA	Plumas Sierra REC									
CA	Southern CA Gas Co	1	1	1	1			1	1	
CT	Connecticut Nat Gas									
FL	Jacksonville Elec Auth									
GA	Carroll EMC									
GA	Georgia Power Co.									
GA	Habersham EMC									
GA	Ocmulgee EMC									
IL	IA-Il Gas & Elec									
IL	Illinois Power	1		1		1	replace glass,thresholds			
IL	Northern Illinois Gas Co	1		1	1					
IA	Iowa Power									
KS	Board of Public Utilities									
KY	Kentucky Power Co	1				1	Plastic over windows			
KY	Louisville Gas & Elec Co									
LA	Louisianna Pow & Light Co			1		1	see survey			
ME	Central Maine Power Co									
MI	MI Consolidated Gas Co									
MN	Minnegasco									
MN	Northern States Power	1			1			1	1	
MS	Entex, Div of ARKLA									
MO	Springfield City Utilities									
MO	Union Electric									
NV	Southwest Gas Co	1		1	1	1	door thresholds			
NJ	Jersey Central Pow & Light	1		1		1	Air con Covers			
NY	Great Falls Gas Co									
NY	Niagra Mohawk Power Co									
NY	Orange&Rockland Util	1		1						
NC	City of Wilson									
ND	Cass County EC									
OH	Columbia Gas of Ohio	1						1	1	
OH	Columbus Southern Power									
OH	East Ohio Gas Co									
OH	Ohio Edison Co									
OH	South Central Power Co									

UTILITY FULL SCALE LOW INCOME WEATHERIZATION: PY 1986

ST	UTILITY COMPANY NAME		1.F.2.a WEATHER-STRIP/ CAULK	1.F.2.b WINDOW REPLACE	1.F.2.c STORM WINDOWS /DOORS	1.F.2.d HOME REPAIRS	1.F.2.e OTHER LEAKAGE	1.F.2.e OTHER SPECIFIED	1.F.3.a HEATING REPAIR	1.F.3.b HEATING REPLACE	1.F.3.b HEATING OTHER
OK	OK Gas & Elec Co		1	1			1	thresholds, reglaze wndws			
OR	Consumers Power		1	1	1	1					
OR	Eugene Water & Electric		1	1	1	1					
PA	Central Electric Coop Inc										
PA	Columbia Gas of PA		1						1		
PA	Peoples Natural Gas Co										
PA	Philadelphia Gas Works		1						1		
SC	Comm of Public Works										
TN	Memphis Lght,Water & Gas Div		1		1	1					
TN	TN Valley Authority		1		1						
VA	Northern VA Natural Gas										
VA	Virginia Power		1	1	1	1	1	doorsweeps/glazing/vents/trapdoors			
WA	Seattle City Light		1			1					
WI	Northern States Power		1	1	1	1	1	blower door	1	1	
WI	WI Electric Power Co		1								
WI	Wisconsin Gas Co		1	1		1			1	1	
WY	Cheyenne Light,Fuel & Power										
BP	Bonneville Power		1	1	1		1	glazing			
N		**57**	**25**	**9**	**15**	**12**	**10**	**9**	**7**	**5**	**0**
TOTAL											

UTILITY FULL SCALE LOW INCOME WEATHERIZATION: PY 1986

ST	UTILITY COMPANY NAME	1.F.4.a HOT WATER REPAIR	1.F.4.b HOT WATER REPLACE	1.F.4.b HOT WATER OTHER	1.F.5 APPLIANCE REPLACE	1.F.6 LIGHTING MEASURES	1.F.7.a WATER SAVING MEASURES	1.F.7.b COOLING MEASURES	1.F.7.C OTHER MEASURES	1.F.7.C OTHER SPECIFIED
AL	AL Power Co						1	1		
AL	Alagasco									
AK	Chugach Elec Assoc									
CA	Pacific Gas & Electric						1			
CA	Plumas Sierra REC									
CA	Southern CA Gas Co									
CT	Connecticut Nat Gas									
FL	Jacksonville Elec Auth									
GA	Carroll EMC									
GA	Georgia Power Co.									
GA	Habersham EMC									
GA	Ocmulgee EMC									
IL	IA-Il Gas & Elec									
IL	Illinois Power									
IL	Northern Illinois Gas Co									
IA	Iowa Power									
KS	Board of Public Utilities									
KY	Kentucky Power Co									
KY	Louisville Gas & Elec Co									
LA	Louisianna Pow & Light Co									
ME	Central Maine Power Co									
MI	MI Consolidated Gas Co								1	Thermostat pilot prog
MN	Minnegasco									
MN	Northern States Power	1					1			
MS	Entex, Div of ARKLA									
MO	Springfield City Utilities									
MO	Union Electric									
NV	Southwest Gas Co						1			
NJ	Jersey Central Pow & Light						1			
NY	Great Falls Gas Co									
NY	Niagra Mohawk Power Co									
NY	Orange&Rockland Util						1			
NC	City of Wilson									
ND	Cass County EC									
OH	Columbia Gas of Ohio	1	1							
OH	Columbus Southern Power									
OH	East Ohio Gas Co									
OH	Ohio Edison Co									
OH	South Central Power Co									

UTILITY FULL SCALE LOW INCOME WEATHERIZATION: PY 1986

ST	UTILITY COMPANY NAME		1.F.4.a HOT WATER REPAIR	1.F.4.b HOT WATER REPLACE	1.F.4.b HOT WATER OTHER	1.F.5 APPLIANCE REPLACE	1.F.6 LIGHTING MEASURES	1.F.7.a WATER SAVING MEASURES	1.F.7.b COOLING MEASURES	1.F.7.C OTHER MEASURES	1.F.7.C OTHER SPECIFIED
OK	OK Gas & Elec Co										
OR	Consumers Power										
OR	Eugene Water & Electric							1			
PA	Central Electric Coop Inc										
PA	Columbia Gas of PA		1								
PA	Peoples Natural Gas Co										
PA	Philadelphia Gas Works										
SC	Comm of Public Works										
TN	Memphis Lght,Water & Gas Div										
TN	TN Valley Authority										
VA	Northern VA Natural Gas										
VA	Virginia Power										
WA	Seattle City Light										
WI	Northern States Power		1	1			1			1	electric WH wrap
WI	WI Electric Power Co		1	1							
WI	Wisconsin Gas Co			1							
WY	Cheyenne Light,Fuel & Power										
BP	Bonneville Power							1			
N TOTAL		**57**	**5**	**4**	**0**	**0**	**1**	**8**	**1**	**2**	**2**

UTILITY FULL SCALE LOW INCOME WEATHERIZATION: PY 1987

KEY: 1=YES 0= NO

ST	UTILITY COMPANY NAME	UTIL TYPEa	1.A TOTAL FUNDS	1.B TOTAL UNITS	1.B.1 SING FAM OWNER OCC	1.B.2 SING FAM RENTAL	1.B.3 MULT FAM RENTAL	1.B.4 MOBILE HOMES	1.C MANDATED PROGRAM
AL	Alagasco	1							0
AK	Chugach Elec Assoc	7							
CA	Pacific Gas & Electric	3	$28,000,000	89,226					1
CA	Plumas Sierra REC	7							
CA	Southern Cal Gas Co.	1	$26,205,890	41,538	11,218	5,372	24,948		1
CT	Connecticut Natur Gas	1							
FL	Jacksonville Elec Auth	5							
GA	Georgia Power	2							
GA	Habersham EMC	7							
GA	Ocmulgee EMC	7	$66,146	23	22			1	1
ID	Washington Water Power Co	3	$90,490	206					0
IL	Commonwealth Edison Co	2							
IL	IA-IL Gas& Elec	3							
IL	Illinois Power Co	3	$63,363	91					0
IL	Northern Il Gas Co	1							
IA	Iowa Power	2	$20,000	189	167	25			0
KS	Board of Public Utilties	5							
KY	Kentucky Power Co	2		25	25				0
KY	Louisville Gas & Elec	3							
LA	Louisianna Pow & Light	3	$20,000						0
ME	Central Maine Power	2		769	300	79	390		0
MI	MI Consolidated Gas Co	1							
MN	Minnegasco	1							
MN	Northern States Power	1	$800,000	3,000	1,500	1,000	500		1
MS	Entex, Div of ARKLA	1							1
MO	Sprinfield City Utilities	6							
MO	Union Electric	3							
MT	Montana Power Co	3	$279,513	273	273				0
NV	Southwest Gas Co	1	$182,745	398					1
NJ	Jersey Central Pow & Light	2	$1,297,495	3,893	3,893				1
NY	Great Falls Gas Co	1							
NY	Niagra Mohawk Power Co	3	$287,200	2,872	859	276	1,074	663	0
NY	Orange & Rockland Utility	3	$8,294	19	19				0
NC	City of Wilson	5							
ND	Cass County EC	7							
OH	Cincinnati Gas & Electric Co	3	$1,500,000	1,000	1,000				
OH	Columbia Gas of Ohio	1	$1,537,500	3,575	2,283	1,252		40	1
OH	Columbus Southern Power	2							
OH	East Ohio GAs Co	1	$4,233,600	5,600	3,024	336	2,240		0
OH	Ohio Edison Co	2							
OH	South Central Power Co	7							

UTILITY FULL SCALE LOW INCOME WEATHERIZATION: PY 1987

ST	UTILITY COMPANY NAME	UTIL TYPEa	1.A TOTAL FUNDS	1.B TOTAL UNITS	1.B.1 SING FAM OWNER OCC	1.B.2 SING FAM RENTAL	1.B.3 MULT FAM RENTAL	1.B.4 MOBILE HOMES	KEY: 1=YES 0= NO 1.C MANDATED PROGRAM
OK	OK Gas & Electric Co	3	$207,801	801	801				0
OR	Consumers Power	7	$25,756	9					0
OR	Eugene Water & Electric	5	$737,101	414	140	115	159		0
PA	Central Elec Coop Inc	7							
PA	Columbia Gas of PA	1	$550,000	1,571	1,571				0
PA	Peoples Natural Gas Co	1							
PA	Philadelphia Gas Works	4	$350,000	380	380				0
SC	Comm of Public Works	6							
TN	Memphis Lght,Gas & Water Div	6	$612,000	372	284		118		0
TN	TN Valley Authority	5	$977,000	18,547					0
VA	Virginia Power	2	$94,000	81	81				0
WA	Seattle City Light	5	$1,242,000	822	625		197		1
WA	Washington Water Power	3	$203	339					0
WI	Northern States Power	3	$379,100	485	323		134	28	1
WI	WI Electric Power Co	2	$255,852	119	61	37	19	2	1
WI	Wisconsin Gas Co	1	$3,249,000	2,053					1
WY	Cheyenne Light,Fuel & Power	3							
BP	Bonneville		$5,628,900	3,352	1,815		1,537		
N		**59**	**30**	**31**	**23**	**9**	**11**	**5**	**12**
TOTAL			**$78,900,949**	**182,042**	**30,664**	**8,492**	**31,316**	**734**	

a: *KEY TO UTILITY TYPE: 1 Gas, 2 Electric, 3 Combination, 4 Public Gas, 5 Public Electric, 6 Public Combination, 7 Rural Coop*

UTILITY FULL SCALE LOW INCOME WEATHERIZATION: PY 1987

ST	UTILITY COMPANY NAME	1.D.1 COMBINED RESOURCE UNITS	1.D.2.a DOE WEATHERZ	1.D.2.b LIHEAP	1.D.2.c STATE	1.D.2.c STATE PROG NAME	1.D.2.d OTHER	1.D.2.d OTHER SPECIFIED
AL	Alagasco	all		1				
AK	Chugach Elec Assoc							
CA	Pacific Gas & Electric							
CA	Plumas Sierra REC							
CA	Southern Cal Gas Co.							
CT	Connecticut Natur Gas							
FL	Jacksonville Elec Auth							
GA	Georgia Power							
GA	Habersham EMC							
GA	Ocmulgee EMC	23			1	GA Energy Fund		
ID	Washington Water Power Co	206	1	1				
IL	Commonwealth Edison Co							
IL	IA-IL Gas& Elec							
IL	Illinois Power Co				1	Dept Energ & Nat Resour		
IL	Northern Il Gas Co							
IA	Iowa Power	189					1	PVE
KS	Board of Public Utilties							
KY	Kentucky Power Co	25			1	FIVCO		
KY	Louisville Gas & Elec							
LA	Louisianna Pow & Light							
ME	Central Maine Power		1	1	1	ME State Repair Prog		
MI	MI Consolidated Gas Co							
MN	Minnegasco							
MN	Northern States Power	2,000	1	1				
MS	Entex, Div of ARKLA				1	RCS Energy Audit		
MO	Sprinfield City Utilities							
MO	Union Electric							
MT	Montana Power Co	0						
NV	Southwest Gas Co							
NJ	Jersey Central Pow & Light				1	Low-I Direct Grant Program		
NY	Great Falls Gas Co							
NY	Niagra Mohawk Power Co	2,872	1					
NY	Orange & Rockland Utility							
NC	City of Wilson							
ND	Cass County EC							
OH	Cincinnati Gas & Electric Co							
OH	Columbia Gas of Ohio							
OH	Columbus Southern Power							
OH	East Ohio GAs Co	0						
OH	Ohio Edison Co							
OH	South Central Power Co							

UTILITY FULL SCALE LOW INCOME WEATHERIZATION: PY 1987

ST	UTILITY COMPANY NAME		1.D.1 COMBINED RESOURCE UNITS	1.D.2.a DOE WEATHERZ	1.D.2.b LIHEAP	1.D.2.c STATE	1.D.2.c STATE PROG NAME		1.D.2.d OTHER	1.D.2.d OTHER SPECIFIED	
OK	OK Gas & Electric Co										
OR	Consumers Power										
OR	Eugene Water & Electric		233	1	1				1	Bonneville	
PA	Central Elec Coop Inc										
PA	Columbia Gas of PA		0								
PA	Peoples Natural Gas Co										
PA	Philadelphia Gas Works		380								
SC	Comm of Public Works								1	Phil Housing Devel Co	
TN	Memphis Lght,Gas & Water Div										
TN	TN Valley Authority		18,547			1	TN State CAA				
VA	Virginia Power		81			1	County of York		1	Crater Ara Agcy Aging	
WA	Seattle City Light		822						1	Bonneville	
WA	Washington Water Power		339	1	1						
WI	Northern States Power				1						
WI	WI Electric Power Co										
WI	Wisconsin Gas Co										
WY	Cheyenne Light,Fuel & Power										
BP	Bonneville			1	1						
N		**59**	**16**	**7**	**8**	**8**		**8**	**5**		**5**
TOTAL			**25,717**								

UTILITY FULL SCALE LOW INCOME WEATHERIZATION: PY 1987

ST	UTILITY COMPANY NAME	1.E USED DOE SUBCONTRCTRS	1.F.1.a ATTIC INSUL	1.F.1.b WALL INSUL	1.F.1.c BASEMENT INSUL	1.F.1.d WRAP DUCTS	1.F.1.e OTHER INSUL	1.F.1.e OTHER-SPECIFIED
AL	Alagasco							
AK	Chugach Elec Assoc							
CA	Pacific Gas & Electric		1			1		
CA	Plumas Sierra REC							
CA	Southern Cal Gas Co.	1	1			1		
CT	Connecticut Natur Gas							
FL	Jacksonville Elec Auth							
GA	Georgia Power							
GA	Habersham EMC							
GA	Ocmulgee EMC	1	1	1	1	1	1	ground cover/ventilation
ID	Washington Water Power Co		1	1	1	1		
IL	Commonwealth Edison Co							
IL	IA-IL Gas& Elec							
IL	Illinois Power Co		1			1		
IL	Northern Il Gas Co	1	1	1			1	perimeter, floor, skirting
IA	Iowa Power				1	1		
KS	Board of Public Utilties							
KY	Kentucky Power Co	1				1	1	Plastic over Windows
KY	Louisville Gas & Elec							
LA	Louisianna Pow & Light					1	1	see survey
ME	Central Maine Power	1	1	1			1	floor insulation
MI	MI Consolidated Gas Co							
MN	Minnegasco							
MN	Northern States Power		1	1		1		
MS	Entex, Div of ARKLA							
MO	Sprinfield City Utilities							
MO	Union Electric							
MT	Montana Power Co	1	1		1	1	1	floor, vents, blowerdoor
NV	Southwest Gas Co	1	1			1		
NJ	Jersey Central Pow & Light		1		1	1		
NY	Great Falls Gas Co							
NY	Niagra Mohawk Power Co	1						
NY	Orange & Rockland Utility		1		1	1		
NC	City of Wilson							
ND	Cass County EC							
OH	Cincinnati Gas & Electric Co		1		1	1		
OH	Columbia Gas of Ohio	1	1			1		
OH	Columbus Southern Power							
OH	East Ohio GAs Co	1	1	1	1	1		
OH	Ohio Edison Co							
OH	South Central Power Co							

UTILITY FULL SCALE LOW INCOME WEATHERIZATION: PY 1987

ST	UTILITY COMPANY NAME		1.E USED DOE SUBCONTRCTRS	1.F.1.a ATTIC INSUL	1.F.1.b WALL INSUL	1.F.1.c BASEMENT INSUL	1.F.1.d WRAP DUCTS	1.F.1.e OTHER INSUL	1.F.1.e OTHER-SPECIFIED	
OK	OK Gas & Electric Co			1			1			
OR	Consumers Power			1	1	1	1			
OR	Eugene Water & Electric		1	1	1	1	1	1	conversion windows	
PA	Central Elec Coop Inc									
PA	Columbia Gas of PA			1			1			
PA	Peoples Natural Gas Co									
PA	Philadelphia Gas Works			1			1	1	garage ceiling	
SC	Comm of Public Works									
TN	Memphis Lght,Gas & Water Div			1			1			
TN	TN Valley Authority			1			1	1	floor	
VA	Virginia Power		1	1	1		1	1	roof & step repair/receptacles	
WA	Seattle City Light		1	1	1	1	1	1	undrflr/pipewrp/cloktherm	
WA	Washington Water Power			1	1	1	1			
WI	Northern States Power		1	1	1	1	1	1	foundation/crawlspace/floor	
WI	WI Electric Power Co			1	1	1				
WI	Wisconsin Gas Co			1	1	1				
WY	Cheyenne Light,Fuel & Power									
BP	Bonneville			1	1	1	1	1	radon	
N		**59**	**14**	**29**	**15**	**16**	**28**	**13**		**13**
TOTAL										

UTILITY FULL SCALE LOW INCOME WEATHERIZATION: PY 1987

ST	UTILITY COMPANY NAME	1.F.2.a WEATHER-STRIP/ CAULK	1.F.2.b WINDOW REPLACE	1.F.2.c STORM WINDOWS /DOORS	1.F.2.d HOME REPAIRS	1.F.2.e OTHER LEAKAGE	1.F.2.e OTHER SPECIFIED	1.F.3.a HEATING REPAIR	1.F.3.b HEATING REPLACE	1.F.3.b HEATING OTHER
AL	Alagasco	1		1						
AK	Chugach Elec Assoc									
CA	Pacific Gas & Electric	1	1		1					
CA	Plumas Sierra REC									
CA	Southern Cal Gas Co.	1	1	1	1			1	1	
CT	Connecticut Natur Gas									
FL	Jacksonville Elec Auth									
GA	Georgia Power									
GA	Habersham EMC									
GA	Ocmulgee EMC	1	1	1				1	1	
ID	Washington Water Power Co		1	1						
IL	Commonwealth Edison Co									
IL	IA-IL Gas& Elec									
IL	Illinois Power Co	1		1		1	Replace glass, thresholds			
IL	Northern Il Gas Co	1		1	1					
IA	Iowa Power	1								
KS	Board of Public Utilties									
KY	Kentucky Power Co	1				1	Plastic over windows			
KY	Louisville Gas & Elec									
LA	Louisianna Pow & Light									
ME	Central Maine Power	1	1	1		1	replacement doors			
MI	MI Consolidated Gas Co									
MN	Minnegasco									
MN	Northern States Power	1			1			1	1	
MS	Entex, Div of ARKLA									
MO	Sprinfield City Utilities									
MO	Union Electric									
MT	Montana Power Co	1		1	1	1	switchplate gaskets	1	1	
NV	Southwest Gas Co	1		1	1	1	door thresholds			
NJ	Jersey Central Pow & Light	1		1		1	Air Con Covers			
NY	Great Falls Gas Co									
NY	Niagra Mohawk Power Co									
NY	Orange & Rockland Utility	1		1						
NC	City of Wilson									
ND	Cass County EC									
OH	Cincinnati Gas & Electric Co	1	1	1				1		
OH	Columbia Gas of Ohio	1			1			1	1	
OH	Columbus Southern Power									
OH	East Ohio GAs Co	1								
OH	Ohio Edison Co									
OH	South Central Power Co									

UTILITY FULL SCALE LOW INCOME WEATHERIZATION: PY 1987

ST	UTILITY COMPANY NAME		1.F.2.a WEATHER-STRIP/ CAULK	1.F.2.b WINDOW REPLACE	1.F.2.c STORM WINDOWS /DOORS	1.F.2.d HOME REPAIRS	1.F.2.e OTHER LEAKAGE	1.F.2.e OTHER SPECIFIED		1.F.3.a HEATING REPAIR	1.F.3.b HEATING REPLACE	1.F.3.b HEATING OTHER
OK	OK Gas & Electric Co		1	1			1	thresholds, reglaze wndws				
OR	Consumers Power		1	1	1	1						
OR	Eugene Water & Electric		1	1	1	1						
PA	Central Elec Coop Inc											
PA	Columbia Gas of PA		1							1		
PA	Peoples Natural Gas Co											
PA	Philadelphia Gas Works		1	1	1	1				1		
SC	Comm of Public Works											
TN	Memphis Lght,Gas & Water Div		1		1	1						
TN	TN Valley Authority		1		1							
VA	Virginia Power		1	1	1	1	1	glazing/doorsweeps/vents/trapdoor				
WA	Seattle City Light		1			1						
WA	Washington Water Power			1	1							
WI	Northern States Power		1	1	1	1	1	blower door		1	1	
WI	WI Electric Power Co		1	1								
WI	Wisconsin Gas Co		1	1		1				1	1	
WY	Cheyenne Light,Fuel & Power											
BP	Bonneville		1	1	1		1	glazing				
N		**59**	**30**	**16**	**21**	**15**	**10**		**10**	**10**	**7**	**0**
TOTAL												

UTILITY FULL SCALE LOW INCOME WEATHERIZATION: PY 1987

ST	UTILITY COMPANY NAME	1.F.4.a HOT WATER REPAIR	1.F.4.b HOT WATER REPLACE	1.F.4.b HOT WATER OTHER	1.F.5 APPLIANCE REPLACE	1.F.6 LIGHTING MEASURES	1.F.7.a WATER SAVING MEASURES	1.F.7.b COOLING MEASURES	1.F.7.C OTHER MEASURES	1.F.7.C OTHER SPECIFIED
AL	Alagasco									
AK	Chugach Elec Assoc									
CA	Pacific Gas & Electric						1			
CA	Plumas Sierra REC									
CA	Southern Cal Gas Co.									
CT	Connecticut Natur Gas									
FL	Jacksonville Elec Auth									
GA	Georgia Power									
GA	Habersham EMC									
GA	Ocmulgee EMC			1					1	attic fan
ID	Washington Water Power Co									
IL	Commonwealth Edison Co									
IL	IA-IL Gas& Elec									
IL	Illinois Power Co									
IL	Northern Il Gas Co									
IA	Iowa Power					1	1			
KS	Board of Public Utilties									
KY	Kentucky Power Co									
KY	Louisville Gas & Elec									
LA	Louisianna Pow & Light									
ME	Central Maine Power									
MI	MI Consolidated Gas Co									
MN	Minnegasco									
MN	Northern States Power	1					1			
MS	Entex, Div of ARKLA									
MO	Sprinfield City Utilities									
MO	Union Electric									
MT	Montana Power Co									
NV	Southwest Gas Co						1			
NJ	Jersey Central Pow & Light									
NY	Great Falls Gas Co									
NY	Niagra Mohawk Power Co									
NY	Orange & Rockland Utility						1			
NC	City of Wilson									
ND	Cass County EC									
OH	Cincinnati Gas & Electric Co			1					1	ventilation
OH	Columbia Gas of Ohio	1	1							
OH	Columbus Southern Power									
OH	East Ohio GAs Co									
OH	Ohio Edison Co									
OH	South Central Power Co									

UTILITY FULL SCALE LOW INCOME WEATHERIZATION: PY 1987

ST	UTILITY COMPANY NAME		1.F.4.a HOT WATER REPAIR	1.F.4.b HOT WATER REPLACE	1.F.4.b HOT WATER OTHER	1.F.5 APPLIANCE REPLACE	1.F.6 LIGHTING MEASURES	1.F.7.a WATER SAVING MEASURES	1.F.7.b COOLING MEASURES	1.F.7.C OTHER MEASURES	1.F.7.C OTHER SPECIFIED	
OK	OK Gas & Electric Co											
OR	Consumers Power											
OR	Eugene Water & Electric							1				
PA	Central Elec Coop Inc											
PA	Columbia Gas of PA		1									
PA	Peoples Natural Gas Co											
PA	Philadelphia Gas Works											
SC	Comm of Public Works											
TN	Memphis Lght,Gas & Water Div											
TN	TN Valley Authority											
VA	Virginia Power											
WA	Seattle City Light											
WA	Washington Water Power											
WI	Northern States Power		1	1			1	1		1	electric WH wrap	
WI	WI Electric Power Co		1	1			1					
WI	Wisconsin Gas Co			1								
WY	Cheyenne Light,Fuel & Power											
BP	Bonneville							1				
N		**59**	**5**	**4**	**2**	**0**	**3**	**8**	**0**	**3**		**3**
TOTAL												

UTILITY FULL SCALE LOW INCOME WEATHERIZATION: PY 1988

KEY: 1=YES
0= NO

ST	UTILITY COMPANY NAME	UTIL TYPEa	1.A TOTAL FUNDS	1.B TOTAL UNITS	1.B.1 SING FAM OWNER OCC	1.B.2 SING FAM RENTAL	1.B.3 MULT FAM RENTAL	1.B.4 MOBILE HOMES	1.C MANDATED PROGRAM
AL	Alagasco	1							0
AK	Chugach Elec Assoc	7							
CA	Pacific Gas & Elec	3	$31,300,000	100,489					1
CA	Plumas Sierra REC	7							
CA	Southern Cal Gas	1	$19,930,324	40,437	13,080	4,831	22,526		1
CT	Connecticut Natural Gas	1							
FL	Jacksonville Elec Auth	5							
GA	Carroll EMC	7							
GA	Georgia Power	2							
GA	Greystone Power Co.	7	$48,747	37	37				0
GA	Habersham EMC	7	$39,916	15					0
GA	Ocmulge EMC	7	$28,523		11				
IL	Commonwealth Edison Co	2							
IL	IA-IL Gas & Elec	3							
IL	Illinois Power Co	3	$32,173	85					0
IL	Northern IL Gas Co	1	$54,229	55					1
IA	Iowa Power	2	$25,000	244	200	44			0
KS	Board of Public Utilities	5							
KY	Louisville Gas & Elec	3							
LA	Louisianna Power & Light	3	$50,000						0
ME	Central Maine Power Co	2		1,175	465	120	590		0
MA	Bay State Gas Co	1							
MI	MI Consolidated Gas	1							
MN	Minnegasco	1							
MN	Northern States Power	1	$750,000	3,000	1,500	1,000	500		1
MO	Springfield City Utilities	6							
MT	Montana Power Co	3	$137,857	120	120				0
NV	Southwest Gas Co	1	$216,016	507					1
NJ	Jersey Central Pow&Light	2	$652,968	1,750	1,750				1
NY	Great Falls Gas Co	1							
NY	Niagra Mohawk Power Co	3	$270,200	2,702					0
NY	Orange & Rockland Utility	3	$45,469	41	41				1
NC	City of Wilson	5							
ND	Cass County EC	7							
OH	Cincinnati Gas & Electric	3	$1,387,350	600					0
OH	Columbia Gas of Ohio	1	$5,700,000	6,250	4,878	1,197		175	0
OH	Columbus Southern Power	2							
OH	East Ohio Gas Co	1	$3,400,000	4,200	2,268	252	1,680		0
OH	Ohio Edison Co	2							
OH	South Central Power	7							

UTILITY FULL SCALE LOW INCOME WEATHERIZATION: PY 1988

ST	UTILITY COMPANY NAME	UTIL TYPEa	1.A TOTAL FUNDS	1.B TOTAL UNITS	1.B.1 SING FAM OWNER OCC	1.B.2 SING FAM RENTAL	1.B.3 MULT FAM RENTAL	1.B.4 MOBILE HOMES	KEY: 1=YES 0= NO 1.C MANDATED PROGRAM
OK	OK Gas & Electric Co	3	$58,387	271	271				0
OR	Eugene Water & Electric	5	$1,048,434	796	142	212	442		0
PA	Central Elec Coop Inc	7							
PA	Columbia Gas PA	1	$448,440	165	160	5			1
PA	Peoples Natural Gas	1	$293,698	17	8	5	4		1
PA	Philadelphia Gas Works	4	$173,000	247	247				0
SC	Comm of Public Works	6							
TN	Memphis Lght,Gas & Water Div	6	$634,000	330	297		33		
TN	TN Valley Authority	5	$609,000	11,548					0
WA	Seattle City Light	5	$926,693	556	385		171		1
WI	City Gas Co	1	$26,110	19	14	3	1	1	1
WI	Northern States Power	3	$313,500	304	247		28	29	1
WI	WI Electric Power Co	2	$10,185	24	2	0	22	0	1
WI	Wisconsin Gas Co	1	$3,484,000	2,254					1
BP	Bonneville Power		$5,466,900		1,981		2,226		
N		**55**	**31**	**29**	**22**	**11**	**12**	**4**	**14**
TOTAL			**$77,561,119**	**178,238**	**28,104**	**7,669**	**28,223**	**205**	

a: *KEY TO UTILITY TYPE: 1 Gas, 2 Electric, 3 Combination, 4 Public Gas, 5 Public Electric, 6 Public Combination, 7 Rural Coop*

UTILITY FULL SCALE LOW INCOME WEATHERIZATION: PY 1988

ST	UTILITY COMPANY NAME	1.D.1 COMBINED RESOURCE UNITS	1.D.2.a DOE WEATHERZ	1.D.2.b LIHEAP	1.D.2.c STATE	1.D.2.c STATE PROG NAME	1.D.2.d OTHER	1.D.2.d OTHER SPECIFIED
AL	Alagasco	all		1				
AK	Chugach Elec Assoc							
CA	Pacific Gas & Elec							
CA	Plumas Sierra REC							
CA	Southern Cal Gas							
CT	Connecticut Natural Gas							
FL	Jacksonville Elec Auth							
GA	Carroll EMC							
GA	Georgia Power							
GA	Greystone Power Co.	37			1	GA Res Finance Auth		
GA	Habersham EMC				1	GA Energy Fund		
GA	Ocmulge EMC	11			1	GA Energy Fund		
IL	Commonwealth Edison Co							
IL	IA-IL Gas & Elec							
IL	Illinois Power Co				1	Dpt Enrg & Nat Resource		
IL	Northern IL Gas Co				1	IL home WAP		
IA	Iowa Power	21					1	PVE
KS	Board of Public Utilities							
KY	Louisville Gas & Elec							
LA	Louisianna Power & Light							
ME	Central Maine Power Co		1		1	ME State Repair		
MA	Bay State Gas Co							
MI	MI Consolidated Gas							
MN	Minnegasco							
MN	Northern States Power	1,800	1	1				
MO	Springfield City Utilities							
MT	Montana Power Co							
NV	Southwest Gas Co	0						
NJ	Jersey Central Pow&Light				1	Low-I Direct Grant Program		
NY	Great Falls Gas Co							
NY	Niagra Mohawk Power Co	2,702	1					
NY	Orange & Rockland Utility							
NC	City of Wilson							
ND	Cass County EC							
OH	Cincinnati Gas & Electric						1	OH Dept of Development
OH	Columbia Gas of Ohio							
OH	Columbus Southern Power							
OH	East Ohio Gas Co	4,200			1	OH Utility Match Prog		
OH	Ohio Edison Co							
OH	South Central Power							

UTILITY FULL SCALE LOW INCOME WEATHERIZATION: PY 1988

ST	UTILITY COMPANY NAME		1.D.1 COMBINED RESOURCE UNITS	1.D.2.a DOE WEATHERZ	1.D.2.b LIHEAP	1.D.2.c STATE	1.D.2.c STATE PROG NAME		1.D.2.d OTHER	1.D.2.d OTHER SPECIFIED	
OK	OK Gas & Electric Co										
OR	Eugene Water & Electric		412	1	1				1	Exxon	
PA	Central Elec Coop Inc										
PA	Columbia Gas PA		0								
PA	Peoples Natural Gas			1	1						
PA	Philadelphia Gas Works		247						1	PA Gov's Energy Coun	
SC	Comm of Public Works										
TN	Memphis Lght,Gas & Water Div										
TN	TN Valley Authority		11,548			1	TN State CAA				
WA	Seattle City Light		556						1	Bonneville	
WI	City Gas Co		16			1	Commun Action Program		1	City Block Grant	
WI	Northern States Power				1						
WI	WI Electric Power Co										
WI	Wisconsin Gas Co		50			1	WI-Milwaukee,City of				
BP	Bonneville Power										
N		**55**	**15**	**5**	**5**	**11**		**11**	**6**		**6**
TOTAL			**21,600**								

UTILITY FULL SCALE LOW INCOME WEATHERIZATION: PY 1988

ST	UTILITY COMPANY NAME	1.E USED DOE SUBCONTRCTRS	1.F.1.a ATTIC INSUL	1.F.1.b WALL INSUL	1.F.1.c BASEMENT INSUL	1.F.1.d WRAP DUCTS	1.F.1.e OTHER INSUL	1.F.1.e OTHER-SPECIFIED
AL	Alagasco							
AK	Chugach Elec Assoc							
CA	Pacific Gas & Elec		1			1		
CA	Plumas Sierra REC							
CA	Southern Cal Gas	1	1			1		
CT	Connecticut Natural Gas							
FL	Jacksonville Elec Auth							
GA	Carroll EMC							
GA	Georgia Power							
GA	Greystone Power Co.		1		1	1		
GA	Habersham EMC		1	1	1	1	1	grnd cvr/ventil/attic fan
GA	Ocmulge EMC	1	1	1	1	1	1	ground cover/ventillation
IL	Commonwealth Edison Co							
IL	IA-IL Gas & Elec							
IL	Illinois Power Co		1			1		
IL	Northern IL Gas Co	1	1	1			1	timer, floor, skirting
IA	Iowa Power		1		1	1		
KS	Board of Public Utilities							
KY	Louisville Gas & Elec							
LA	Louisianna Power & Light					1	1	see survey
ME	Central Maine Power Co	1	1	1			1	floor insulation
MA	Bay State Gas Co							
MI	MI Consolidated Gas							
MN	Minnegasco							
MN	Northern States Power		1	1		1		
MO	Springfield City Utilities							
MT	Montana Power Co	1	1		1	1	1	floors
NV	Southwest Gas Co	1	1			1		
NJ	Jersey Central Pow&Light		1		1	1		
NY	Great Falls Gas Co							
NY	Niagra Mohawk Power Co	1						
NY	Orange & Rockland Utility		1		1	1		
NC	City of Wilson							
ND	Cass County EC							
OH	Cincinnati Gas & Electric		1	1	1	1		
OH	Columbia Gas of Ohio	1	1	1		1		
OH	Columbus Southern Power							
OH	East Ohio Gas Co	1	1	1	1	1		
OH	Ohio Edison Co							
OH	South Central Power							

UTILITY FULL SCALE LOW INCOME WEATHERIZATION: PY 1988

ST	UTILITY COMPANY NAME		1.E USED DOE SUBCONTRCTRS	1.F.1.a ATTIC INSUL	1.F.1.b WALL INSUL	1.F.1.c BASEMENT INSUL	1.F.1.d WRAP DUCTS	1.F.1.e OTHER INSUL	1.F.1.e OTHER-SPECIFIED	
OK	OK Gas & Electric Co			1			1			
OR	Eugene Water & Electric		1	1	1	1	1	1	Conversion Windows	
PA	Central Elec Coop Inc									
PA	Columbia Gas PA		1	1	1		1			
PA	Peoples Natural Gas		1	1			1			
PA	Philadelphia Gas Works		1	1			1	1		
SC	Comm of Public Works									
TN	Memphis Lght,Gas & Water Div			1			1			
TN	TN Valley Authority			1			1	1	floor	
WA	Seattle City Light		1	1	1	1	1	1	underfoor/pipewrap	
WI	City Gas Co		1	1	1	1				
WI	Northern States Power		1	1	1	1	1	1		
WI	WI Electric Power Co			1	1	1	1			
WI	Wisconsin Gas Co			1	1	1				
BP	Bonneville Power									
N TOTAL		**55**	**16**	**29**	**15**	**15**	**26**	**11**		**9**

UTILITY FULL SCALE LOW INCOME WEATHERIZATION: PY 1988

ST	UTILITY COMPANY NAME	1.F.2.a WEATHER-STRIP/ CAULK	1.F.2.b WINDOW REPLACE	1.F.2.c STORM WINDOWS /DOORS	1.F.2.d HOME REPAIRS	1.F.2.e OTHER LEAKAGE	1.F.2.e OTHER SPECIFIED	1.F.3.a HEATING REPAIR	1.F.3.b HEATING REPLACE	1.F.3.b HEATING OTHER
AL	Alagasco	1		1						
AK	Chugach Elec Assoc									
CA	Pacific Gas & Elec	1	1		1					
CA	Plumas Sierra REC									
CA	Southern Cal Gas	1	1	1	1			1	1	
CT	Connecticut Natural Gas									
FL	Jacksonville Elec Auth									
GA	Carroll EMC									
GA	Georgia Power									
GA	Greystone Power Co.	1	1	1				1	1	
GA	Habersham EMC	1	1	1		1	infil control/door replace	1	1	
GA	Ocmulge EMC	1	1	1				1	1	
IL	Commonwealth Edison Co									
IL	IA-IL Gas & Elec									
IL	Illinois Power Co	1		1		1	Replc glass, thresholds			
IL	Northern IL Gas Co	1		1	1					
IA	Iowa Power	1	1	1	1					
KS	Board of Public Utilities									
KY	Louisville Gas & Elec									
LA	Louisianna Power & Light			1		1	see survey			
ME	Central Maine Power Co	1	1	1		1	replacement doors			
MA	Bay State Gas Co									
MI	MI Consolidated Gas									
MN	Minnegasco									
MN	Northern States Power	1			1			1	1	
MO	Springfield City Utilities									
MT	Montana Power Co	1		1	1	1	vents, blowerdoor, switchplate	1	1	
NV	Southwest Gas Co	1		1	1	1	door thresholds			
NJ	Jersey Central Pow&Light	1		1		1	air con covers			
NY	Great Falls Gas Co									
NY	Niagra Mohawk Power Co									
NY	Orange & Rockland Utility	1		1						
NC	City of Wilson									
ND	Cass County EC									
OH	Cincinnati Gas & Electric	1	1	1		1	broken glass replacement	1	1	
OH	Columbia Gas of Ohio	1			1	1	seal by pass	1	1	1
OH	Columbus Southern Power									
OH	East Ohio Gas Co	1								
OH	Ohio Edison Co									
OH	South Central Power									

UTILITY FULL SCALE LOW INCOME WEATHERIZATION: PY 1988

ST	UTILITY COMPANY NAME		1.F.2.a WEATHER-STRIP/ CAULK	1.F.2.b WINDOW REPLACE	1.F.2.c STORM WINDOWS /DOORS	1.F.2.d HOME REPAIRS	1.F.2.e OTHER LEAKAGE	1.F.2.e OTHER SPECIFIED		1.F.3.a HEATING REPAIR	1.F.3.b HEATING REPLACE	1.F.3.b HEATING OTHER
OK	OK Gas & Electric Co		1	1			1	thresholds, reglaze windows				
OR	Eugene Water & Electric		1	1	1	1						
PA	Central Elec Coop Inc											
PA	Columbia Gas PA		1			1	1	sealing by pass		1	1	1
PA	Peoples Natural Gas		1	1	1	1				1	1	
PA	Philadelphia Gas Works		1		1	1				1	1	
SC	Comm of Public Works											
TN	Memphis Lght,Gas & Water Div		1		1	1						
TN	TN Valley Authority		1		1							
WA	Seattle City Light		1			1						
WI	City Gas Co										1	
WI	Northern States Power		1	1	1	1	1	blower door		1	1	
WI	WI Electric Power Co		1									
WI	Wisconsin Gas Co		1	1		1				1	1	
BP	Bonneville Power											
N TOTAL		**55**	**29**	**13**	**21**	**16**	**12**		**12**	**13**	**14**	**2**

UTILITY FULL SCALE LOW INCOME WEATHERIZATION: PY 1988

ST	UTILITY COMPANY NAME	1.F.4.a HOT WATER REPAIR	1.F.4.b HOT WATER REPLACE	1.F.4.b HOT WATER OTHER	1.F.5 APPLIANCE REPLACE	1.F.6 LIGHTING MEASURES	1.F.7.a WATER SAVING MEASURES	1.F.7.b COOLING MEASURES	1.F.7.C OTHER MEASURES	1.F.7.C OTHER SPECIFIED
AL	Alagasco									
AK	Chugach Elec Assoc									
CA	Pacific Gas & Elec						1			
CA	Plumas Sierra REC									
CA	Southern Cal Gas									
CT	Connecticut Natural Gas									
FL	Jacksonville Elec Auth									
GA	Carroll EMC									
GA	Georgia Power									
GA	Greystone Power Co.	1						1		
GA	Habersham EMC							1		
GA	Ocmulge EMC			1					1	attic fan
IL	Commonwealth Edison Co									
IL	IA-IL Gas & Elec									
IL	Illinois Power Co									
IL	Northern IL Gas Co									
IA	Iowa Power					1	1			
KS	Board of Public Utilities									
KY	Louisville Gas & Elec									
LA	Louisianna Power & Light									
ME	Central Maine Power Co									
MA	Bay State Gas Co									
MI	MI Consolidated Gas									
MN	Minnegasco									
MN	Northern States Power	1					1			
MO	Springfield City Utilities									
MT	Montana Power Co									
NV	Southwest Gas Co						1			
NJ	Jersey Central Pow&Light						1			
NY	Great Falls Gas Co									
NY	Niagra Mohawk Power Co									
NY	Orange & Rockland Utility						1			
NC	City of Wilson									
ND	Cass County EC									
OH	Cincinnati Gas & Electric			1					1	ventilation
OH	Columbia Gas of Ohio	1	1	1						
OH	Columbus Southern Power									
OH	East Ohio Gas Co									
OH	Ohio Edison Co									
OH	South Central Power									

UTILITY FULL SCALE LOW INCOME WEATHERIZATION: PY 1988

ST	UTILITY COMPANY NAME		1.F.4.a HOT WATER REPAIR	1.F.4.b HOT WATER REPLACE	1.F.4.b HOT WATER OTHER	1.F.5 APPLIANCE REPLACE	1.F.6 LIGHTING MEASURES	1.F.7.a WATER SAVING MEASURES	1.F.7.b COOLING MEASURES	1.F.7.C OTHER MEASURES	1.F.7.C OTHER SPECIFIED
OK	OK Gas & Electric Co										
OR	Eugene Water & Electric							1			
PA	Central Elec Coop Inc										
PA	Columbia Gas PA		1	1	1					1	customer education
PA	Peoples Natural Gas		1	1				1			
PA	Philadelphia Gas Works		1					1			
SC	Comm of Public Works										
TN	Memphis Lght,Gas & Water Div										
TN	TN Valley Authority										
WA	Seattle City Light										
WI	City Gas Co										
WI	Northern States Power		1	1			1	1		1	electric wh and pipe wra
WI	WI Electric Power Co		1	1							
WI	Wisconsin Gas Co			1							
BP	Bonneville Power										
N TOTAL		**55**	**8**	**6**	**4**	**0**	**2**	**10**	**2**	**4**	**4**

UTILITY FULL SCALE LOW INCOME WEATHERIZATION: PY 1989

ST	UTILITY COMPANY NAME	UTIL TYPEa	1.A TOTAL FUNDS	1.B TOTAL UNITS	1.B.1 SING FAM OWNER OCC	1.B.2 SING FAM RENTAL	1.B.3 MULT FAM RENTAL	1.B.4 MOBILE HOMES	KEY: 1=YES 0= NO 1.C MANDATED PROGRAM
AL	Alagasco	1							0
AK	Chugach Elec Assoc	7							
CA	Pacific Gas & Elec	3	$27,800,000	118,725	91,339		27,386		1
CA	Plumas Sierra REC	7							
CA	Southern Cal Gas Co	1	$18,434,842	32,483	10,717	4,219	17,547		1
CO	Public Service Co of CO	3	$60,000	52	45			7	0
CT	Connecticut Nat Gas	1							
DC	DC Natural Gas	1							1
FL	Jacksonville Elec Auth	5							
GA	Carroll EMC	7							
GA	Georgia Power Co.	2							
GA	Greystone Power Co	7	$11,944	7	7				0
GA	Habersham EMC	7	$27,051	12					0
GA	Ocmulge EMC	7	$13,999	5	5				1
ID	Idaho Power Co	2	$135,592	196					0
ID	Washington Water Power Co	3	$117,491	176					0
IL	IA-Il Gas&Electric	3							
IL	IL Commonwealth Edison	1							
IL	Illinois Power Co	3	$57,980	106					0
IL	Northern IL GAs Co	1	$201,200	249					1
IA	Iowa Power	2	$27,000	36	30	6			0
KS	Board of Public Utilities	5							
KY	Louisville Gas & Electric	3							
LA	Louisiana Power & Light	3							
ME	Central Maine Power Co	2	$860,000	876	340	90	444		0
MA	Bay State Gas	1							
MI	MI Consolidated Gas	1							
MN	Minnegasco	1							
MN	Northern States Power	1	$825,000	3,000	1,800	800	400		1
MO	Springfield City Utilities	6							
MO	Union Electric Co	3							
MT	Montana Power	3	$326,051	347					0
NV	City of Boulder City	5	$68,925	25	17			8	0
NV	Southwest Gas Co	1	$121,751	328					1
NJ	Jersey Central Pow & Light	2	$587,697	1,663	1,663				1
NM	Public Service Co of NM	2	$90,000	1,248					1
NY	Great Falls Gas Co	1							
NY	Niagra Mohawk Power Co	3	$215,100	2,151	774	194	753	430	0
NY	Orange & Rockland Utility	3	$8,992	11					
NY	Village of Endicott	5	$3,637	171					0

UTILITY FULL SCALE LOW INCOME WEATHERIZATION: PY 1989

ST	UTILITY COMPANY NAME	UTIL TYPEa	1.A TOTAL FUNDS	1.B TOTAL UNITS	1.B.1 SING FAM OWNER OCC	1.B.2 SING FAM RENTAL	1.B.3 MULT FAM RENTAL	1.B.4 MOBILE HOMES	KEY: 1=YES 0= NO 1.C MANDATED PROGRAM
NC	City of Wilson	5							
ND	Cass County EC	7							
OH	Cincinnati Gas & Electric	3	$1,432,000	648					0
OH	Cleveland Elec Illuminating	2							
OH	Columbia Gas of Ohio	1	$6,500,000	5,985	3,890	2,017		78	0
OH	Columbus Southern Power	2							
OH	East Ohio Gas Co	1	$4,000,000	4,000	2,160	240	1,600		0
OH	Ohio Edison Co	2							
OH	South Central Power	7							
OK	OK Gas & Electric Co	3	$163,359	664	664				0
OR	Consumers Power	7	$2,171	7	6	1			0
OR	Eugene Water & Electric	5	$757,508	531	107	142	282		0
PA	Central Elec Coop Inc	7							
PA	Columbia Gas of PA	1	$517,993	112	112				1
PA	Peoples Natural Gas	1	$492,504	271					
PA	Philadelphia Gas Works	4							
SC	Comm of Public Works	6							
TN	Memphis Lght,Gas & Water Div	6	$277,000	102	80		22		0
WA	Seattle City Light	5	$838,314	607	425		182		1
WA	Washington Water Power	3	$246,985	355					0
WI	City Gas Co	1	$34,003	20	16	3	1		1
WI	Northern States Power	3	$297,600	413	177		11	18	1
WI	WI Electric Power Co	2	$3,818	5	5				1
WI	Wisconsin Gas Co	1	$3,232,000	1,752					1
BP	Bonneville Power		$4,035,000	3,118	1,567		1,551		
N		**65**	**37**	**37**	**24**	**11**	**12**	**5**	**15**
TOTAL			**$72,824,507**	**180,457**	**115,946**	**7,712**	**50,179**	**541**	

a: *KEY TO UTILITY TYPE: 1 Gas, 2 Electric, 3 Combination, 4 Public Gas, 5 Public Electric, 6 Public Combination, 7 Rural Coop*

UTILITY FULL SCALE LOW INCOME WEATHERIZATION: PY 1989

ST	UTILITY COMPANY NAME	1.D.1 COMBINED RESOURCE UNITS	1.D.2.a DOE WEATHERZ	1.D.2.b LIHEAP	1.D.2.c STATE	1.D.2.c STATE PROG NAME	1.D.2.d OTHER	1.D.2.d OTHER SPECIFIED
AL	Alagasco	all		1				
AK	Chugach Elec Assoc							
CA	Pacific Gas & Elec							
CA	Plumas Sierra REC							
CA	Southern Cal Gas Co							
CO	Public Service Co of CO							
CT	Connecticut Nat Gas							
DC	DC Natural Gas							
FL	Jacksonville Elec Auth							
GA	Carroll EMC							
GA	Georgia Power Co.							
GA	Greystone Power Co	7			1	GA Resid Finance Autho		
GA	Habersham EMC	12			1	GA Energy Fund		
GA	Ocmulge EMC	5			1	GA Energy Fund		
ID	Idaho Power Co	196	1	1				
ID	Washington Water Power Co	176	1	1				
IL	IA-Il Gas&Electric							
IL	IL Commonwealth Edison							
IL	Illinois Power Co							
IL	Northern IL GAs Co				1	IL home WAP		
IA	Iowa Power	19					1	PVE
KS	Board of Public Utilities							
KY	Louisville Gas & Electric							
LA	Louisiana Power & Light							
ME	Central Maine Power Co		1		1	ME State Repair		
MA	Bay State Gas							
MI	MI Consolidated Gas							
MN	Minnegasco							
MN	Northern States Power	2,000	1	1				
MO	Springfield City Utilities							
MO	Union Electric Co							
MT	Montana Power	half	1	1	1	energy share		
NV	City of Boulder City	25					1	CDBG
NV	Southwest Gas Co	0						
NJ	Jersey Central Pow & Light				1	Low-I Direct Grant Program		
NM	Public Service Co of NM							
NY	Great Falls Gas Co							
NY	Niagra Mohawk Power Co	2,151	1					
NY	Orange & Rockland Utility							
NY	Village of Endicott							

UTILITY FULL SCALE LOW INCOME WEATHERIZATION: PY 1989

ST	UTILITY COMPANY NAME		1.D.1 COMBINED RESOURCE UNITS	1.D.2.a DOE WEATHERZ	1.D.2.b LIHEAP	1.D.2.c STATE	1.D.2.c STATE PROG NAME		1.D.2.d OTHER	1.D.2.d OTHER SPECIFIED	
NC	City of Wilson										
ND	Cass County EC										
OH	Cincinnati Gas & Electric					1	OH Dept of Development				
OH	Cleveland Elec Illuminating										
OH	Columbia Gas of Ohio										
OH	Columbus Southern Power										
OH	East Ohio Gas Co		4,000			1	OH Utility Match Prog				
OH	Ohio Edison Co										
OH	South Central Power										
OK	OK Gas & Electric Co										
OR	Consumers Power								1	Consumers Power Inc.	
OR	Eugene Water & Electric		309	1	1				1	Exxon PVE	
PA	Central Elec Coop Inc										
PA	Columbia Gas of PA										
PA	Peoples Natural Gas			1	1						
PA	Philadelphia Gas Works										
SC	Comm of Public Works										
TN	Memphis Lght,Gas & Water Div										
WA	Seattle City Light		607						1	Bonneville	
WA	Washington Water Power		355	1	1	1	energy matchmakers				
WI	City Gas Co		17			1	Comm Action Program		1	City Block Grant	
WI	Northern States Power				1						
WI	WI Electric Power Co										
WI	Wisconsin Gas Co		75			1	WI-Milwaukee, City of				
BP	Bonneville Power			1	1						
N		**65**	**18**	**10**	**10**	**12**		**12**	**6**		**6**
TOTAL			**9,954**								

UTILITY FULL SCALE LOW INCOME WEATHERIZATION: PY 1989

ST	UTILITY COMPANY NAME	1.E USED DOE SUBCONTRCTRS	1.F.1.a ATTIC INSUL	1.F.1.b WALL INSUL	1.F.1.c BASEMENT INSUL	1.F.1.d WRAP DUCTS	1.F.1.e OTHER INSUL	1.F.1.e OTHER-SPECIFIED
AL	Alagasco							
AK	Chugach Elec Assoc							
CA	Pacific Gas & Elec		1			1		
CA	Plumas Sierra REC							
CA	Southern Cal Gas Co	1	1			1		
CO	Public Service Co of CO	1	1			1	1	crawlspace
CT	Connecticut Nat Gas							
DC	DC Natural Gas							
FL	Jacksonville Elec Auth							
GA	Carroll EMC							
GA	Georgia Power Co.							
GA	Greystone Power Co		1		1	1		
GA	Habersham EMC		1	1	1	1	1	grnd cvr/ventil/attic fan
GA	Ocmulge EMC	1	1	1	1	1	1	ground cover/ventilation
ID	Idaho Power Co	1	1	1	1	1		
ID	Washington Water Power Co		1	1	1	1		
IL	IA-Il Gas&Electric							
IL	IL Commonwealth Edison							
IL	Illinois Power Co		1			1		
IL	Northern IL GAs Co	1	1	1			1	timer, perimeter, floor
IA	Iowa Power		1	1	1	1		
KS	Board of Public Utilities							
KY	Louisville Gas & Electric							
LA	Louisiana Power & Light					1	1	see survey
ME	Central Maine Power Co	1	1	1			1	floor insulation
MA	Bay State Gas							
MI	MI Consolidated Gas							
MN	Minnegasco							
MN	Northern States Power		1	1		1		
MO	Springfield City Utilities							
MO	Union Electric Co							
MT	Montana Power	1	1		1	1	1	floors
NV	City of Boulder City	1	1			1		
NV	Southwest Gas Co	1	1			1		
NJ	Jersey Central Pow & Light		1		1	1		
NM	Public Service Co of NM					1		
NY	Great Falls Gas Co							
NY	Niagra Mohawk Power Co	1						
NY	Orange & Rockland Utility							
NY	Village of Endicott					1		

UTILITY FULL SCALE LOW INCOME WEATHERIZATION: PY 1989

ST	UTILITY COMPANY NAME		1.E USED DOE SUBCONTRCTRS	1.F.1.a ATTIC INSUL	1.F.1.b WALL INSUL	1.F.1.c BASEMENT INSUL	1.F.1.d WRAP DUCTS	1.F.1.e OTHER INSUL	1.F.1.e OTHER-SPECIFIED	
NC	City of Wilson									
ND	Cass County EC									
OH	Cincinnati Gas & Electric			1	1	1	1			
OH	Cleveland Elec Illuminating									
OH	Columbia Gas of Ohio		1	1	1		1			
OH	Columbus Southern Power									
OH	East Ohio Gas Co		1	1	1	1	1			
OH	Ohio Edison Co									
OH	South Central Power									
OK	OK Gas & Electric Co			1			1			
OR	Consumers Power		1	1		1	1			
OR	Eugene Water & Electric		1	1	1	1	1	1	Conversion Window	
PA	Central Elec Coop Inc									
PA	Columbia Gas of PA			1	1		1	1	seal by-pass	
PA	Peoples Natural Gas		1	1			1			
PA	Philadelphia Gas Works									
SC	Comm of Public Works									
TN	Memphis Lght,Gas & Water Div			1			1			
WA	Seattle City Light		1	1	1	1	1	1	underfloor/pipewrap	
WA	Washington Water Power			1	1	1	1			
WI	City Gas Co		1	1	1	1				
WI	Northern States Power		1	1	1	1	1	1	basement/floor/crawlspace	
WI	WI Electric Power Co			1	1	1				
WI	Wisconsin Gas Co			1	1	1				
BP	Bonneville Power			1	1	1	1	1	radon	
N TOTAL		**65**	**18**	**33**	**20**	**19**	**31**	**12**		**12**

UTILITY FULL SCALE LOW INCOME WEATHERIZATION: PY 1989

ST	UTILITY COMPANY NAME	1.F.2.a WEATHER-STRIP/ CAULK	1.F.2.b WINDOW REPLACE	1.F.2.c STORM WINDOWS /DOORS	1.F.2.d HOME REPAIRS	1.F.2.e OTHER LEAKAGE	1.F.2.e OTHER SPECIFIED	1.F.3.a HEATING REPAIR	1.F.3.b HEATING REPLACE	1.F.3.b HEATING OTHER
AL	Alagasco	1		1						
AK	Chugach Elec Assoc									
CA	Pacific Gas & Elec	1	1		1					
CA	Plumas Sierra REC									
CA	Southern Cal Gas Co	1	1	1	1			1	1	
CO	Public Service Co of CO	1			1			1	1	
CT	Connecticut Nat Gas									
DC	DC Natural Gas									
FL	Jacksonville Elec Auth									
GA	Carroll EMC									
GA	Georgia Power Co.									
GA	Greystone Power Co	1	1	1				1	1	
GA	Habersham EMC	1	1	1		1	infil contrl/door replace	1	1	
GA	Ocmulge EMC	1	1	1				1	1	
ID	Idaho Power Co	1	1	1	1			1		
ID	Washington Water Power Co		1	1						
IL	IA-Il Gas&Electric									
IL	IL Commonwealth Edison									
IL	Illinois Power Co	1		1		1	repic glass, thresholds			
IL	Northern IL GAs Co	1		1	1					
IA	Iowa Power	1	1	1	1					
KS	Board of Public Utilities									
KY	Louisville Gas & Electric									
LA	Louisiana Power & Light					1	see survey			
ME	Central Maine Power Co	1	1	1		1	replacement doors			
MA	Bay State Gas									
MI	MI Consolidated Gas									
MN	Minnegasco									
MN	Northern States Power	1			1			1	1	
MO	Springfield City Utilities									
MO	Union Electric Co									
MT	Montana Power	1		1	1	1	vents, blower door, switch	1	1	
NV	City of Boulder City	1							1	
NV	Southwest Gas Co	1		1	1	1	door thresholds, cooler covers			
NJ	Jersey Central Pow & Light	1		1		1	Air Con Covers			
NM	Public Service Co of NM	1		1						
NY	Great Falls Gas Co									
NY	Niagra Mohawk Power Co									
NY	Orange & Rockland Utility									
NY	Village of Endicott	1								

UTILITY FULL SCALE LOW INCOME WEATHERIZATION: PY 1989

ST	UTILITY COMPANY NAME		1.F.2.a WEATHER-STRIP/ CAULK	1.F.2.b WINDOW REPLACE	1.F.2.c STORM WINDOWS /DOORS	1.F.2.d HOME REPAIRS	1.F.2.e OTHER LEAKAGE	1.F.2.e OTHER SPECIFIED		1.F.3.a HEATING REPAIR	1.F.3.b HEATING REPLACE	1.F.3.b HEATING OTHER
NC	City of Wilson											
ND	Cass County EC											
OH	Cincinnati Gas & Electric		1	1	1		1	replace broken glass		1	1	
OH	Cleveland Elec Illuminating											
OH	Columbia Gas of Ohio		1			1	1	sealing by pass		1	1	
OH	Columbus Southern Power											
OH	East Ohio Gas Co		1							1		
OH	Ohio Edison Co											
OH	South Central Power											
OK	OK Gas & Electric Co		1	1			1	thresholds, reglaze windows				
OR	Consumers Power											
OR	Eugene Water & Electric		1	1	1	1						
PA	Central Elec Coop Inc											
PA	Columbia Gas of PA		1			1				1	1	1
PA	Peoples Natural Gas		1	1	1	1				1	1	
PA	Philadelphia Gas Works											
SC	Comm of Public Works											
TN	Memphis Lght,Gas & Water Div		1		1	1						
WA	Seattle City Light					1						
WA	Washington Water Power			1	1							
WI	City Gas Co										1	
WI	Northern States Power		1	1	1	1				1	1	
WI	WI Electric Power Co		1	1								
WI	Wisconsin Gas Co		1	1		1				1	1	
BP	Bonneville Power		1	1	1		1	glazing				
N TOTAL		**65**	**31**	**18**	**22**	**17**	**11**		**11**	**15**	**15**	**1**

UTILITY FULL SCALE LOW INCOME WEATHERIZATION: PY 1989

ST	UTILITY COMPANY NAME	1.F.4.a HOT WATER REPAIR	1.F.4.b HOT WATER REPLACE	1.F.4.b HOT WATER OTHER	1.F.5 APPLIANCE REPLACE	1.F.6 LIGHTING MEASURES	1.F.7.a WATER SAVING MEASURES	1.F.7.b COOLING MEASURES	1.F.7.C OTHER MEASURES	1.F.7.C OTHER SPECIFIED
AL	Alagasco									
AK	Chugach Elec Assoc									
CA	Pacific Gas & Elec					1	1			
CA	Plumas Sierra REC									
CA	Southern Cal Gas Co									
CO	Public Service Co of CO	1	1				1		1	client education
CT	Connecticut Nat Gas									
DC	DC Natural Gas									
FL	Jacksonville Elec Auth									
GA	Carroll EMC									
GA	Georgia Power Co.									
GA	Greystone Power Co	1						1		
GA	Habersham EMC							1		
GA	Ocmulge EMC			1					1	attic fan
ID	Idaho Power Co	1								
ID	Washington Water Power Co									
IL	IA-Il Gas&Electric									
IL	IL Commonwealth Edison									
IL	Illinois Power Co									
IL	Northern IL GAs Co									
IA	Iowa Power					1	1			
KS	Board of Public Utilities									
KY	Louisville Gas & Electric									
LA	Louisiana Power & Light									
ME	Central Maine Power Co									
MA	Bay State Gas									
MI	MI Consolidated Gas									
MN	Minnegasco									
MN	Northern States Power	1					1			
MO	Springfield City Utilities									
MO	Union Electric Co									
MT	Montana Power									
NV	City of Boulder City		1				1	1		
NV	Southwest Gas Co						1			
NJ	Jersey Central Pow & Light						1			
NM	Public Service Co of NM					1	1			
NY	Great Falls Gas Co									
NY	Niagra Mohawk Power Co									
NY	Orange & Rockland Utility									
NY	Village of Endicott						1			

UTILITY FULL SCALE LOW INCOME WEATHERIZATION: PY 1989

ST	UTILITY COMPANY NAME		1.F.4.a HOT WATER REPAIR	1.F.4.b HOT WATER REPLACE	1.F.4.b HOT WATER OTHER	1.F.5 APPLIANCE REPLACE	1.F.6 LIGHTING MEASURES	1.F.7.a WATER SAVING MEASURES	1.F.7.b COOLING MEASURES	1.F.7.C OTHER MEASURES	1.F.7.C OTHER SPECIFIED	
NC	City of Wilson											
ND	Cass County EC											
OH	Cincinnati Gas & Electric				1		1			1	ventillation	
OH	Cleveland Elec Illuminating											
OH	Columbia Gas of Ohio		1	1								
OH	Columbus Southern Power											
OH	East Ohio Gas Co											
OH	Ohio Edison Co											
OH	South Central Power											
OK	OK Gas & Electric Co											
OR	Consumers Power											
OR	Eugene Water & Electric							1				
PA	Central Elec Coop Inc											
PA	Columbia Gas of PA		1	1								
PA	Peoples Natural Gas		1	1				1				
PA	Philadelphia Gas Works											
SC	Comm of Public Works											
TN	Memphis Lght,Gas & Water Div											
WA	Seattle City Light											
WA	Washington Water Power											
WI	City Gas Co											
WI	Northern States Power		1	1			1	1		1	electric wh wrap	
WI	WI Electric Power Co		1	1								
WI	Wisconsin Gas Co			1								
BP	Bonneville Power							1				
N		**65**	**9**	**8**	**2**	**0**	**5**	**13**	**3**	**4**		**4**
TOTAL												

ENERGY CONSERVATION MEASURES PROVIDED BY UTILITIES AT NO CHARGE TO LOW INCOME HOUSEHOLDS 1978-1989

		1978-85 NO.	1978-85 TOTAL	1978-85 MAXIMUM	1978-85 MINIMUM	1986 NO.	1986 TOTAL	1986 MAXIMUM	1986 MINIMUM
3a	BLOWER DOOR TEST	0				3			
	No. LIHHs	0	0			2	1,050		
	AVG $/LIHH	0				1		$50	$50
	TOTAL COST		$0				$37,500		
3b	HEATING SYSTEM TEST	8				8			
	No. LIHHs	5	6,251			4	3,042		
	AVG $/LIHH	3		$55	$8	4		$100	$9
	TOTAL COST		$78,710				$56,360		
3c	COOLING SYSTEM TEST	1				1			
	No. LIHHs	0	0			0	0		
	AVG $/LIHH	0				0			
	TOTAL COST		$0				$0		
3d	H/C SYSTEM SAFETY TEST	2				4			
	No. LIHHs	1	800			3	4,375		
	AVG $/LIHH	0				1		$30	$30
	TOTAL COST		$0				$15,000		
3e	INDOOR AIR QUALITY TEST	2				3			
	No. LIHHs	1	27			1	9		
	AVG $/LIHH	1		$25	$25	1		$25	$25
	TOTAL COST		$675				$225		
3f	LIGHTING	3				2			
	No. LIHHs	0	0			0	0		
	AVG $/LIHH	1		$25	$25	1		$30	$30
	TOTAL COST		$0				$0		
3g	ATTIC INSULATION	8				8			
	No. LIHHs	1	26,610			1	11,728		
	AVG $/LIHH	1		$25	$25	1		$30	$30
	TOTAL COST		$0				$0		
3h	WALL INSULATION	6				6			
	No. LIHHs	0	0			0	0		
	AVG $/LIHH	0				1		$30	$30
	TOTAL COST		$0				$0		
3i	HEAT SYST REPAIR/TUNEUP	7				8			
	No. LIHHs	4	1,978			4	1,331		
	AVG $/LIHH	2		$561	$70	2		$590	$75
	TOTAL COST		$371,898				$75,590		

ENERGY CONSERVATION MEASURES PROVIDED BY UTILITIES AT NO CHARGE TO LOW INCOME HOUSEHOLDS 1978-1989

	1987 NO.	1987 TOTAL	1987 MAXIMUM	1987 MINIMUM	1988 NO.	1988 TOTAL	1988 MAXIMUM	1988 MINIMUM
3a BLOWER DOOR TEST	5				6			
No. LIHHs	4	1,301			6	7,629		
AVG $/LIHH	3		$538	$50	5		$538	$50
TOTAL COST		$273,308				$1,462,395		
3b HEATING SYSTEM TEST	7				9			
No. LIHHs	2	3,500			4	9,110		
AVG $/LIHH	2		$35	$9	2		$35	$9
TOTAL COST		$83,500				$63,255		
3c COOLING SYSTEM TEST	1				2			
No. LIHHs	0	0			0	0		
AVG $/LIHH	0				0			
TOTAL COST		$0				$0		
3d H/C SYSTEM SAFETY TEST	4				5			
No. LIHHs	2	4,075			3	6,915		
AVG $/LIHH	1		$35	$35	1		$35	$35
TOTAL COST		$17,500				$17,500		
3e INDOOR AIR QUALITY TEST	3				2			
No. LIHHs	1	9			0	0		
AVG $/LIHH	1		$25	$25	0			
TOTAL COST		$225				$0		
3f LIGHTING	3				3			
No. LIHHs	1	77			2	10,164		
AVG $/LIHH	2		$376	$30	2		$326	$7
TOTAL COST		$28,952				$123,464		
3g ATTIC INSULATION	11				10			
No. LIHHs	2	7,869			2	9,336		
AVG $/LIHH	2		$630	$30	1		$1,265	$1,265
TOTAL COST		$48,510				$2,530		
3h WALL INSULATION	9				8			
No. LIHHs	1	77			1	5		
AVG $/LIHH	2		$630	$30	1		$945	$945
TOTAL COST		$48,510				$4,725		
3i HEAT SYST REPAIR/TUNEUP	7				8			
No. LIHHs	2	1,030			4	6,046		
AVG $/LIHH	1		$90	$90	2		$95	$65
TOTAL COST		$90,000				$420,000		

ENERGY CONSERVATION MEASURES PROVIDED BY UTILITIES AT NO CHARGE TO LOW INCOME HOUSEHOLDS 1978-1989

		1989 NO.	1989 TOTAL	1989 MAXIMUM	1989 MINIMUM	1978-1989 TOTAL $
3a	BLOWER DOOR TEST	7				
	No. LIHHs	7	7,634			
	AVG $/LIHH	6		$538	$50	
	TOTAL COST		$1,866,261			**$3,639,464**
3b	HEATING SYSTEM TEST	10				
	No. LIHHs	5	8,549			
	AVG $/LIHH	2		$35	$9	
	TOTAL COST		$52,800			**$334,625**
3c	COOLING SYSTEM TEST	2				
	No. LIHHs	0	0			
	AVG $/LIHH	0				
	TOTAL COST		$0			**$0**
3d	H/C SYSTEM SAFETY TEST	6				
	No. LIHHs	4	6,749			
	AVG $/LIHH	2		$100	$35	
	TOTAL COST		$26,200			**$76,200**
3e	INDOOR AIR QUALITY TEST	2				
	No. LIHHs	0	0			
	AVG $/LIHH	0				
	TOTAL COST		$0			**$1,125**
3f	LIGHTING	5				
	No. LIHHs	3	21,021			
	AVG $/LIHH	2		$293	$12	
	TOTAL COST		$315,392			**$467,808**
3g	ATTIC INSULATION	11				
	No. LIHHs	2	3			
	AVG $/LIHH	2		$1,317	$250	
	TOTAL COST		$1,817			**$52,857**
3h	WALL INSULATION	9				
	No. LIHHs	1	1			
	AVG $/LIHH	1		$1,317	$1,317	
	TOTAL COST		$1,317			**$54,552**
3i	HEAT SYST REPAIR/TUNEUP	12				
	No. LIHHs	6	6,031			
	AVG $/LIHH	4		$183	$65	
	TOTAL COST		$427,747			**$1,385,235**

ENERGY CONSERVATION MEASURES PROVIDED BY UTILITIES AT NO CHARGE TO LOW INCOME HOUSEHOLDS 1978-1989

		1978-85 NO.	1978-85 TOTAL	1978-85 MAXIMUM	1978-85 MINIMUM	1986 NO.	1986 TOTAL	1986 MAXIMUM	1986 MINIMUM
3j	HEAT SYST REPLACE	4				6			
	No. LIHHs	2	251			3	204		
	AVG $/LIHH	2		$1,680	$1,500	3		$1,680	$906
	TOTAL COST		$415,380				$206,388		
3k	WATER HEATER REPAIR	3				5			
	No. LIHHs	1	175			2	530		
	AVG $/LIHH	0				1		$30	$30
	TOTAL COST		$0				$15,000		
3l	WINDOW REPLACEMENT	3				4			
	No. LIHHs	0	0			0	0		
	AVG $/LIHH	0				1		$17	$17
	TOTAL COST		$0				$0		
3m	STORM WINDOWS/DOOR	12				9			
	No. LIHHs	1	29			0	0		
	AVG $/LIHH	1		$25	$25	1		$500	$500
	TOTAL COST		$0				$0		
3n	HOME REPAIRS	5				7			
	No. LIHHs	0	0			0	0		
	AVG $/LIHH	1		$25	$25	2		$500	$30
	TOTAL COST		$0				$0		
3o	CAULK/WEATHERSTRIP	17				16			
	No. LIHHs	5	61,976			4	43,337		
	AVG $/LIHH	3		$50	$6	4		$250	$4
	TOTAL COST		$2,710				$554		
3p	LOW COST/NO COST KIT	9				10			
	No. LIHHs	7	26,004			10	13,876		
	AVG $/LIHH	5		$80	$4	9		$147	$0
	TOTAL COST		$124,565				$1,100,833		
3q	WATER SYSTEM WRAPUP	6				10			
	No. LIHHs	3	69			6	2,206		
	AVG $/LIHH	2		$12	$7	4		$59	$9
	TOTAL COST		$380				$119,518		
3r	DUCT WRAPUP	3				3			
	No. LIHHs	1	615			1	48		
	AVG $/LIHH	0				1		$20	$20
	TOTAL COST		$0				$0		

ENERGY CONSERVATION MEASURES PROVIDED BY UTILITIES AT NO CHARGE TO LOW INCOME HOUSEHOLDS 1978-1989

		1987 NO.	1987 TOTAL	1987 MAXIMUM	1987 MINIMUM	1988 NO.	1988 TOTAL	1988 MAXIMUM	1988 MINIMUM
3j	HEAT SYST REPLACE	6				11			
	No. LIHHs	2	315			5	1,846		
	AVG $/LIHH	2		$1,500	$906	6		$1,800	$691
	TOTAL COST		$309,150				$2,494,721		
3k	WATER HEATER REPAIR	5				6			
	No. LIHHs	2	530			2	3,530		
	AVG $/LIHH	1		$30	$30	2		$45	$30
	TOTAL COST		$15,000				$157,500		
3l	WINDOW REPLACEMENT	5				6			
	No. LIHHs	0	0			1	175		
	AVG $/LIHH	1		$20	$20	1		$320	$320
	TOTAL COST		$0				$56,000		
3m	STORM WINDOWS/DOOR	9				7			
	No. LIHHs	0	0			0	0		
	AVG $/LIHH	1		$500	$500	0			
	TOTAL COST		$0				$0		
3n	HOME REPAIRS	7				5			
	No. LIHHs	0	0			0	0		
	AVG $/LIHH	2		$500	$30	0			
	TOTAL COST		$0				$0		
3o	CAULK/WEATHERSTRIP	18				18			
	No. LIHHs	4	41,583			4	40,418		
	AVG $/LIHH	3		$30	$4	2		$6	$4
	TOTAL COST		$422				$154		
3p	LOW COST/NO COST KIT	12				14			
	No. LIHHs	9	15,565			11	16,633		
	AVG $/LIHH	9		$186	$4	10		$182	$4
	TOTAL COST		$944,740				$1,315,856		
3q	WATER SYSTEM WRAPUP	10				15			
	No. LIHHs	4	2,431			7	4,502		
	AVG $/LIHH	4		$59	$9	7		$490	$9
	TOTAL COST		$124,000				$156,697		
3r	DUCT WRAPUP	6				9			
	No. LIHHs	1	44			1	9		
	AVG $/LIHH	1		$20	$20	0			
	TOTAL COST		$0				$0		

ENERGY CONSERVATION MEASURES PROVIDED BY UTILITIES AT NO CHARGE TO LOW INCOME HOUSEHOLDS 1978-1989

		1989 NO.	1989 TOTAL	1989 MAXIMUM	1989 MINIMUM	1978-1989 TOTAL $
3j	HEAT SYST REPLACE	12				
	No. LIHHs	8	8,902			
	AVG $/LIHH	7		$1,975	$876	
	TOTAL COST		$10,949,502			**$14,375,141**
3k	WATER HEATER REPAIR	9				
	No. LIHHs	5	2,848			
	AVG $/LIHH	3		$380	$30	
	TOTAL COST		$121,880			**$309,380**
3l	WINDOW REPLACEMENT	6				
	No. LIHHs	0	0			
	AVG $/LIHH	0				
	TOTAL COST		$0			**$56,000**
3m	STORM WINDOWS/DOOR	10				
	No. LIHHs	0	0			
	AVG $/LIHH	0				
	TOTAL COST		$0			**$0**
3n	HOME REPAIRS	6				
	No. LIHHs	0	0			
	AVG $/LIHH	0				
	TOTAL COST		$0			**$0**
3o	CAULK/WEATHERSTRIP	21				
	No. LIHHs	6	34,160			
	AVG $/LIHH	4		$15	$4	
	TOTAL COST		$17,148			**$20,988**
3p	LOW COST/NO COST KIT	14				
	No. LIHHs	10	13,971			
	AVG $/LIHH	8		$173	$4	
	TOTAL COST		$835,344			**$4,321,338**
3q	WATER SYSTEM WRAPUP	17				
	No. LIHHs	9	5,771			
	AVG $/LIHH	8		$504	$9	
	TOTAL COST		$241,047			**$641,642**
3r	DUCT WRAPUP	11				
	No. LIHHs	2	320			
	AVG $/LIHH	1		$2	$2	
	TOTAL COST		$620			**$620**

ENERGY CONSERVATION MEASURES PROVIDED BY UTILITIES AT NO CHARGE TO LOW INCOME HOUSEHOLDS 1978-1989

		1978-85 NO.	1978-85 TOTAL	1978-85 MAXIMUM	1978-85 MINIMUM	1986 NO.	1986 TOTAL	1986 MAXIMUM	1986 MINIMUM
3s	CLIENT EDUC BY MAIL	15				15			
	No. LIHHs	7	332,055			9	89,432		
	AVG $/LIHH	6		$397.00	$0.04	6		$381.00	$0.03
	TOTAL COST		$25,060				$40,414		
3t	CLIENT EDUC AT HOME	18				18			
	No. LIHHs	10	21,542			11	5,247		
	AVG $/LIHH	8		$150	$10	9		$166	$30
	TOTAL COST		$1,849,850				$414,094		
3u	CLIENT EDUC AT CENTER	7				6			
	No. LIHHs	2	240			1	40		
	AVG $/LIHH	2		$100	$10	1		$100	$100
	TOTAL COST		$6,000				$40,000		
3v	COOLING MEASURES	2				1			
	No. LIHHs	0	0			0	0		
	AVG $/LIHH	0				0			
	TOTAL COST		$0				$0		
3w	MAJOR APPLIANCE REPLACEMENT	2				1			
	No. LIHHs	0	0			0	0		
	AVG $/LIHH	0				0			
	TOTAL COST		$0				$0		
3x	OTHER	3				6			
	No. LIHHs	1	35			3	113		
	AVG $/LIHH	1		$30	$30	3		$62	$32
	TOTAL COST		$1,050				$5,477		
	PY TOTAL $		**$2,876,278**				**$2,126,953**		

ENERGY CONSERVATION MEASURES PROVIDED BY UTILITIES AT NO CHARGE TO LOW INCOME HOUSEHOLDS 1978-1989

	1987 NO.	1987 TOTAL	1987 MAXIMUM	1987 MINIMUM	1988 NO.	1988 TOTAL	1988 MAXIMUM	1988 MINIMUM
3s CLIENT EDUC BY MAIL	17				17			
No. LIHHs	9	92,719			11	93,336		
AVG $/LIHH	7		$775.00	$0.03	7		$40.00	$0.03
TOTAL COST		$11,120				$12,073		
3t CLIENT EDUC AT HOME	17				18			
No. LIHHs	8	7,631			12	4,336		
AVG $/LIHH	8		$150	$30	9		$180	$40
TOTAL COST		$815,720				$362,970		
3u CLIENT EDUC AT CENTER	8				7			
No. LIHHs	2	690			3	867		
AVG $/LIHH	2		$100	$93	3		$180	$93
TOTAL COST		$88,450				$122,310		
3v COOLING MEASURES	2				3			
No. LIHHs	0	0			1	3,372		
AVG $/LIHH	0				1		$550	$550
TOTAL COST		$0				$1,854,600		
3w MAJOR APPLIANCE REPLACEMENT	2				4			
No. LIHHs	0	0			2	323		
AVG $/LIHH	0				1		$500	$500
TOTAL COST		$0				$85,700		
3x OTHER	6				6			
No. LIHHs	5	240			4	86		
AVG $/LIHH	4		$500	$34	3		$62	$35
TOTAL COST		$48,014				$4,147		
PY TOTAL $		**$2,947,121**				**$8,716,597**		

ENERGY CONSERVATION MEASURES PROVIDED BY UTILITIES AT NO CHARGE TO LOW INCOME HOUSEHOLDS 1978-1989

		1989 NO.	1989 TOTAL	1989 MAXIMUM	1989 MINIMUM	1978-1989 TOTAL $
3s	CLIENT EDUC BY MAIL	18				
	No. LIHHs	9	88,306			
	AVG $/LIHH	6		$40.00	$0.03	
	TOTAL COST		$10,573			**$99,240**
3t	CLIENT EDUC AT HOME	24				
	No. LIHHs	16	5,811			
	AVG $/LIHH	11		$230	$30	
	TOTAL COST		$455,066			**$3,897,700**
3u	CLIENT EDUC AT CENTER	6				
	No. LIHHs	3	1,322			
	AVG $/LIHH	3		$230	$93	
	TOTAL COST		$151,585			**$408,345**
3v	COOLING MEASURES	4				
	No. LIHHs	1	4,321			
	AVG $/LIHH	1		$550	$550	
	TOTAL COST		$2,376,550			**$4,231,150**
3w	MAJOR APPLIANCE REPLACEMENT	6				
	No. LIHHs	3	817			
	AVG $/LIHH	3		$3,000	$257	
	TOTAL COST		$1,007,985			**$1,093,685**
3x	OTHER	7				
	No. LIHHs	6	437			
	AVG $/LIHH	5		$433	$12	
	TOTAL COST		$33,774			**$92,462**
	PY TOTAL $		**$18,892,608**	**GRAND TOTAL:**		**$35,559,557**

C-7 UTILITY COMPANIES REPORTING FULL SCALE WEATHERIZATION EXPENDITURES IN 1978-85, 1986, 1987, 1988, 1989

UTILITY COMPANY NAME	STATE	[a] No. of PROGRAMS
AL Power Co	AL	2
Blue Ridge Electric Corp	NC	1
Bonneville Power Admin	WA/OR	5
Central Maine Power Co	ME	1
Cincinnati Gas & Electric Co	OH	3
City Gas Co	WI	2
City of Boulder City	NV	1
City of Wilson	NC	1
Columbia Gas of Ohio	OH	4
Columbia Gas of PA	PA	4
Consumers Power	OR	4
Detroit Edison	MI	1
East Ohio Gas Co	OH	3
Eugene Water & Electric	OR	5
Greystone Power Co	GA	2
Habersham EMC	GA	2
Idaho Power Co	ID	1
Illinois Power Co	IL	5
Iowa Power	IA	3
Jersey Central Pow & Light	NJ	5
Louisiana Pow & Light Co	LA	4
MI Consolidated Gas Co	MI	2
Memphis Lght, Gas & Water Div	TN	5
Montana Power Co	MT	2
Montana Power Co	MT	1
Niagara Mohawk Power Co	NY	3
Northern IL GAs Co	IL	2
Northern States Power	MN	5
Northern States Power Co	WI	5

C-8 STATES WITH UTILITY COMPANIES REPORTING FULL SCALE WEATHERIZATION EXPENDITURES IN 1978-85, 1986, 1987, 1988, 1989

STATE	UTILITY COMPANY NAME	[a] No. of PROGRAMS
ALABAMA		2
	AL Power Co	
CALIFORNIA		8
	Pacific Gas & Electric	
	Southern Cal Gas Co	
COLORADO		1
	Public Service Co of CO	
GEORGIA		7
	Greystone Power Co	
	Habersham EMC	
	Ocmulgee EMC	
IOWA		3
	Iowa Power	
IDAHO		3
	Idaho Power Co	
	Washington Water Power Co	
ILLINOIS		7
	Illinois Power Co	
	Northern IL GAs Co	
LOUISIANA		4
	Louisiana Pow & Light Co	
MARYLAND		1
	Southern MD EC	
MAINE		1
	Central Maine Power Co	
MICHIGAN		3
	Detroit Edison	
	MI Consolidated Gas Co	
MINNESOTA		5
	Northern States Power	
MONTANA		3
	Montana Power Co	
NORTH CAROLINA		2
	Blue Ridge Electric Corp	
	City of Wilson	
NEW JERSEY		5
	Jersey Central Pow & Light	
NEW MEXICO		1
	Public Service Co of NM	1
NEVADA		6
	City of Boulder City	
	Southwest Gas Co	

[a] Number of programs in five time periods studied

C-7 UTILITY COMPANIES REPORTING FULL SCALE WEATHERIZATION EXPENDITURES IN 1978-85, 1986, 1987, 1988, 1989

(continued)

UTILITY COMPANY NAME	STATE	[a] No of PROGRAMS
OK Gas & Electric Co	OK	5
Ocmulgee EMC	GA	3
Orange & Rockland Utility	NY	4
Pacific Gas & Electric	CA	5
Peoples Natural Gas	PA	2
Philadelphia Gas Works	PA	4
Public Service Co of CO	CO	1
Public Service Co of NM	NM	1
Seattle City Light Dept	WA	5
Southern Cal Gas Co	CA	3
Southern MD EC	MD	1
Southwest Gas Co	NV	5
TN Valley Authority	TN	4
Village of Endicott	NY	1
Virginia Power	VA	2
WI Electric Power Co	WI	4
Washington Water Power	WA	2
Washington Water Power Co	ID	2
Wisconsin Electric Power Co	WI	1
Wisconsin Gas Company	WI	5
Number of Different Companies Reporting at Least Once:		49

C-8 STATES WITH UTILITY COMPANIES REPORTING FULL SCALE WEATHERIZATION EXPENDITURES IN 1978-85, 1986, 1987, 1988, 1989

(continued)

STATE	UTILITY COMPANY NAME	[a] No of PROGRAMS
NEW YORK		8
	Niagara Mohawk Power Co	
	Orange & Rockland Utility	
	Village of Endicott	
OHIO		10
	Cincinnati Gas & Electric Co	
	Columbia Gas of Ohio	
	East Ohio Gas Co	
OKLAHOMA		5
	OK Gas & Electric Co	
OREGON		9
	Consumers Power	
	Eugene Water & Electric	
PENNSYLVANIA		10
	Columbia Gas of PA	
	Peoples Natural Gas	
	Philadelphia Gas Works	
TENNESSEE		9
	Memphis Lght. Gas & Water Div	
	TN Valley Authority	
VIRGINIA		2
	Virginia Power	
WASHINGTON		7
	Seattle City Light Dept	
	Washington Water Power	
WASHINGTON/OREGON		5
	Bonneville Power Admin	
WISCONSIN		17
	City Gas Co	
	Northern States Power Co	
	WI Electric Power Co	
	Wisconsin Electric Power Co	
	Wisconsin Gas Company	
	Number of Different States Appearing at Least Once:	27

[a] Number of programs in five time periods studied

UTILITY SURVEY SAMPLE

DOE UTILITY SURVEY TRACKING

Utility Name	Survey Sent to	OR	Type	ID#	Returned
Bonneville Pow. Auth			Govt	10	
TN Valley Authority	William Campbell	TN	Govt	20	05-20-91
Joe Wheeler EMC	Rosemary Mitchell	AL	Coop	101	03-18-91
Chugach Electric Assn Inc	Peter Poray	AK	Coop	102	03-14-91
Sulphur Springs Valley EC		AZ	Coop	103	
First Electric Coop Corp		AR	Coop	104	
Plumas-Sierra REC	Robert Marshall	CA	Coop	105	03-08-91
Intermountain Rural Elec		CO	Coop	106	
Delaware Electric Coop		DE	Coop	108	
Withlacoochee River EC		FL	Coop	109	
Amicalola EMC		GA	Coop	110	
Jackson EMC		GA	Coop	111	
Troup EMC		GA	Coop	112	
Cobb EMC		GA	Coop	113	
Washington EMC		GA	Coop	114	
Excelsior EMC		GA	Coop	115	
Carroll EMC	Karen Johnson	GA	Coop	116	04-02-91
Hart EMC	William Leard	GA	Coop	117	03-15-91
Ocmulgee EMC	Robert Renterow	GA	Coop	118	03-04-91
Grady County EMC		GA	Coop	119	
Three Notch EMC		GA	Coop	120	
Mitchell EMC		GA	Coop	121	
Irwin County EMC		GA	Coop	122	
Little Ocmulgee EMC		GA	Coop	123	
GreyStone Power Corp	Phil Landress	GA	Coop	124	03-11-91
Rayle EMC		GA	Coop	125	
Oconee EMC	Steve Moore	GA	Coop	126	03-12-91
Sumter EMC		GA	Coop	127	
Planters EMC		GA	Coop	128	
Habersham EMC	Lamar Mote	GA	Coop	129	04-03-91
Snapping Shoals EMC	Russell DeLong	GA	Coop	130	03-15-91
Colquitt EMC		GA	Coop	131	
Coweta-Fayette EMC		GA	Coop	132	
Kootenai Electric Coop		ID	Coop	134	
Northern Lights Inc		ID	Coop	135	
Southeastern IL Elec Coop		IL	Coop	136	
Morgan County REMC		IN	Coop	137	
Eastern IA Light&Pow Coop	Edward C. McQuillen	IA	Coop	138	03-12-91
Midwest Energy Inc	Pat Parke	KS	Coop	139	03-14-91
South Kentucky Rural ECC	Allen Anderson	KY	Coop	140	03-21-91
Southwest Louisiana EMC		LA	Coop	141	
Eastern Maine Elect Coop		ME	Coop	142	
Southern MD El Coop Inc	James Battaglia	MD	Coop	143	03-14-91
Top O'Michigan Elect Co		MI	Coop	145	
Minoka Electric Coop		MN	Coop	146	
Southern Pine El Pow Assn		MS	Coop	147	
Cuivre River El Coop Inc		MO	Coop	148	
YellowstneVlly ElCoop Inc		MT	Coop	149	

Niobrara Vlly El Mem Coop	Sam Derickson	NE	Coop	150	03-12-91
Valley Electric Assn Inc		NV	Coop	151	
Mt Wheeler Power Inc		NV	Coop	152	
NH Elec Coop Inc	Steve Nelson	NH	Coop	153	03-12-91
Sussex Rural El Coop Inc		NJ	Coop	154	
Jemez Mountains ElCoopInc		NM	Coop	155	
Steuben Rural ElCoop Inc		NY	Coop	156	
Delaware Cnty ElCoop Inc		NY	Coop	157	
Otsego Elec Coop Inc	Robert Murdock	NY	Coop	158	03-04-91
Oneida-Madison ElCoop Inc		NY	Coop	159	
Brunswick Elec Mem Corp		NC	Coop	160	
Blue Ridge Elec Mem Corp	Rand Smith	NC	Coop	161	03-14-91
Cass County Elec Coop Inc	Vance Olsen	ND	Coop	162	04-05-91
South Central Power Co	Edson Kindler	OH	Coop	163	03-18-91
Oklahoma Elec Coop Inc		OK	Coop	164	
Consumers Power Inc	R. Baumgartner	OR	Coop	165	03-25-91
Central Electric Coop Inc	Kenneth J. Clark	PA	Coop	166	03-26-91
Berkeley Elect Coop Inc		SC	Coop	167	
Sioux Valley Empire EAInc		SD	Coop	168	
Middle Tennessee EMC		TN	Coop	169	
Pedernales Elec Coop Inc		TX	Coop	170	
Moon Lake Elect Assn Inc		UT	Coop	171	
Vermont Electric Coop Inc		VT	Coop	172	
Northern VA Elec Coop	William M. Curtis	VA	Coop	173	03-12-91
Inland Power&Light Co		WA	Coop	174	
Harrison Rural El AssnInc		WV	Coop	175	
Adams-Columbia Elec Coop		WI	Coop	176	
Tri-County Elec Assn Inc	John Rogers	WY	Coop	177	03-18-91
Alabama Power Co	Daniel Calametti	AL	Invest	200	04-10-91
AK Elect. Light & Power	David Stone	AK	Invest	201	
AK Power & Telephone Co.		AK	Invest	202	03-08-91
Tuscon Elec. Power Co	Betsy Bolding	AZ	Invest	203	
Arizona Public Service Co	Delia Willis	AZ	Invest	204	
Ark. Power & Light Co	Al Thomas	AR	Invest	205	05-24-91
Pacific Gas & Elect		CA	Invest	206.5	
Southern Cal Edison	Suzanne Hughes	CA	Invest	207	
San Diego Gas & Elec	Joanne Reel	CA	Invest	208	
Public Service Co. of Colo		CO	Invest	209.5	
Connecticut Light & Power		CT	Invest	210	
Delmarva Power & Light	Martin Duffy	DE	Invest	211.5	
Potomac Electric Power Co	Lloyd Jackson	DC	Invest	212	
lorida Power & Light	Kathy McDonald	FL	Invest	213	03-18-91
lorida Power Corp	Nancy E. Loehr	FL	Invest	214	
eorgia Power Co	Jim E. Slaughter	GA	Invest	215	03-29-91
Hawaiian Electric Co, Inc	Shirley Allen	HI	Invest	216	
Idaho Power Co	Janine Mikesell	ID	Invest	217	03-25-91
Washington Water Power	Carole Heinen	ID	Invest	218	04-05-91
Central Illinois Light Co		IL	Invest	219	
Illinois Power Co	Raeann Semelka	IL	Invest	220.5	
Commonwealth Edison Co	Michael Brandt	IL	Invest	221	04-12-91
Indianapolis Power&Light	Thomas Steiner	IN	Invest	222	
Public Service Co of IN	Donna Kovaleski	IN	Invest	223	03-14-91
Northern IN Public Ser	Marlene Cohn	IN	Invest	224	
Indiana Michigan Power Co	R. W. Samuel	IN	Invest	225	03-25-91
Iowa Public Service Co	Lester Juon	IA	Invest	226	
Iowa Elec Light&Power	Robert Latham	IA	Invest	227.5	

Iowa-Illinois Gas&Elec	Patsy L. Ramacitti	IA	Invest	228.5	
Iowa Power Inc	Jeff Newburn	IA	Invest	229	04-1-91
Kansas Power&Light Co	Carl J. Miller	KS	Invest	230.5	
Kansas Gas&Electric Co	Dianna Thurman	KS	Invest	231	
KS City Power&Light Co		KS	Invest	232	
Kentucky Power Co	Ronald G. Fannin	KY	Invest	233	03-12-91
Louisville Gas&Elec Co	Fredrick Wright	KY	Invest	234.5	
Kentucky Utilities Co	Lynwood Schrader	KY	Invest	235	
Gulf States Utilities Co		LA	Invest	236	
New Orleans Publ Svc Inc	Barbara J. Wells	LA	Invest	237	03-25-9[illegible]
Louisiana Power&Light Co	Michael Flemming	LA	Invest	238	
Central Maine Power Co	Geoffrey Green	ME	Invest	239	04-
Potomac Electric Power Co		MD	Invest	240	
Baltimore Gas&Electric Co	Michael Burton	MD	Invest	241.5	
Massachusetts Electric Co		MA	Invest	242	
Boston Edison Co	Kathleen Sullivan	MA	Invest	243	
Commonwealth Electric Co	Diane Owens	MA	Invest	244	
Detroit Edison Co	Larry Rippetoe	MI	Invest	245	04-16-91
Consumers Power Co	James Dunn	MI	Invest	246.5	
Northern States Power Co	Lou Howard	MN	Invest	247.5	
Mississippi Power Co	Timothy Foley	MS	Invest	248	
Mississippi Pow&Light Co	Joe Dove	MS	Invest	249	
Union Electric Co	Patricia Barrett	MO	Invest	250	05-30-91
Kansas City Pow&Light Co	Greg Bullington	MO	Invest	251	04-02-91
Montana Power Co	Daniel Regan	MT	Invest	252	
Nevada Power Co	Keith Ashworth	NV	Invest	254	
Sierra Pacific Power Co	V. Ombudsman Aramini	NV	Invest	255.5	
Public Service Co of NH	Gerald Eaton	NH	Invest	256	
Jersey Cntrl Pow&Light Co	Philip Robinson	NJ	Invest	257	
Rockland Electric Co		NJ	Invest	258	
Public Svc Elec&Gas Co	Robert F. Darby	NJ	Invest	259	
Public Service Co of NH	Bill Cella	NH	Invest	260	03-27-91
Southwestern Publ Svc Co		NH	Invest	261	
Pennsylvania Elec Co		NY	Invest	262	
Consoldtd Edison Co-NYInc	Donna DeSimone	NY	Invest	263.5	04-02091
Cntrl Hudson Gas&El Corp	Timmian Massie	NY	Invest	264	
Rochester Gas&Elec Corp	Anne fenstermacher	NY	Invest	265	
Long Island Lighting Co	Stephen McCabe	NY	Invest	266	
Niagara Mohawk Pow Corp	Nancy Testani	NY	Invest	267.5	
NY State Elec&Gas Corp		NY	Invest	268	
Ctrl Vermont Pub Svc Corp		NY	Invest	269	
Orange&Rockland Utils Inc	Todd Lawless	NY	Invest	270	03-29-91
Fishers Island Elec Corp		NY	Invest	271	
Duke Power Co	Beryl Jackson	NC	Invest	272	04-08-91
Carolina Power&Light Co	Ernestine Ragan	NC	Invest	273	
Otter Tail Power Co		ND	Invest	274	
Montana-Dakota Util Co	Daniel Sharp	ND	Invest	275.5	
Northern States Power Co	James Garness	MN	Invest	276	05-09-91
Ohio Power Co	Earl Hawkins	OH	Invest	277	
Cincinnati Gas&Elec Co	Jack C. Kelley	OH	Invest	278	03-25-91
Dayton Power&Light Co	Ethel Washington	OH	Invest	279	
Cleveland Elec Illum Co	Judith A. Foley	OH	Invest	280	03-26-91
Columbus Southern Pow Co	Mary Flint	OH	Invest	281	03-25-91
Ohio Edison Co	Mary Ann Lepp	OH	Invest	282	03-08-91
Public Svc Co of Oklahoma	Carole Huff Hicks	OK	Invest	283	
Oklahoma Gas&Elec Co	Rita Pangborn	OK	Invest	284	04-17-91

Pacific Power and Light		OR	Invest	285	
Idaho Power Co		OR	Invest	286	
Portland General Elec Co	Dorothy Rothrock	OR	Invest	287	
West Penn Power Co	Mr. Rhea Kepple	PA	Invest	288	
Duquesne Light Co		PA	Invest	289	
Philadelphia Electric Co		PA	Invest	290.5	
PA Power&Light Co	Timothy Dahl	PA	Invest	291	
Blackstone Valley Elec Co		RI	Invest	292	
Narragansett Electric Co	Daniel Stafford	RI	Invest	293	
Duke Power Co	Beryl M. Jackson	SC	Invest	294	04-08-91
South Carolina Elec&GasCo	Beth Braswell	SC	Invest	295.5	
Black Hills Corp	Mr. R. E. Furois	SD	Invest	296	
Northern States Power Co		SD	Invest	297	
Northwestern Pub Svc Co	Warren Lotsbeg	SD	Invest	298	
Kingsport Power Co		TN	Invest	299	
Central Power&Light Co	Patricia Covington	TX	Invest	300	
Texas Utilities Elec Co	Brenda Jackson	TX	Invest	301	
Houston Lighting&Power Co	Mary Wilson	TX	Invest	302	
Utah Power & Light Co.		UT	Invest	303	
Green Mountain Power Corp	Stephen Terry	VT	Invest	304	
Central VT Pub Serv Corp	Peter Farshay	VT	Invest	305	
Virginia Elec&Power Co	Virginia Board	VA	Invest	306	03-21-91
Puget Sound Pow&Light Co	Marjorie Qualls	WA	Invest	307	
Washington Water Power Co	Robert Fukai	WA	Invest	308	
Monongahela Power Co		WV	Invest	309	
Appalachian Power Co		WV	Invest	310	
Northern States Power Co	Pat M. Tarcotte	WI	Invest	311	03-29-91
Wisconsin Publ Serv Corp	Karl Johansson	WI	Invest	312	
Madison Gas&Elect Co	Larry Russell	WI	Invest	313	
Wisconsin Elec Power Co	Dr. Nancy Noeske	WI	Invest	314	
Wisconsin Power&Light Co	Mr. A. J. Amsto	WI	Invest	315.5	
Superior Wtr Light&Pow Co		WI	Invest	316	
Cheyenne Lt Fuel&Pwr Co	A J Carroccia	WY	GInves	317.5	03-08-91
PacifiCorp		WY	Invest	318	
Huntsville City of	Edward Cobb	AL	Public	401	
Florence City of	Howard McClanahan	AL	Public	402	
Anchorage City of	Thomas Stahr	AK	Public	403	
Salt River Proj I&P Dist	Gary Harper	AZ	Public	404	03-25-91
N. Little Rock City of	Catherine Wilkins	AR	Public	405	
Los Angeles City of	Daniel Waters	CA	Public	406	05-13-91
Colorado Springs City of	John Kelley	CO	Public	407.5	03-25-91
Wallingford Town of	Raymond F. Smith	CT	Public	408	
Dover City of	Alisa Swain	DE	Public	409	
Jacksonville Electric Auth	Bruce Doueck	FL	Public	410	04-08-91
Moultrie City of		GA	Public	411	
Thomasville City of	William T. Berry	GA	Public	412	
Elberton City of		GA	Public	413	
Albany Water, Gas & Light	O.W. Rodemann	GA	Public	414	
Marietta Power	Ed Hoback	GA	Public	415	
Douglas City of		GA	Public	416	
La Grange City of	James Hanson	GA	Public	417	
East Point City of	Joseph Johnson	GA	Public	418	
Idaho Falls City of	Steve Harrison	ID	Public	419	03-08-91
Springfield City of	Lynn Frasco	IL	Public	420	
Anderson City of	Charles Myers	IN	Public	421	03-08-91

Ames City of	Merlin Hove	IA	Public	422	
Kansas City City of	Terry Drake	KS	Public	423	03-20-91
Owensboro City of	Robert M. Carper	KY	Public	424	
Lafayette City of	Don Dulchley	LA	Public	425	
Houlton Water Co		ME	Public	426	
Hagerstown City of	William Renner	MD	Public	427	
Taunton City of	Joseph Blain	MA	Public	428	
Lansing City of	Joseph Pandy Jr.	MI	Public	429	
Rochester Publ Utilities	Robert Pawelski	MN	Public	430	
Tupelo City of	Charles Hutchison	MS	Public	431	
Springfield City of	Robert E. Roundtree	MO	Public	432.5	03-18-91
Omaha Public Power Dist	Fred Petersen	NE	Public	434	03-14-91
Dawson Cnty Publ Pwr Dist	Phillip Darby Jr.	NE	Public	435	03-18-91
Boulder City City of	Jeffrey Patlovich	NV	Public	436	03-26-91
Wolfeboro Town of		NH	Public	437	
Vineland City of	Harry A. Maloney III	NJ	Public	438	
Farmington City of	William Statton	NM	Public	439	
Rockville Cntre Vllge of		NY	Public	440	
Boonville Village of		NY	Public	441	
Ilion Village of		NY	Public	442	
Lake Placid Village of		NY	Public	443	
Spencerport Village of		NY	Public	444	
Bath Elec Gas&Water Sys		NY	Public	445	
Massena Town of		NY	Public	446	
Plattsburgh City of		NY	Public	447	
Greenport Village of		NY	Public	448	
Groton Village of		NY	Public	449	
Greene Village City of		NY	Public	450	
Freeport Village of Inc	William Cominos	NY	Public	451	
Frankfort Village of		NY	Public	452	
Arcade Village of		NY	Public	453	
Salamanca City of		NY	Public	454	
Endicott Village of	Harry Andrews	NY	Public	455	03-19-91
Akron Village of	Raymond Carb	NY	Public	456	03-11-91
Penn Yan Village of		NY	Public	457	
Fairport Village of	Jon Sunde	NY	Public	458	
Wellsville Village of		NY	Public	459	
Solvay Village of		NY	Public	460	
Springville Village of		NY	Public	461	
Watkins Glen Village of		NY	Public	462	
Sherburne Village of		NY	Public	463	03-11-91
Mohawk Municipal Comm		NY	Public	464	
Sherrill City of		NY	Public	465	
Brocton City of		NY	Public	466	
Hamilton Village of		NY	Public	467	
Marathon Village of		NY	Public	468	
Green Island City of		NY	Public	469	
Philadelphia Village of		NY	Public	470	
Rouses Point Village of		NY	Public	471	
Angelica Village of		NY	Public	472	
Little Valley Village of		NY	Public	473	
Bergen Village of		NY	Public	474	
Richmondville Village of		NY	Public	475	
Castile Village of		NY	Public	476	
Churchville Village of	Sue A. Davis	NY	Public	477	03-03-91
Andover Village of		NY	Public	478	

Tupper Lake Village of	Donald Trudeau	NY	Public	479	03-26-91
Theresa City of		NY	Public	480	
Mayville Village of		NY	Public	481	
Silver Springs Village of	Allen Putney	NY	Public	482	03-12-91
Jamestown City of	R. James Gronquist	NY	Public	483	05-13-91
Holley Village of		NY	Public	484	
Westfield Village of		NY	Public	485	
Canaeateles Village of		NY	Public	486	
Fayetteville Pub Wks Comm	Timothy Wood	NC	Public	487	
Valley City City of	Wayne Nelson	ND	Public	488	03-12-91
Cleveland City of	George Pofok	OH	Public	489	
Edmond City of	Nancy Nichols	OK	Public	490	03-08-91
Eugene City of	Marilynne Blakely	OR	Public	491	04-05-91
Chambersburg Borough of		PA	Public	492.5	
Puerto Rico Elec Pwr Auth	Jose A. DelValle	PR	Public	493	
Pascoag Fire District		RI	Public	494	
Orangeburg Dept of Pub Util		SC	Public	495	
Watertown City of		SD	Public	496	
Memphis City of	Larry Papasan	TN	Public	497.5	
San Antonio City of	Pete M. Bernal	TX	Public	498	03-12-91
Provo City Corp	Ronald D. Rydman	UT	Public	499	03-18-91
Burlington City of	Robert C. Young	VT	Public	500	
Danville City of	John Sweeney	VA	Public	501.5	
Seattle City of	Beverly Corwin	WA	Public	502	03-25-91
New Martinsville Mn El Ut		WV	Public	503	
Manitowoc City of	Arlyn Libal	WI	Public	504	
Gillette City of	Karen Godfrey	WY	Public	505	04-15-91
Alabama Gas Corp	Susan Love	AL	GInves	601	03-13-91
Enstar Nat Gas Co		AK	GInves	602	
Southwest Gas Corp		AZ	GInves	603	
ARKLA Inc		AR	GInves	605	
Arkansas Western Gas Co		AR	GInves	606	
Southern CA Gas Co	Sharon Lee	CA	GInves	607	04-15-91
Pacific Gas&Elec Co	Bruce Matulich	CA	GInves	608.5	04-08-91
Greeley Gas Co		CO	GInves	609	
Pub Svc Co of Colorado	Gerry Vurciaga	CO	GInves	610.5	04-09-91
Southern CT Gas Co		CT	GInves	611	
Connecticut Nat Gas Corp	Leslie Stophel	CT	GInves	612	03-13-91
Yankee Gas Svc Co		CT	GInves	613	
Delmarva Pwr & Lt Co		DE	GInves	614.5	
Washington Gas Lt Co	????	DC	GInves	615	04-08-91
Florida Public Utilities		FL	GInves	616	
Peoples Gas Sys Inc	Stephen B. Clark	FL	GInves	617	03-20-91
Atlanta Gas Lt Co		GA	GInves	619	
GASCO Inc	James M. Severson	HI	GInves	620	03-18-91
Intermountain Gas Co		ID	GInves	621	
Northern Illinois Gas Co	Shirley Moy-Lee	IL	GInves	622	06-04-91
Peoples Gas Lt&Coke Co		IL	GInves	623	
Illinois Pwr Co	Douglas Carolus	IL	GInves	624.5	04-15-91
Citizens Gas&Coke Util		IN	GInves	625	
Indiana Gas Co		IN	GInves	626	
Iowa Illinois Gas&Elec Co	George L. Phillips	IA	GInves	628.5	03-25-91
Peoples Nat Gas Co		IA	GInves	630	
Iowa Pub Svc Co		IA	GInves	631	
Kansas Pwr&Lt Co		KS	GInves	632.5	
United Cities Gas Co	Jerry Botts	KS	GInves	633	04-15-91

Columbia Gas of Kentucky		KY	GInves	634	
Western Kentucky Gas Co		KY	GInves	635	
Louisville Gas&Elec Co	Don Thorn	KY	GInves	636.5	04-18-91
ARKLA Inc		LA	GInves	638	
Entex Div of ARKLA Inc		LA	GInves	639	
Louisiana Gas Svc Co		LA	GInves	640	
Northern Util Inc		ME	GInves	641	
Washington Gas Lt Co		MD	GInves	642	
Baltimore Gas&Elec Co		MD	GInves	644.5	
Bay State Gas Co	Ronald J. Moreira	MA	GInves	645	03-25-91
Boston Gas Co		MA	GInves	646	
Commonwealth Gas Co		MA	GInves	647	
Fall River Gas Co		MA	GInves	648	
Consumers Pwr Co		MI	GInves	649.5	
Battle Creek Gas Co		MI	GInves	650	
Michcon Gas Co	Ron McGarvey	MI	GInves	651	04-02-91
MINNEGASCO Inc	Susan Nathan	MN	GInves	652	04-22-91
Northern States Pwr Co		MN	GInves	653.5	
Entex Div of ARKLA Inc	Douglas Palmer	MS	GInves	654	03-25-91
Mississippi Valley Gas Co		MS	GInves	655	
Kansas Pwr&Lt Co		MO	GInves	657	
Laclede Gas Co		MO	GInves	658	
Montana Pwr Co	John Ralph	MT	GInves	659	03-12-91
Great Falls Gas Co	Jim Ziegenhagel	MT	GInves	660	03-22-91
Montana Dakota Util		MT	GInves	661	
MINNEGASCO	Susan Nathan	NE	GInves	662	04-22-91
KN Energy Inc		NE	GInves	664	
Omaha Metropol Util Dist		NE	GInves	665	
Southwest Gas Corp	Wallace Kolberg	NV	GInves	666	04-02-91
Sierra Pacific Pwr Co		NV	GInves	667.5	
Energynorth Nat Gas Inc		NH	GInves	668	
New Jersey Nat Gas Co		NJ	GInves	669	
Gas Co of New Mexico	Bill Cella	NM	GInves	670	03-27-91
Syracuse Suburban Gas Co		NY	GInves	671	
Natl Fuel Gas Distr		NY	GInves	672	
Brooklyn Union Gas Co	David Ripple	NY	GInves	673	03-27-91
Con Edison Co of NY Inc		NY	GInves	674.5	
Niagara Mohawk Pwr Corp	Philip Chase	NY	GInves	675.5	03-26-91
Piedmont Nat Gas Co		NC	GInves	676	
Montana Dakota Util		ND	GInves	677.5	
Columbia Gas of Ohio Inc	W. Conn Sharp	OH	GInves	678	04-19-91
East Ohio Gas Co	John B. Wilbur	OH	GInves	679	03-12-91
Oklahoma Nat Gas Co		OK	GInves	680	
Northwest Nat Gas Co		OR	GInves	681	
Peoples Nat Gas Co	Sadie Kroeck	PA	GInves	682	04-01-91
PGI Corp		PA	GInves	683	
Philadelphia Gas Wks	Bernadette Gant-Jones	PA	GInves	684	04-17-91
Equitable Gas Co		PA	GInves	685	
Philadelphia Elec Co		PA	GInves	686.5	
Columbia Gas of Penn Inc	W. Conn Sharp	PA	GInves	687	04-19-91
Providence Gas Co		RI	GInves	688	
SC Elec&Gas Co		SC	GInves	689.5	
Piedmont Nat Gas Co		SC	GInves	690	
Montana Dakota Util		SD	GInves	691	
MINNEGASCO Inc	Susan Nathan	SD	GInves	693	04-22-91
United Cities Gas Co		TN	GInves	694	

Nashville Gas Co		TN	GInves	697	
Southern Union Gas Co		TX	GInves	698	
Entex Div of ARKLA Inc		TX	GInves	699	
Lone Star Gas Co		TX	GInves	701	
Mountain Fuel Sply Co		UT	GInves	702	
Vermont Gas Sys Inc		VT	GInves	703	
Commonwealth Gas Svc Inc		VA	GInves	704	
Virginia Nat Gas Inc		VA	GInves	705	
Washington Gas Lt Co	James T. Citido	VA	GInves	706	03-25-91
Cascade Nat Gas Corp		WA	GInves	707	
Washington Nat Gas Co		WA	GInves	708	
Hope Gas Inc		WV	GInves	709	
Lumberport Shinnston Gas		WV	GInves	710	
Mountaineer Gas Co		WV	GInves	711	
Wisconsin Nat Gas Co	Donald Johnston	WI	GInves	712	03-27-91
City Gas Co	Dan Jahuke	WI	GInves	713	03-12-91
Wisconsin Gas Co	John F. Nelson	WI	GInves	714	03-14-91
Wisconsin Pwr&Lt Co		WI	GInves	715.5	
Mountain Fuel Sply Co			GInves	716	04-29-91
Cody Gas Co		WY	GInves	717	
Montana Dakota Util		WY	GInves	719	
Northern Gas of Wyoming		WY	GInves	720	
City Gas Co of Florida	M. Randall Harris	FL	GInves	750	04-01-91
Mount Carmel Publ Util Co		IL	GInves	751	
Northern IN Pub Svc Co		IN	GInves	752	
New Orleans Pub Svc Inc		LA	GInves	753	
Northwestern Pub Svc Co		SD	GInves	754	
Wisconsin Pub Svc Corp		WI	GInves	755	
Huntsville Nat Gas Dept		AL	GPublic	801	
Mesa City of		AZ	GPubl	805	
Long Beach City of	Thomas Baeyens	CA	GPubl	808	03-22-91
Colorado Springs City of	John Kelley	CO	GPubl	809.5	03-25-91
Norwich Pub Util		CT	GPubl	810	
Okaloosa Cty Gas Dist		FL	GPubl	814	
Austell Nat Gas Sys		GA	GPublic	815	
Linton City of		IN	GPubl	819	
Cedar Falls Util		IA	GPublic	821	
Winfield City of		KS	GPubl	822	
Henderson Mun Gas Dept		KY	GPubl	823	
Alexandria Gas Dept		LA	GPublic	825	
Frederick Gas Co		MD	GPublic	827	
Duluth City of		MN	GPubl	831	
Springfield City Util		MO	GPublic	835.5	
icksburg Mun Gas Sys	Paul C. Rogers	MS	GPubl	839	04-08-91
Elizabethtown Gas Co.		NJ	GPubl	845	
Las Cruces Mun Gas		NM	GPubl	846	
Pub Svc Co of NC		NC	GPubl	850	
Wilson City of	Rusty Owens	NC	GPubl	851	03-25-91
Hastings Util		NE	GPublic	852	
Hamilton City of		OH	GPubl	852	
Guymon Mun Gas Co		OK	GPubl	853	
Chambersburg Borough of		PA	GPubl	854.5	
Greenwood Comm of Pub Wks	Teresa Warner	SC	GPubl	870.5	03-14-91
Watertown Gas Dept		SD	GPublic	872	
Memphis Lt Gas&Wtr		TN	GPublic	873.5	
Dyersburg Gas Dept		TN	GPublic	874	

Bay City Gas Co		TX	GPublic	875	
Danville City of	A. Harrison Gregory	VA	GPubl	878.5	04-02-91
Enumclaw City of		WA	GPubl	880	

APPENDIX D

RESOURCES FOR WAP MANAGERS: STATES & UTILITIES WITH EXPERIENCE IN EXTENDING THE SCOPE OF WAP RESOURCES

APPENDIX D

Resources for WAP Managers
States and Utilities with Experience
in Extending the Scope of WAP Resources

PY 1989
State Programs

FL	Florida Fix	Ms. Hilda Frazier Division of Housing & Community Development Department of Community Affairs 2740 Centerview Drive Tallahassee, FL 32399-2100 (904)487-3481
GA	Stripper Well	Mr. Phil Whitlow Office of Energy Resources 270 Washington Street, SW Atlanta, GA 30334-8502 (404) 656-5176
ID	Housing Preservation	Ms. Robyn Carlson State Economic Opportunity Office 450 W. State Street, 7th Floor Boise, ID 83720 (208) 334-5730
IL	Landlord Contribution	Mr. Randy Bennett Energy Specialist 620 E. Adams, 4-B Springfield, IL 62701 (217) 785-6203
KS	CDBG; Landlord, Tenant & Public Contribution	Mr. Joe Dermid City of Wichita Energy Office 1602 S. McLean Blvd. Wichita, KS 67213 (316) 268-4093

ME	Repair and Heating System	Mr. George Bates Maine State Housing Authority 295 Water Street P.O. Box 2669 Augusta, ME 04338 (207) 626-4600
MI	Home Repair/WAP	Ms. Connie Zanger Bureau of Community Services P.O. Box 30015 Lansing, MI 48909 (517) 335-5981
NY	Landlord Contribution, CDBG, and DSS	Mr. Rick Gerardi Weatherization Director Division of Economic Opportunity 162 Washington, Ave., 7th Floor Albany, NY 12231 (518) 474-5700
NC	Housing Partnership, CDBG, and FmHA	Mr. Robert Niegelsky North Carolina Housing Partnership 3300 Drake Circle Ste 200 Raleigh, NC 27607-3300 (919) 781-6115 Mr. Bob Chandler 1307 Glenwood Ave Raleigh, NC 27605-3255 (919) 733-2850
OH	Fuel Oil and Gas Retrofits	Mr. Bob Garrick Office of Energy Conservation 77 S. High Street P.O. Box 1001 Columbus, OH 43266-0101 (614) 466-6797
OK	CDBG	Mr. Sherwood Washington Division of Community Affairs and Development Oklahoma Department of Commerce P.O. Box 26980 Oklahoma City, OK 73126-0980 (405) 841-9326

OR	Rural Housing Preservation	Mr. Bill Knutson Housing and Community Services Department 1600 State Street Salem, OR 97310 (503) 378-4729
RI	CDBG	Mr. Patrick Woods Warwick Community Action 195 Buttonwoods Ave Warwick, RI 02886 (401) 732-4660
WA	SLIAG/WAP	Ms. Kathy Kreiter Housing Division Department of Community Development MS-GH-51 9th and Columbia Building Olympia, WA 98504-4151 (206) 586-6459
WY	FmHA, Exxon, Business/WAP	Ms. Jan Stiles Department of Family Services Hathaway Building Room 373 Cheyenne, WY 82002 (307) 777-6137

PY 1989
Utility Contacts

AL	Alagasco	Ms. Susan Love, Project Director Alagasco 2101 6th Avenue N. Birmingham, AL 35203 (205) 326-9212
AK	Chugach Electric Assoc.	Mr. Peter Poray, Business Development Manager Chugach Electric Association P.O. Box 196300 Anchorage, AK 99519-6300 (907) 762-4788
CA	Pacific Gas & Electric	Mr. Archie Murray Supervisor Energy Efficiency Pacific Gas & Electric 123 Mission Street San Francisco, CA 94106 (415) 973-4856
CA	Plumas Sierra Rural Electric Cooperative	Mr. Robert Marshall Membership Services Director Plumas Sierra REC P.O. Box 2000 Portola, CA 96122 (916) 832-4261
CA	Southern California Gas Company	Ms. Karen Franssen Direct Assistance Program Southern California Gas Co. 10375 Slusher Drive Santa Fe Springs, CA 90670 (213) 946-5366
CO	Public Service Company of Colorado	Mr. Gerry Vurciaga, Supervisor Public Service Co. of Colorado 550 15th Street Room 420 Denver, CO 80202 (303) 571-7176

CT	Connecticut Natural Gas	Ms. Leslie Stophel, Manager Connecticut Natural Gas 100 Columbus Blvd. P.O. Box 1500 Hartford, CT 06144-1500 (203) 727-3458
DC	District of Columbia Natural Gas	Mr. Johnathan Broadnax DC Natural Gas 1100 H Street, NW Washington, DC 20080 (202) 624-6349
FL	Jacksonville Electric Authority	Mr. Bruce Doueck, Division Chief Jacksonville Electric Authority 21 W. Church Street Jacksonville, FL 32202 (904) 632-6231
GA	Carroll EMC	Ms. Karen Johnson, Membership Service Representative Carroll EMC P.O. Box 629 Carrollton, GA 30117 (404) 832-3552
GA	Georgia Power Company	Mr. Jim E. Slaughter, Manager Georgia Power Company P.O. Box 4545 Atlanta, GA 30302 (404) 526-7313
GA	Greystone Power Corporation	Mr. Phil Landress, Dept. Manager Greystone Power Corporation P.O. Box 897 Douglasville, GA 30133 (404) 942-6576
GA	Habersham EMC	Mr. Lamar Mote, Manager Habersham EMC P.O. Box 25 Clarkesville, GA 30523 (912) 754-2114

GA	Ocmulge EMC	Mr. Robert Renterow, Manager Ocmulge EMC P.O. Box 669 Eastman, GA 31023 (404) 374-7001
ID	Idaho Power Company	Ms. Janine Mikesell, Coordinator Idaho Power Company P.O. Box 70 Boise, ID 83707 (208) 383-2507
ID	Washington Water Power	Ms. Carole Heinen, Coordinator Washington Water Power E. 1411 Mission Spokane, WA 99207 (509) 482-4790
IL	Iowa-Illinois Gas and Electric Company	Mr. Jeff Bullington, Analyst Iowa-Illinois Gas & Electric 319 18th Street Rock Island, IL 61201 (309) 793-3781
IL	Commonwealth Edison Company	Mr. Michael Brandt, Supervisor Commonwealth Edison P.O. Box 767, 36 FNE Chicago, IL 60690 (312) 294-4407
IL	Illinois Power Company	Mr. Douglas Carolus Illinois Power Company 500 South 27th Street Decatur, IL 62525 (217) 424-6893
IL	Northern Illinois Gas Company	Ms. Shirley Moy-Lee, Analyst Northern Illinois Gas 1700 W. Ferry Road Naperville, IL 60563 (708) 983-8676

IA	Iowa Power	Mr. Jeff Newburn, Manager Iowa Power P.O. Box 657 Des Moines, IA 50303 (515) 281-2368
KS	Board of Public Utilities of Kansas City	Mr. George Powell, Director Board of Public Utilities 700 Minnesota Ave. Kansas City, KS 66101 (913) 573-9151
KY	Louisville Gas & Electric Company	Mr. Don Thorn, Supervisor Louisville Gas & Electric Co. 220 West Main Street Louisville, KY 40202 (502) 627-3080
LA	Louisiana Power & Light Company	Ms. Barbara Wells Louisiana Power & Light Co. 317 Baronne Street New Orleans, LA 70112 (504) 595-2424
ME	Central Maine Power Company	Mr. Geoffrey W. Green, Director Central Maine Power Company Edison Drive Augusta, ME 04336 (207) 623-3521
MA	Bay State Gas Company	Mr. Ronald Moreira, Manager Bay State Gas Company 300 Friberg Parkway Westborough, MA 01581-5039 (508) 836-7000
MI	Michigan Consolidated Gas Company	Mr. Ron McGarvey, Manager Michigan Consolidate Gas Co. 500 Griswold Detroit, MI 48226 (313) 256-5644

MN	Minnegasco	Ms. Susan Nathan, Administrator Minnegasco 201 S. 7th Street Minneapolis, MN 55402 (612) 342-4939
MN	Northern States Power Company	Mr. James Garness, Analyst Northern States Power Company 825 Rice Street St. Paul, Minnesota 55117 (612) 229-2389
MO	Springfield City Utilities	Ms. Ann Hall, Coordinator Springfield City Utilities P.O. Box 551 Springfield, MO 65801 (417) 831-8360
MO	Union Electric	Ms. Molly Martin, Supervisor Union Electric 1901 Chouteau Ave. St. Louis, MO 63166 (314) 554-4856
MT	Montana Power Company	Mr. John Ralph, DSM Engineer Montana Power Company 40 E. Broadway Butte, MT 59701 (406) 723-5454
NV	City of Boulder City	Mr. Jeffrey Patlovich, AICP City of Boulder City P.O. Box 367 Boulder City, NV 89005 (702) 293-9282
NV	Southwest Gas Corporation	Mr. Wallace Kolberg, Manager Southwest Gas Corporation P.O. Box 98510 Las Vegas, NV 89193-8510 (702) 876-7367

NJ	Jersey Central Power & Light Company	Mr. Philip Robinson Jersey Central Power & Light Marketing Department 310 Madison Ave Morristown, NJ 07960 (201) 455-8200
NM	Public Service Company of New Mexico	Mr. Rafael Tapia, Supervisor Public Service Co. of New Mexico Alvarado Square Albuquerque, NM 87158 (505) 848-4681
NY	Great Falls Gas Company	Mr. Jim Ziegenhagel, Supervisor Great Falls Gas Company P.O. Box 2229 Great Falls, NY 59403 (406) 791-7500
NY	Niagra Mohawk Power Corporation	Mr. Philip Chase, Jr., Manager Niagra Mohawk Power Corp. 300 Erie Blvd. West Syracuse, NY 13202 (315) 428-6732
NY	Orange & Rockland Utilities	Mr. Todd Lawless, Representative Orange & Rockland Utilities One Blue Hill Plaza Pearl River, NY 10965 (914) 577-2668
NY	Villiage of Endicott	Mr. Harry Andrews, Light Superintendent Villiage of Endicott 1009 East Main Street Endicott, NY 13760 (607) 757-2455
NC	City of Wilson	Mr. Rusty Owens, Coordinator City of Wilson P.O. Box 10 Wilson, NC 27894 (919) 291-7135

ND	Cass County Electric Cooperative	Mr. Vance Olson, Director Cass County Electric Coop P.O. Box 8 Kindred, ND 58051 (701)428-3292
OH	Cincinnati Gas and Electric Company	Mr. Jack Kelly, Specialist Cincinnati Gas & Electric 139 E. Fourth Street Cincinnati, OH 45202-4003 (513) 632-3704
OH	Cleveland Electric Illuminating Company	Ms. Judity A. Foley, Coordinator Cleveland Electric Illuminating 55 Public Square Cleveland, OH 44178 (216) 479-1616
OH	Columbia Gas of Ohio	Mr. W. Conin Sharp, Manager Columbia Gas of Ohio 200 Civic Center Drive Columbus, OH 43216-0117 (614) 460-4617
OH	Columbus Southern Power	Mr. Terry Tipple, Representative Customer Regulations Columbus Southern Power 215 N. Front Street Columbus, OH 43215 (614) 464-7616
OH	East Ohio Gas Company	Mr. John Wilbur, Manager East Ohio Gas Company P.O. Box 5759 Cleveland, OH 44101 (216) 736-6413
OH	Ohio Edison Company	Ms. Mary Ann Lepp, Coordinator Ohio Edison Company 76 S. Main Akron, OH 44308 (216) 384-5980

OH	South Central Power Company	Mr. Edson Kindler, Analyst South Central Power Co. P.O. Box 250 Lancaster, OH 43130 (614) 653-4422
OK	Oklahoma Gas & Electric Company	Ms. Rita Pangborn, Coordinator Oklahoma Gas & Electric P.O. Box 321, M/C 1058 Oklahoma City, OK 73101 (405) 272-3015
OR	Consumers Power, Inc.	Mr. R. Baumgartner, Consultant Consumers Power, Inc. P.O. Box 1180 Philomath, OR 97370 (503) 929-3124
OR	Eugene Water & Electric Board	Ms. Marilynne Blakely Eugene Water & Electric Board P.O. Box 10148 Eugene, OR 97440 (503) 484-1125
PA	Central Electric Cooperative	Mr. Kenneth J. Clark, Manager Central Electric Cooperative Box 329 Parker, PA 16049 (412) 399-2931
PA	Columbia Gas of Pennsylvania	Mr. W. Conn Sharp, Manager Columbia Gas of Pennsylvania 200 Civic Center Drive Columbus, Ohio 43216-0117 (614) 460-4617
PA	People's Natural Gas Company	Ms. Sadie Kroeck, Manager People's Natural Gas Company 625 Liberty Ave. Pittsburgh, PA 15222 (412) 497-6539

PA	Philadelphia Gas Works	Ms. Bernadette Gant-Jones Manager Energy Management Philadelphia Gas Works 800 W. Montgomergy Ave., 3-18 Philadelphia, PA 19122 (215) 684-6808
SC	Commission of Public Works	Ms. Theresa Warner, Director Commission of Public Works P.O. Box 549 Greenwood, SC 29648 (803) 223-8571
TN	Memphis Light, Gas, and Water Division	Ms. Rebecca Garland, Manager Memphis Light, Gas, & Water P.O. Box 430 Memphis, TN 38101-0430 (901) 528-4748
WA	Seattle City Light	Ms. Beverly Corwin, Manager Seattle City Light 1015 3rd Avenue Seattle, WA 98104-1198 (206) 625-3000
WA	Washington Water Power	Ms. Carole Heinen, Coordinator Washington Water Power E. 1411 Mission Spokane, WA 99207 (509) 482-4790
WI	City Gas Company	Mr. Dan Jahuke, Coordinator City Gas Company P.O. Box 370 Antigo, WI 54409 (715) 627-4351
WI	Northern States Power Company - Wisconsin	Ms. Pat Turcotte, Supervisor Northern States Power P.O. Box 8 100 N. Barstow Eau Claire, WI 54702 (715) 839-2596

WI	Wisconsin Electric Power Company	Mr. Donald Johnston, Specialist Wisconsin Electric Power 333 W. Everett Street P.O. Box 2046 Milwaukee, WI 53201 (414) 221-3767
WI	Wisconsin Gas Company	Mr. John Nelson, Manager Wisconsin Gas Company 626 E. Wisconsin Ave. Milwaukee, WI 53202 (414) 291-7000
BP	Bonneville Power Administration	Ms. Sharon Doggett, Wx Manager Bonneville Power Administration P.O. Box 3621 RMRC Portland, OR 97208 (503) 230-5478

INTERNAL DISTRIBUTION

1.	L. G. Berry	291.	W. R. Mixon
2-278.	M. A. Brown	292.	D. E. Reichle
279.	R. S. Carlsmith	293.	M. Schweitzer
280.	G. E. Courville	294.	T. R. Sharp
281.	W. Fulkerson	295.	R. B. Shelton
282.	P. S. Gillis	296.	J. N. Stone
283.	E. A. Hirst	297.	M. P. Ternes
284.	R. B. Honea	298.	B. E. Tonn
285.	D. W. Jones	299.	D. L. White
286.	J. O. Kolb	300.	ORNL Patent Office
287.	M. A. Kuliasha	301.	Central Research Library
288.	W. P. Levins	302.	Document Reference Section
289.	J. M. MacDonald	303-304.	Laboratory Records
290.	H. A. McLain	305.	Laboratory Records - RC

EXTERNAL DISTRIBUTION

306-331. D. A. Beschen, U.S. Department of Energy, 5G-023, CE-70, 1000 Independence Ave., S.W., Washington, DC 20585

332. B. G. Buchanan, Computer Science Department, University of Pittsburgh, 206 Mineral Industries Building, Pittsburgh, PA 15260

333. J. W. Cooke, DOE Oak Ridge Field Office, P.O. Box 2008, Oak Ridge, TN 37831-6269

334. A. Hirsch, Washington DC Office, 5109 Leesburg Pike, Falls Church, VA 22041

335. H. M. Ingram, Director, Udall Center for Studies in Public Policy, The University of Arizona, 803/811 East First Street, Tucson, AZ 85719

336. C. D. MacCracken, President, Calmac Manufacturing Corporation, 101 West Sheffield Ave., P.O. Box 710, Englewood, NJ 07631

337. Ralph Nader, Post Office Box 19367, Washington, DC 20036

338. Office of Assistant Manager for Energy Research and Development, DOE Oak Ridge Field Office, P.O. Box 2008, Oak Ridge, TN 37831-6269

339-348. OSTI, U.S. Department of Energy, P.O. Box 62, Oak Ridge, TN 37831

349. J. B. Shrago, Director, Office of Technology Transfer, Vanderbilt University, 405 Kirkland Hall, Nahsville, TN 37240

350. M. Williams, Professor, Department of Economics, Northern Illinois University, Dekalb, IL 60115