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Residential Energy Consumption Survey:

Consumption and Expenditures, April 1982 Through March 1983

Energy Information Administration
Washington, D.C.

RECS 3

Part 1:
National Data

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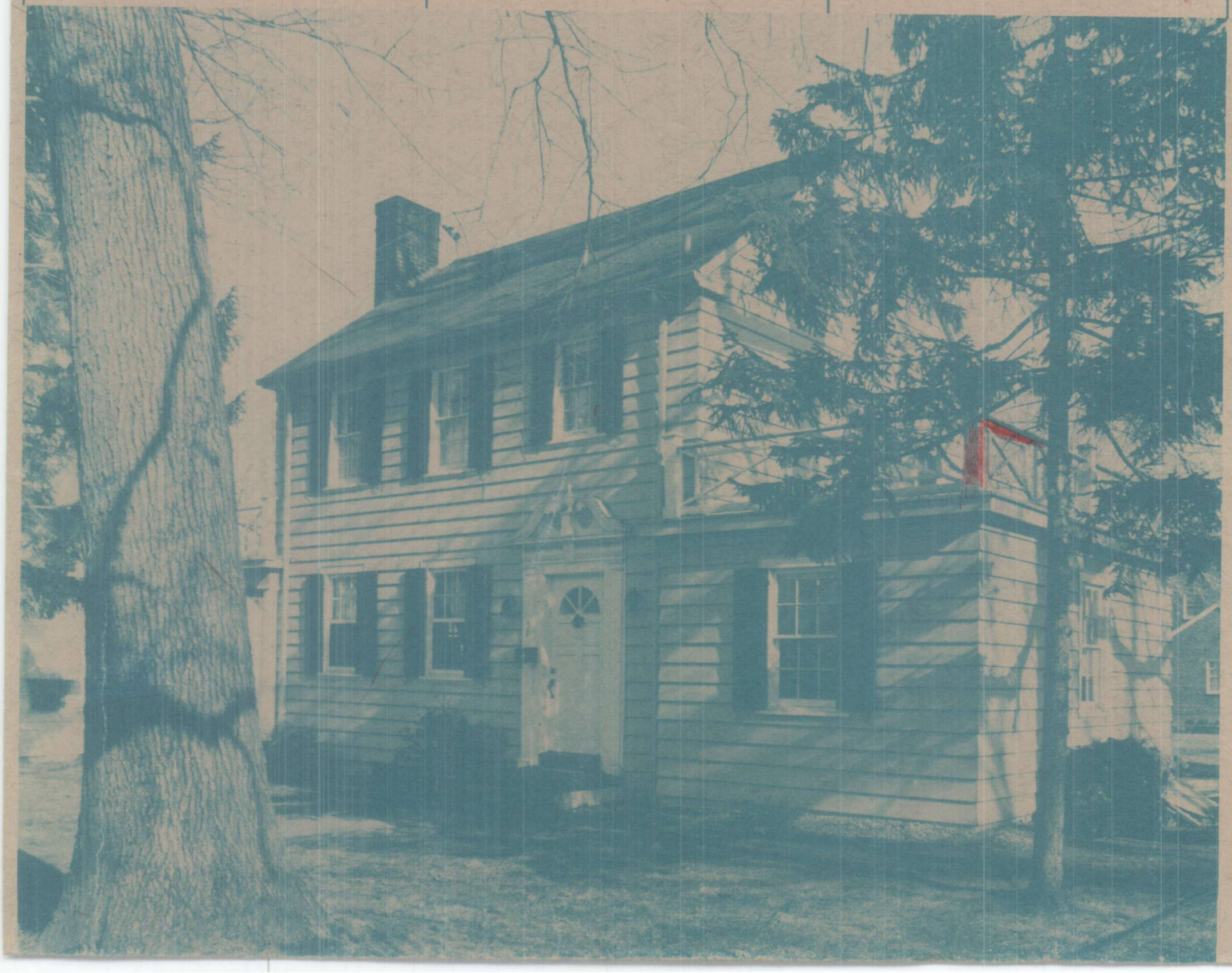

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Office of Energy Markets and End Use
Energy End Use Division
U.S. Department of Energy
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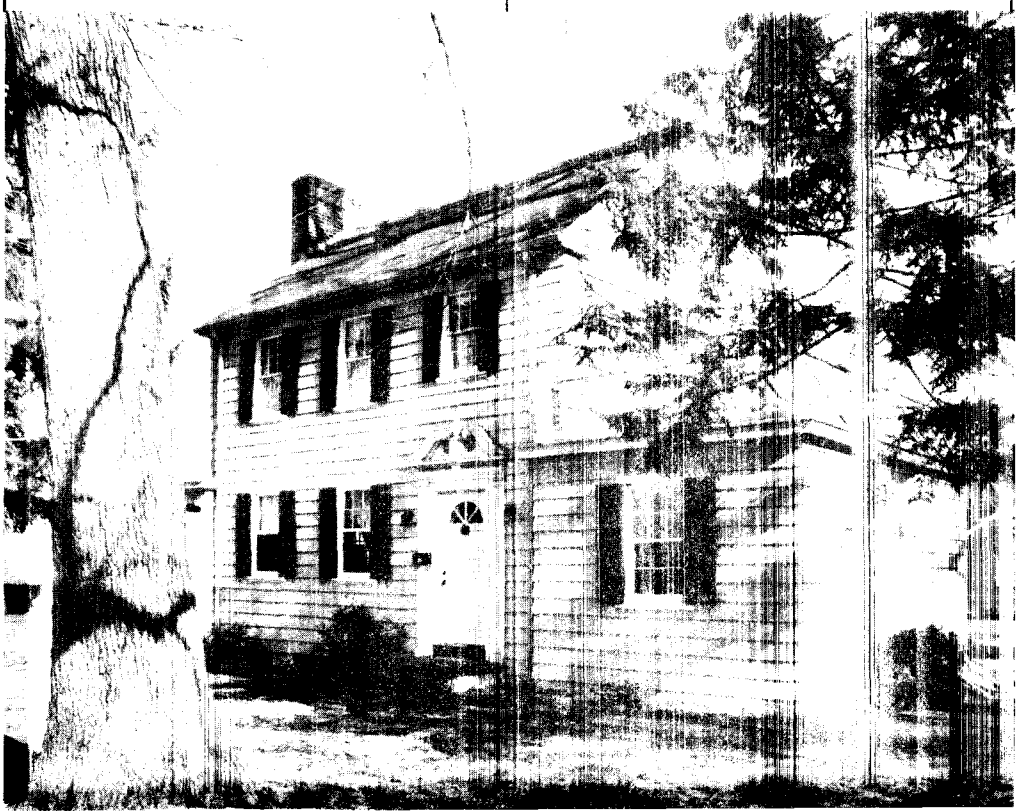

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Summary of Findings

Introduction

This report presents data on the U.S. consumption and expenditures for residential use of natural gas, electricity, fuel oil or kerosene, and liquefied petroleum gas (LPG) from April 1982 through March 1983. Data on the consumption of wood for this period are also presented. The consumption and expenditures data (found in Tables 1-17) are based on actual household bills, obtained, with the permission of the household, from the companies supplying energy to the household. Data on wood consumption (found in Table 18) are based on respondent recall of the amount of wood burned during the winter and are subject to memory errors and other reporting errors described in the report.

These data come from the 1982 Residential Energy Consumption Survey (RECS), the fifth in a series of comparable surveys beginning in 1978. The 1982 survey is the first survey to include, as part of its sample, a portion of the same households interviewed in the 1980 survey. A separate report is planned to report these longitudinal data.[1]

This summary gives the highlights of a comparison of the findings for the 5 years of RECS data. The data cover all types of housing units in the 50 States and the District of Columbia including single-family units, apartments, and mobile homes. For households with indirect energy costs, such as costs that are included in the rent or paid by third parties, the consumption and expenditures data are estimated and included in the figures reported here.

This report does not cover household use of motor fuel which is reported separately.[2]

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[1] Some longitudinal data are reported under "Square Feet of Floor Space" in Appendix C. These data on the reliability of the measurements of floor space involve a comparison of the measurements of the same housing unit in 1980 and again in 1982.

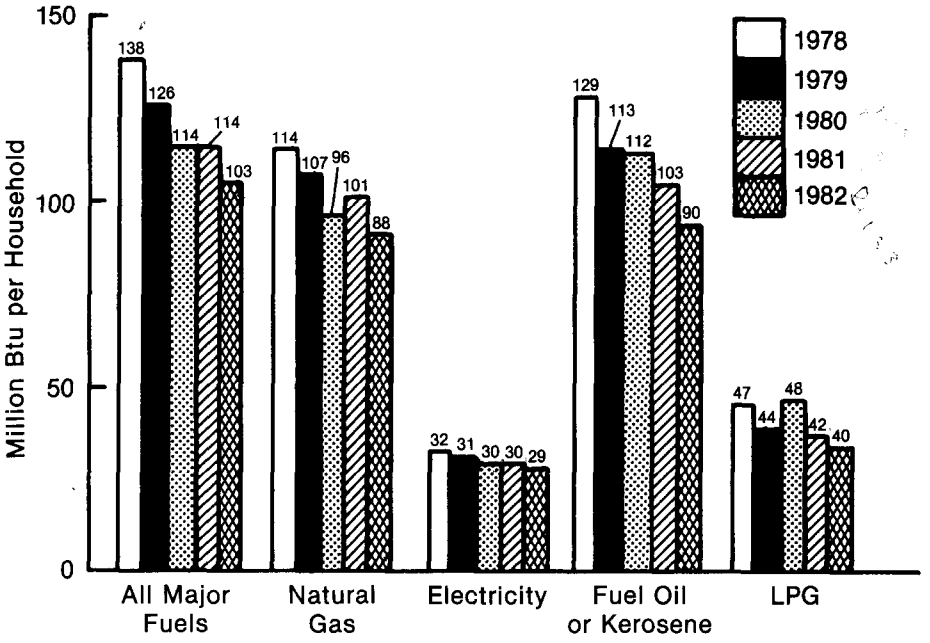
[2] The most recent report on motor fuel using sample households from the RECS survey is Residential Energy Consumption Survey: Consumption Patterns of Household Vehicles, Supplement: January 1981 to September 1981, DOE/EIA-0328 (Washington, D. C., February 1983). A report is in preparation on miles traveled and gasoline purchased for calendar year 1983 based on households from the 1982 RECS.

Summary of Findings (Continued)

Consumption of Energy per Household

Figure 1. Average Household Consumption of All Major Household Fuels and of Specific Fuels—1978 to 1982 (Million Btu per Household)

The average household consumption of natural gas, electricity, fuel oil or kerosene, and LPG dropped in 1982 from the previous year, hitting a 5-year low since the first Residential Energy Consumption Survey (RECS) was conducted in 1978 (Figure 1). The average consumption was 103 (±3) million Btu per household in 1982, down from 114 (±4) million Btu in 1981.[3,4]



Note: For specific fuels, the average is for all households using the fuel, except for fuel oil or kerosene, for which the average is only for households using it as the main heating fuel.

Source: Energy Information Administration, 1978 to 1982 Residential Energy Consumption Surveys. For 1982 data, see Tables 5, 7, 9, 12, and 13.

[3]Throughout this summary, 1981 refers to the period April 1981 through March 1982 and 1982 refers to the period April 1982 through March 1983. A separate analysis indicates there is little difference in estimates of consumption for these heating-year periods compared with the calendar year. See Residential Energy Consumption Survey: Regression Analysis of Energy Consumption by End Use, DOE/EIA-0431 (Washington, D.C., October 1983).

[4]The ± value in parentheses after a statistic quoted in the text represents two standard errors of the statistic. The standard error is a measure of the variability of an estimate that is based on a sample survey. For a further explanation of standard errors, see Appendix C, "Limitations of the Data."

Summary of Findings (Continued)

One reason for this decrease was the difference in winter temperatures. The weather during the winter of 1982-1983 was 8 percent milder than the winter before and, for the first time since 1978, the weather was normal.[5]

Many factors affect the annual rate of energy consumption by U.S. households, but none of them affect the year-to-year change in the average consumption as consistently as the weather. Other factors such as the particular mix of housing units of different types, vintage, and geographic location are also related to the decline in consumption. The behavior of households is another important factor. Indications of one household's behavior were collected in the 1981 and 1982 RECS surveys--the household's control of the indoor temperature during the day. That temperature remained the same or increased slightly from 1981 to 1982, indicating that indoor temperatures were not directly related to the decline in consumption between 1981 and 1982. The temperature was 68.9 (±0.1) degrees Fahrenheit in 1981 and 69.3 (±0.2) in 1982. Since nonsampling errors are likely to be larger than the sampling errors for this data item, it would not be prudent to conclude from these data that temperatures were higher in 1982 than 1981.[6]

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[5] Heating degree-days (HDD) totaled 4,546 (±129) for April 1982 through March 1983 versus 4,933 (±132) for the year before, and 4,587 (±129) for a normal year. These standard errors are the sampling errors for the annual HDD for the households surveyed. The annual HDD used in this report are based on temperatures reported to the National Oceanic and Atmospheric Administration (NOAA) and matched to RECS households for this survey and, thus, were weighted to national estimates (See Table C1 for a comparison of RECS weighted heating degree-days with those from NOAA).

[6] Indoor temperatures are reported in Housing Characteristics for 1981 and 1982.

Summary of Findings (Continued)

NOTE TO THE READER: Weather and Annual Consumption

Clearly weather affects consumption. The relationship between heating degree-days, the commonly used measure of winter weather, and consumption of a space heating fuel is linear. But none of the space heating fuels is used exclusively for space heating. Fuels are listed below in descending order of the proportion used for space heating. The proportion varies from a high of 85 percent of fuel oil/kerosene used for space heating to a low of 11 percent of electricity used for space heating. Proportional changes in fuel use and heating degree-days between two time periods may, for example, be equal, but this should not be interpreted to mean that weather accounted for the whole change, although it clearly plays a part. Residential energy consumption statistics that are corrected for the effects of the weather (Btu per heating degree-day) are presented in Residential Energy Consumption and Expenditures by End Use (DOE/EIA-0458, in preparation).

Fuel	Households Using Fuel	Percent of Annual Fuel Use for Space Heating
Fuel Oil/Kerosene	Main Heat	85
Fuel Oil/Kerosene	All	85
LPG	Main Heat	79
Natural Gas	Main Heat	69
LPG	All	68
Natural Gas	All	67
All Major Fuels	All	56
Electricity	Main Heat, no A/C	45
Electricity	Main Heat, A/C	29
Electricity	All	11

Note: "A/C" = air conditioning. "Main Heat" = households using the fuel as their main heating fuel. "All" = all households using the fuel.

Source: Energy Information Administration, 1980 Residential Energy Consumption Survey.

Summary of Findings (Continued)

The decline in energy use per household was led largely by a decrease in natural gas usage which dropped from 101 (±4) to 88 (±3) million Btu per household. Natural gas represents 55 (±1) percent of household end-use consumption (Table 3), so changes in natural gas usage will have more impact on overall energy use in the residential sector than changes in use of the other fuels. Fuel oil and kerosene, which together account for 13 (±0.4) percent of household energy use (Table 3), also decreased, from 103 (±5) million Btu in 1981 to 90 (±4) million Btu in 1982 for households heating with these fuels. The drop in natural gas and fuel oil or kerosene consumption was due, in large, to changes in the weather. The winter of 1982-1983 was 8 percent milder than the winter of 1981-1982 for homes heated by natural gas and 10 percent milder for homes heated by fuel oil or kerosene.

NOTE TO THE READER: Btu Value of Electricity

This report contains figures on consumption of energy that combine different fuels together on the basis of their Btu content. For example, the figure quoted earlier in this report that the average household consumed 103 million Btu of energy in 1982 combines natural gas, electricity, fuel oil and kerosene, and LPG together. There is some argument as to the appropriateness of combining electricity with other forms of energy which are not derived fuels and which, therefore, are yet to undergo a change through conversion to more useful forms of energy. For example, the average electrically heated home uses one-half the amount of energy compared with gas heated homes even when the winter weather and size of the house are similar (Table 14). Despite these problems, EIA believes it is useful to have a summary measure of energy use in the home which combines the four major fuels together.

If electricity were converted to Btu at a rate that includes the value of fuels used to produce the electricity (approximated by multiplying the Btu value of electricity by three), the average per household consumption of the four major fuels would increase from 103 to 161 million Btu for 1982. Total consumption of the four major fuels by U.S. households would be 13.5 quadrillion Btu. A total of 69.141 quadrillion Btu were consumed in the United States from April 1982 through March 1983—Monthly Energy Review, March 1984, DOE/EIA-0035 (84-4). This means that the residential sector consumed 19.5 percent of total U.S. energy, excluding residential use of gasoline. (The Btu value of wood is not included in the MER figures or in the RECS figures).

Energy Expenditures per Household

Beginning in 1979 and continuing for the next 2 years, the average household paid $100 (±50) more each year for household energy. In 1982, however, the increase of $26 over the prior year was statistically insignificant (Figure 2). This slowdown in the rate of increase occurred because the increase in prices was nearly offset by the decrease in consumption. Prices rose 14 percent from 1981 to 1982 while consumption dropped 10 percent (Table S1).

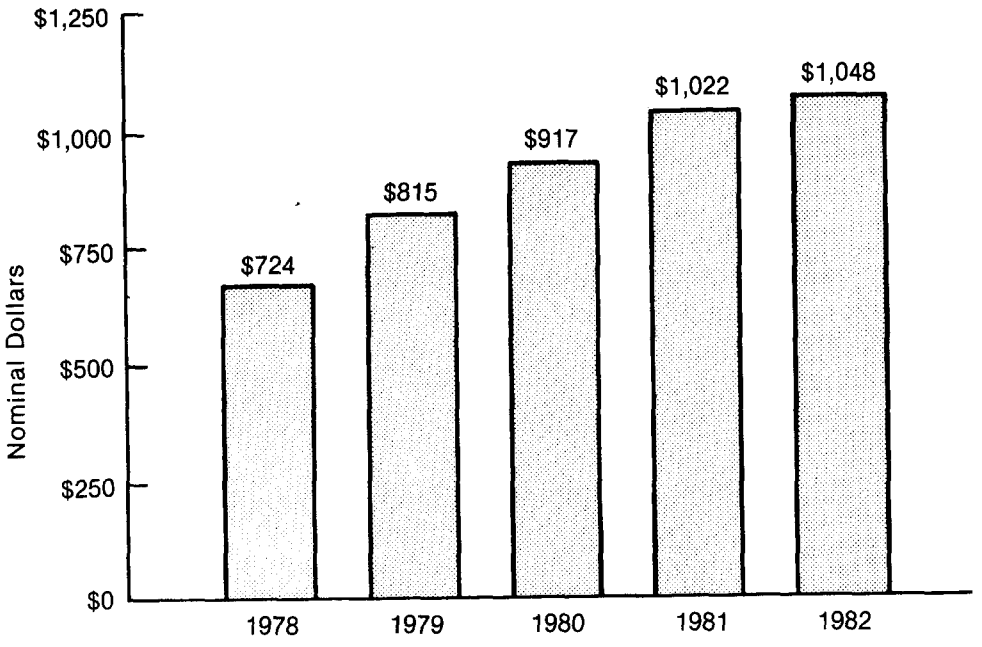
Table S1. Percentage Change From Previous Year in Annual Residential Energy Prices and Consumption

Year	Prices	Consumption	Difference
1979	+24%	-9%	15%
1980	+24%	-10%	14%
1981	+11%	0	11%
1982	+14%	-10%	4%

Source: Energy Information Administration, 1978 to 1982 Residential Energy Consumption Surveys.

Table S1 shows that price increases for past RECS surveys have been larger than consumption decreases, and this difference has added about $100 to the annual energy bill for households despite lowered consumption by these households. In 1982, this difference was the smallest it had been during the previous 4 years. In 1982, the annual bill for the four major fuels was $1,048 (±31) for the average U.S. household (Figure 2).

Figure 2. Average Household Expenditures for All Major Household Fuels—1978 to 1982 (Nominal Dollars per Household)



Source: Energy Information Administration, 1978 to 1982 Residential Energy Consumption Surveys.

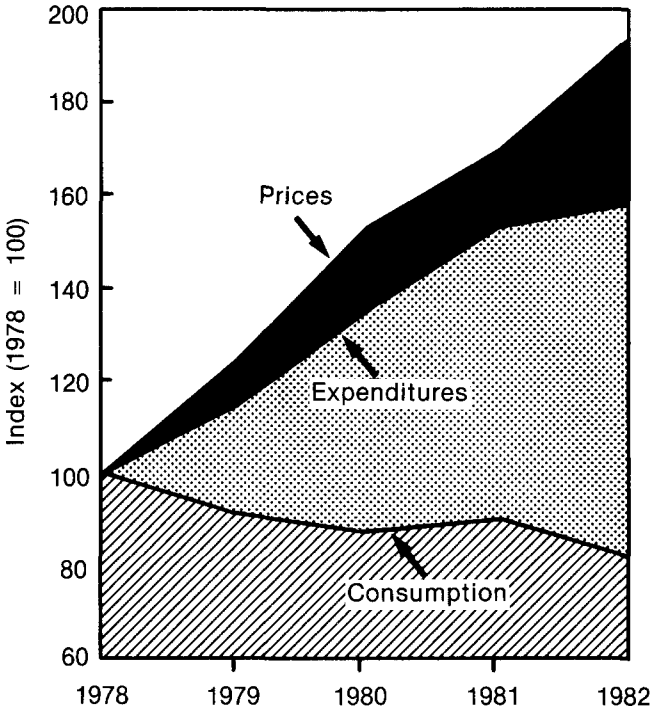
Summary of Findings (Continued)

Aggregate Consumption and Expenditures

The residential sector consumed 8.6 (±0.4) quadrillion Btu of natural gas, electricity, fuel oil or kerosene, and LPG during 1982 (Table 1). An additional 0.9 (±0.2) quadrillion Btu of wood was burned (Table 18) which brings the total consumption of energy for the residential sector to 9.5 quadrillion Btu, not including residential use of motor gasoline.

Expenditures for these fuels totaled $87.0 (±4.2) billion in 1982 excluding purchases of gasoline and wood. Wood is not usually purchased (67 (±4) percent of the woodburning households do not purchase wood) and expenditures for wood that is purchased are not available from this survey.

Figure 3. U.S. Residential Energy Consumption and Expenditures for Natural Gas, Electricity, Fuel Oil or Kerosene, and LPG—1978 to 1982



Source: Energy Information Administration, 1978 to 1982 Residential Energy Consumption Surveys.

Summary of Findings (Continued)

Expenditures and Income

Trends From 1978 to 1982

Energy consumption in the residential sector has been on the decline since 1978, primarily because of milder winters but also because of conservation efforts of households, changes in energy-related behavior, and the greater use of renewable energy such as wood. This decline has occurred despite an increase in the number of households. The reason consumption did not increase as the number of households increased, is that consumption per household decreased. In fact, consumption per household dropped 25 (±6) percent during 1978 to 1982 while the increase in the number of households was about 9 percent.[7]

Figure 3 shows that expenditures for energy by U.S. households has risen consistently since 1978. Prices have risen at a faster rate than expenditures. The faster rate of increase for prices propels expenditures upward even when consumption declines.

Poor Households

Despite increasing energy prices since 1978, households generally are spending the same proportion of their income for household energy as they were spending in 1978. Throughout 1978 to 1982, households were spending 5 (±0.2) percent of their income for household energy (Table 6). Households below 125 percent of the poverty level pay 17 (±2) percent of their family income for energy.[8]

Among poor households, the burden of energy expenditures is highest in the Northeast and lowest in the West (Table S2). In the Northeast, poor households (poverty level) paid 29 (±6) percent of their income for household energy. In the West, the figure was 13 (±3) percent.

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[7] The increase in the number of households is actually lower than what is reported here. Because the Current Population Survey makes estimates for 1980-1982 based on the 1980 Decennial Census, actual household counts cannot be determined until the next Decennial Census. Estimates for 1978-1979 were based on the 1970 Decennial Census and were lower than expected compared with the 1980 Decennial Census.)

[8] The measure of expenditures as a percentage of income is determined by taking each household's energy expenditure for 1982 and dividing that by the family's income in 1981. The median of this statistic for a group of households in each income group is given in Table 6. This particular statistic has some limitations since income and expenditures do not come from the same time period. See Glossary and Appendix C, "Limitations of the Data," for a further discussion of this statistic.

Summary of Findings (Continued)

Table S2. Percentage of Income Spent on Household Energy and Number of Households by Poverty Level in Each Census Region and Division

Census Region and Division	Median Percentage of Income Spent on Energy: Below 100% Poverty	Median Percentage of Income Spent on Energy: Below 125% Poverty	Number of Households: Below 100% Poverty	Number of Households: Below 125% Poverty
	(Percent)		(Million Households)	
Northeast	29	25	2.3	3.6
New England	Q	24	0.3	0.6
Middle Atlantic	30	25	2.0	3.0
North Central	22	18	2.8	4.0
East North Central	22	19	2.1	3.0
West North Central	19	18	0.7	1.0
South	20	16	5.1	6.9
South Atlantic	24	18	2.3	3.0
East South Central	17	14	1.0	1.5
West South Central	19	15	1.7	2.3
West	13	12	1.9	3.0
Mountain	17	15	0.5	0.8
Pacific	11	10	1.5	2.2
United States	21	17	12.1	17.4

"Q"=Data withheld because of a large variance.
Source: Energy Information Administration, 1982 Residential Energy Consumption Survey.

It is useful to know the number of households which pay a high percentage of their income for energy. Table S3 presents a distribution of all households listed according to the share of their income spent on energy.

Table S3. Percentage Distribution of Poor and Nonpoor Households According to the Percent of Income Spent on Households Energy

Percent of Income Spent on Energy	Percent of Households: All Households	Percent of Households: Poor Households (Below 100% Poverty)	Percent of Households: Nonpoor Households
Less than 3	14	*	17
3 to 7	50	6	58
8 to 12	16	16	16
13 to 17	8	19	6
18 or more	11	59	3
Total	99%	100%	100%

*Less than 0.5 percent.
Source: Energy Information Administration, 1982 Residential Energy Consumption Survey.

Summary of Findings (Continued)

According to Table S3, 9 (±1) percent of the nonpoor households pay more than 12 (±2) percent of their income for energy. But among poor households, 78 (±4) percent paid that much of their income for energy. According to Table S3, 8 to 12 percent of income spent on energy would distinguish poor households from nonpoor households on the basis of what is paid for energy. Most nonpoor households pay less than 8 to 12 percent; most poor households pay more.

It is important to note that some poor households do not pay directly for the energy used by the household--the costs are included in the rent. However, the RECS survey makes estimates of the amount of energy used by these households and includes these estimates in the data for this report. The number of poor households is shown in Table S4. Thirty (±5) percent of all poor households have one or more fuel costs included in their rent. For poor households with the heaviest energy burden, the percentage is about the same (32 (±6) percent). Twenty (±6) percent of the nonpoor households with the heaviest energy burden have their energy costs included in their rent.

Table S4. Payment of Energy Costs by Poverty Status and Percent of Income Spent on Energy

Poverty Status and Payment Method	Percent of Income Spent on Energy: Less than 8	8 to 12	13 or more	All Households
	(Million Households)			
Poor (Below 100% level of poverty)				
Pay directly to supplier	0.6	1.4	6.1	8.1
One or more fuels in rent	0.1	0.5	3.0	3.6
Paid by third party/no fuel used	*	*	0.3	0.4
Total	0.7	2.0	9.4	12.1
Nonpoor				
Pay directly to supplier	47.0	9.1	4.7	60.8
One or more fuels in rent	5.8	2.0	1.3	9.1
Paid by third party/no fuel used	0.9	0.4	0.4	1.8
Total	53.7	11.6	6.4	71.7
	(Percent)			
Poor (Below 100% level of poverty)				
Pay directly to supplier	83	73	65	67
One or more fuels in rent	13	26	32	30
Paid by third party/no fuel used	4	1	3	3
Total	100%	100%	100%	100%
Nonpoor				
Pay directly to supplier	88	79	73	85
One or more fuels in rent	11	17	20	13
Paid by third party/no fuel used	2	4	7	2
Total	101%	100%	100%	100%

*Less than 0.05.

Source: Energy Information Administration, 1982 Residential Energy Consumption Survey.

Summary of Findings (Continued)

Table S5 presents the number and percentage of poor households that pay a high percentage of their income for energy. Nationally, 6.1 (±0.9) million poverty level households pay more than 20 percent of their income on energy. These households represent 51 (±5) percent of all poverty level households. More than one-half of the poor households in the Northeast and about one-half of the poor households in the North Central and South pay more than 20 percent of their income for household energy (Table S5). Only 17 (±9) percent of the poor households in the West pay that much for their energy.

Table S5. Percentage and Number of Poor Households That Spend More Than 20 Percent of Their Income on Household Energy by Census Region

Region	Below 100% Poverty (Percent)	Below 100% Poverty (Millions)	Below 125% Poverty (Percent)	Below 125% Poverty (Millions)
Northeast	76	1.7	61	2.2
North Central	55	1.5	42	1.7
South	50	2.5	38	2.6
West	17	0.3	12	0.4
United States	51	6.1	39	6.9

Source: Energy Information Administration, 1982 Residential Energy Consumption Survey.

Declining Use of Electricity—1978 to 1982

Roughly equal proportions of all electricity used in the residential sector are used for home heating (11 percent), water heating (13 percent), and home cooling (13 percent). The remainder, 63 percent, is used for refrigeration, lighting, cooking, washing and drying clothes and dishes, and for a variety of other appliances used in the home.[9,10]

[9] See Housing Characteristics 1982 for an inventory of larger appliances used in the home).

[10] These estimates of end-use consumption are for fuels used in 1980 and are derived by a statistical analysis of RECS data. For a report on the methodology and related data, see Residential Energy Consumption Survey: Regression Analysis of Energy Consumption by End Use (DOE/EIA-0431, Washington, D.C., October 1983). For data on end-use consumption for 1978, 1980, and 1981, see Residential Energy Consumption and Expenditures by End Use (DOE/EIA-0458, in preparation).

Summary of Findings (Continued)

Electricity consumption in the residential sector has shown a decline on a per household basis from 1978 through 1982 (Table S6). The decline on a per household basis is offset by an increase in the number of households, so that the aggregate consumption over this period has remained steady at about 2.4 (±0.1) quadrillion Btu per year as shown below:

Electricity Consumption

Year	Quadrillion Btu
1978	2.5
1979	2.4
1980	2.5
1981	2.5
1982	2.4

This stability in aggregate consumption and the slow decline in per household use of electricity is a very interesting situation running counter to past trends and to future predictions of increasing residential use of electricity. The reasons for the downward trend may be hinted at by isolating groups of households where the decreases are greatest (Table S6).

Summary of Findings (Continued)

Table S6. Trends in U.S. Residential Use of Electricity, 1978 to 1982 (Thousand kWh per Household)

Characteristic	1978	1979	1980	1981	1982
United States	9.5	9.1	8.8	8.7	8.5
Census Region					
Northeast	6.6	6.7	6.5	6.8	6.2
North Central	8.5	8.4	8.3	7.9	7.9
South	12.0	11.4	11.5	10.9	11.0
West	10.0	9.3	7.6	8.3	7.5
Heating and Cooling Degree-Day Zones					
Less than 2,000 CDD:					
and More than 7,000 HDD	9.1	9.2	8.3	7.8	7.5
5,500 to 7,000 HDD	8.5	8.2	7.6	7.7	7.6
4,000 to 5,499 HDD	9.0	8.7	8.7	8.7	8.3
Less than 4,000 HDD	10.3	9.7	8.6	8.8	8.3
More than 2,000 CDD and Less than 4,000 HDD	11.2	10.8	12.1	11.0	11.3
Housing Structure					
Single-Family Detached	10.9	10.5	10.3	9.7	9.6
Single-Family Attached	9.0	8.2	7.1	7.2	7.3
2-4 Unit Buildings	6.0	5.3	5.1	6.2	5.8
5 or more Unit Bldg	5.6	5.9	5.4	6.5	6.2
Mobile Home	10.8	10.6	9.3	8.9	8.7
Electricity is Main Heating Fuel					
Yes					
Has Air Conditioning	20.0	17.4	16.3	16.0	16.6
No Air Conditioning	21.0	18.5	16.1	14.6	14.1
No					
Has Air Conditioning	8.8	8.7	8.5	8.5	8.3
No Air Conditioning	5.9	6.1	6.0	5.9	5.6

Source: Energy Information Administration, 1978 to 1982 Residential Energy Consumption Surveys.

The downward trend in electricity use per household is shown in Table S6, declining from 9,500 (±650) kilowatt-hours per year in 1978 to 8,500 (±350) in 1982, a drop of 11 (±7) percent over a 4-year period. All Census regions showed a drop, but the only statistically significant decrease was in the West with a drop of 25 (±14) percent. Among weather zones, the decreases were in the colder zones. The decrease occurred in single-family homes and mobile homes, while apartments showed little change, and apartments in larger buildings showed a nonsignificant increase.

One clue to what has been happening in electricity consumption is found in the trends for electricity consumption in homes heated by electricity. Those homes have shown the major shifts in electricity use. The shifts in electrical usage are discussed separately for electrically heated homes with air conditioning and those without air conditioning. Electrically-heated homes not air conditioned decreased their use of electricity from 21,000 (±3,200) kilowatt-hours in 1978 to 14,100 (±1,900) in 1982 (Table S6). It is true that weather conditions have had something to do with these decreases, as the winter has been increasingly milder each year from 1978 to 1981 for electrically heated homes without

air conditioning, thus requiring smaller amounts of electricity to heat the home each year (Table S7). However, the weather which was 15 percent milder from 1978 to 1982 has not changed as much as the consumption (33 ±13 percent decrease), so other factors such as improved efficiency in the use of electricity and energy related life style changes are also likely to have influenced the drop.

Homes that were air conditioned and heated with electricity decreased their use of electricity from 20,000 (±2,000) annual kilowatt-hours in 1978 to 16,600 (±1,400) in 1982 (Table S6). This drop occurred even though 1980 and 1981 were the coldest winters of the 5-year period for these electrically heated and cooled homes (Table S7). However, 1978 was the hottest summer of the 5 years (measured by cooling degree-days), so some drop in the use of electricity for air conditioning would be expected. About half of the electricity used by these households in 1980 was used for space heating (29 percent) or for air conditioning (18 percent).

Table S7. Annual Degree-Days for Electrically-Heated Homes With Air Conditioning and Without Air Conditioning

Year	With Air Conditioning		Without Air Conditioning
	Heating Degree-Days	Cooling Degree-Days	Heating Degree-Days
1978	3,268	2,001	5,882
1979	3,196	1,714	5,737
1980	3,543	1,849	5,181
1981	3,431	1,779	4,919
1982	3,293	1,647	4,990
Normal	3,288	1,885	5,044

Source: Energy Information Administration, 1978 to 1982 Residential Energy Consumption Surveys.

In contrast to these decreases in electrical usage in homes heated with electricity, homes not heated with electricity showed little change or very slight movement downward (Table S6). About 70 (±1) million homes use electricity but not for their main heating fuel, and they split about equally between those that are air conditioned (54 (±3) percent) and those that are not air conditioned (46 (±3) percent). Seventy (±3) percent of the electricity in the residential sector is consumed by these households, and they show little or no change in consumption on a per household basis. It is interesting that none of these groups has shown any growth in electrical usage. There are, of course, many other possible groups, some of which may show a trend of increasing use of electricity. It does appear that the slight drop in electrical consumption from 1978 to 1982 is related to households heating with electricity and that some of the drop is related to a warming trend in the weather that certainly would not be expected to continue into the future.[11]

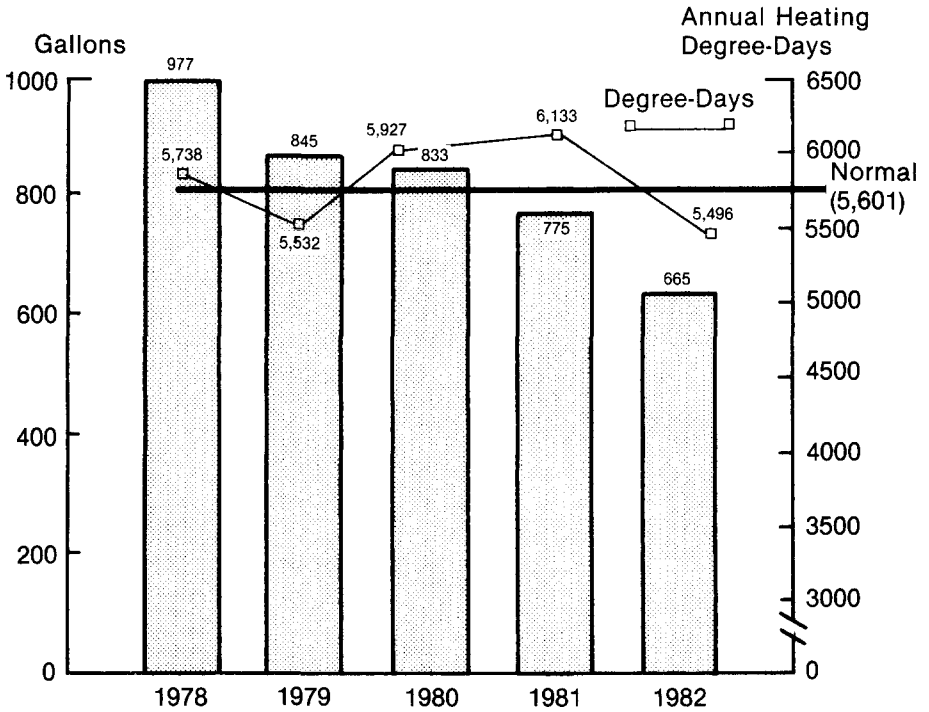
[11] More detailed discussion of this decrease related to space heating is found in Residential Energy Consumption and Expenditures by End Use (DOE/EIA--0458) in preparation).

Fuel Oil

Fuel oil is used in the home almost exclusively for either space heating (85 percent) or for water heating (15 percent). Fuel oil and kerosene use have undergone noticeable changes from 1978 to 1982 following rapid changes in the price of these fuels beginning in 1979. Households began switching to other fuels and, for some households, fuel oil and kerosene became secondary heating fuels. There is some evidence that households heating with these fuels were more active in insulating their homes than other households. (Details on these topics are described in previous editions of the RECS publication, Housing Characteristics).

Another change among fuel oil using households has been the dramatic reduction in the amount of fuel used per household. Figure 4 shows this reduction and also provides a guideline as to what the weather was like for homes heated by fuel oil for the year of consumption. (Homes using kerosene as a main heating fuel are not included in Figure 4.) Since about a million homes switched from fuel oil to another fuel each year beginning in 1979 and running until 1981, the changes in heating degree-days shown in Figure 4 may also reflect the changing geographical location of households using fuel oil. The change in consumption per household is most dramatic when comparing 1979 with 1982. Both years were similar in weather and not much different from the normal for households mainly heated by fuel oil in 1982. However, 845 (±41) gallons were used in 1979 versus 665 (±34) in 1982. Some of this improved efficiency is no doubt a result of an overall loss from the housing stock of less efficient homes using fuel oil as their main heating fuel. There is some evidence that homes switching away from fuel oil and kerosene were the older, larger homes which use more than an average amount of fuel.

Figure 4. Fuel Oil Consumption and Annual Heating Degree-Days per Fuel Oil Heated Home—1978 to 1982



Source: Energy Information Administration, 1978 to 1982 Residential Energy Consumption Surveys.

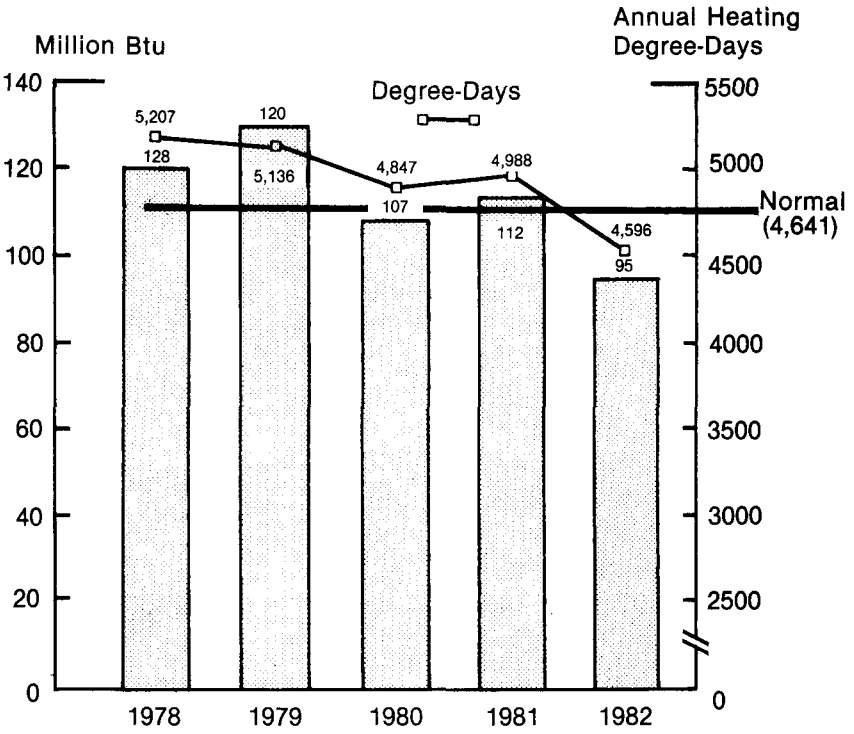
Summary of Findings (Continued)

Natural Gas

Natural gas, like fuel oil and kerosene, is predominantly a space heating fuel. About 67 percent of all residential natural gas is used for space heating. About 25 percent (±6) is used for water heating and 8 percent for miscellaneous purposes such as cooking, drying clothes, heating swimming pools, and lighting.

The use of natural gas has decreased somewhat in relation to the demands of the weather (Figure 5), but the differences are not as dramatic as for fuel oil or as interesting as for electricity. Other factors such as the characteristics of the housing unit and household behavior may also be related to the decline.

Figure 5. Natural Gas Consumption and Annual Heating Degree-Days per Gas Heated Home—1978 to 1982

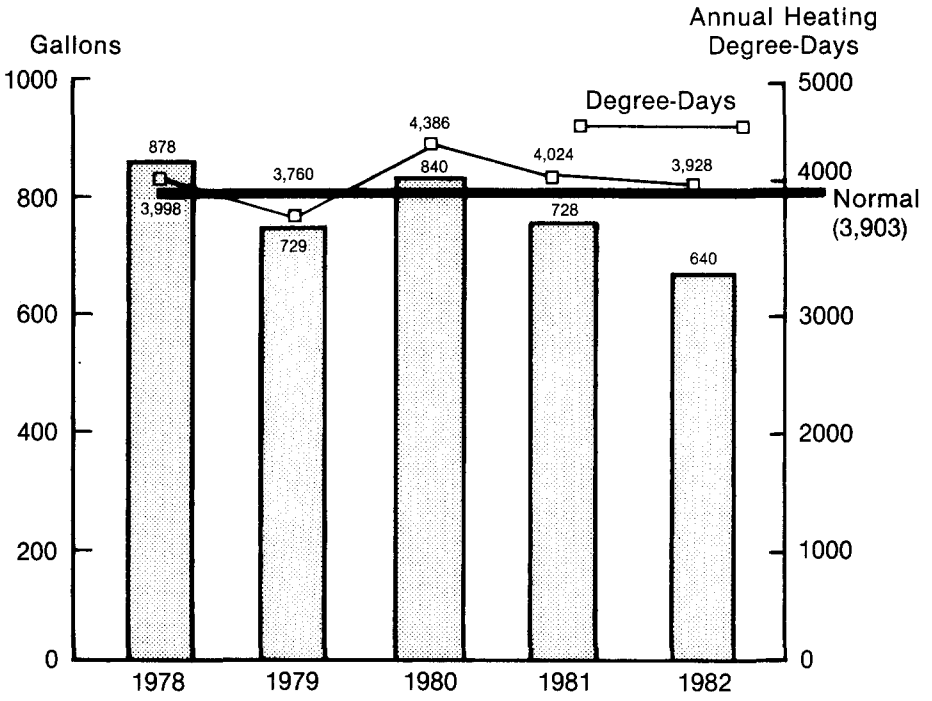


Source: Energy Information Administration, 1978 to 1982 Residential Energy Consumption Surveys.

Liquefied Petroleum Gas

The use of LPG is similar to natural gas as 64 percent is used for space heating, 20 percent for water heating, and 10 percent for other uses such as cooking and clothes drying. However, unlike natural gas, most of the LPG is used in rural areas and smaller towns (66 ±8 percent--Table 2). As with the other predominant heating fuels, the year-to-year use of LPG is very much affected by the weather. And as for the other major heating fuels, use of this fuel seems to have become more efficient since 1978 among homes mainly heated by LPG. That is to say, in relation to the heating degree days, less fuel is used per household in 1982 than in 1978. The differences are small however, and, in particular cases, are subject to sampling error that is larger than the differences (Figure 6).

Figure 6. LPG Consumption and Annual Heating Degree-Days per LPG Heated Home—1978 to 1982



Source: Energy Information Administration, 1978 to 1982 Residential Energy Consumption Surveys.

Summary of Findings (Continued)

Reasons for Over or Underconsumption

Some households use more or less energy than might be expected from a knowledge of important energy related facts about the household, equipment, and the housing shell all of which are normally collected as part of the RECS surveys. Followup interviews were conducted with a few RECS households which had unusual patterns of energy use in an attempt to isolate the factors responsible. The factors isolated are shown below. Some factors are changes that occurred in the household following the November RECS interview and before the end of the consumption period in March of the next year. These changes could only be known if a subsequent interview were conducted following the end of the heating season in March to check on the fuels used during the winter. Other factors relate to inherent problems in conducting surveys of this type in which misunderstanding can occur and in which the interview itself may change the household's behavior.

Household	Consumption	Factor Related to Unusual Consumption
A	66 percent above normal use of natural gas.	Spouse became terminally ill and household relied more on natural gas than on wood. Wood was said to be the main heating fuel in the November interview.
B	72 percent below normal use of natural gas.	Natural gas heat was turned off all winter and never used.
C	101 percent above normal use of electricity.	High energy consumption life style. In addition, members of the family were incorrectly given separate household status, resulting in erroneous subtraction of their electrical usage from the household.
D	62 percent below normal use of natural gas.	Household installed a wood stove shortly after the RECS interview and relied on wood as the main heating fuel for the remainder of the heating season in place of natural gas.

Appendix G contains a more complete summary of each interview.

Consumption and Expenditures of Total and Specific Fuels

Table 1. U.S. Residential Energy Consumption and Expenditures—April 1982 Through March 1983

1984

4.9 2.48 1.26 .31

HOUSEHOLD CHARACTERISTICS	ALL MAJOR FUELS			NATURAL GAS		ELECTRICITY		FUEL OIL OR KEROSENE		LIQUEFIED PETROLEUM GAS	
	NUMBER OF HOUSEHOLDS (MILLION)	TOTAL AMOUNT CONSUMED (QUADRILLION BTU)	TOTAL EXPENDITURES (BILLION DOLLARS)	TOTAL AMOUNT CONSUMED (QUADRILLION BTU)	TOTAL EXPENDITURES (BILLION DOLLARS)	TOTAL AMOUNT CONSUMED (QUADRILLION BTU)	TOTAL EXPENDITURES (BILLION DOLLARS)	TOTAL AMOUNT CONSUMED (QUADRILLION BTU)	TOTAL EXPENDITURES (BILLION DOLLARS)	TOTAL AMOUNT CONSUMED (QUADRILLION BTU)	TOTAL EXPENDITURES (BILLION DOLLARS)
TOTAL HOUSEHOLDS	83.8	8.62	87.8	4.77	27.1	2.42	48.4	1.14	9.6	0.29	2.7
CENSUS REGION AND DIVISION											
NORTHEAST	18.0	2.18	24.6	.99	7.2	.38	10.4	.79	6.7	.02	.3
NEW ENGLAND	4.2	.51	5.9	.16	1.4	.09	2.4	.24	2.0	.01	.1
MIDDLE ATLANTIC	13.7	1.68	18.7	.83	5.8	.29	8.1	.55	4.6	.01	.2
NORTH CENTRAL	21.3	2.60	22.6	1.76	9.2	.57	11.2	.15	1.3	.11	.9
EAST NORTH CENTRAL	15.0	1.82	15.8	1.24	6.5	.39	7.7	.13	1.1	.06	.5
WEST NORTH CENTRAL	6.3	.78	6.7	.52	2.6	.19	3.5	.02	.2	.05	.4
SOUTH	28.1	2.46	28.6	1.13	6.3	1.05	19.6	.17	1.4	.12	1.2
SOUTH ATLANTIC	13.9	1.11	14.0	.41	2.7	.48	9.3	.16	1.3	.06	.7
EAST SOUTH CENTRAL	5.7	.47	5.2	.20	1.0	.25	3.9	.01	.1	.02	.2
WEST SOUTH CENTRAL	8.5	.88	9.4	.52	2.6	.32	6.4	Q	Q	.04	.3
WEST	16.5	1.38	12.0	.89	4.3	.42	7.1	.03	.3	.04	.4
MOUNTAIN	4.3	.42	3.8	.27	1.3	.12	2.2	.01	.1	.02	.2
PACIFIC	12.2	.96	8.2	.62	3.0	.30	4.9	.02	.2	.01	.2
AREA TYPE											
METROPOLITAN	63.2	6.73	68.2	3.92	22.7	1.78	36.7	.94	7.9	.10	1.0
CENTRAL CITY	29.4	3.15	30.4	2.01	11.5	.75	15.5	.39	3.3	.01	.1
OUTSIDE CENTRAL CITY	33.8	3.58	37.8	1.91	11.1	1.03	21.2	.55	4.6	.09	.9
NON-METROPOLITAN	20.6	1.89	19.6	.86	4.4	.65	11.7	.20	1.7	.19	1.7
ANNUAL HEATING DEGREE-DAYS (HDD) AND COOLING DEGREE-DAYS (CDD) --LONG-TERM AVERAGE											
<2,000 CDD AND >7,000 HDD	8.5	.96	8.8	.50	2.7	.22	4.1	.17	1.5	.07	.6
<2,000 CDD AND 5,500 TO 7,000 HDD	21.0	2.58	23.9	1.63	9.0	.54	11.4	.35	3.0	.06	.5
<2,000 CDD AND 4,000 TO 5,499 HDD	22.1	2.41	25.8	1.20	7.8	.62	12.9	.54	4.6	.05	.5
<2,000 CDD AND <4,000 HDD	19.6	1.67	16.2	.99	4.9	.56	10.2	.06	.5	.06	.6
>2,000 CDD AND <4,000 HDD	12.6	1.01	13.1	.46	2.7	.49	9.8	.01	.1	.05	.6
HOW UTILITIES ARE PAID											
ALL PAID BY HOUSEHOLD	68.9	7.26	73.7	4.02	22.3	2.15	41.9	0.83	7.0	0.26	2.5
SOME PAID, SOME IN RENT	7.8	.68	6.6	.41	2.5	.10	2.7	.16	1.3	.01	.1
ALL INCLUDED IN RENT	4.9	.44	4.8	.21	1.4	.12	2.5	.10	.9	.01	.1
OTHER	2.1	.24	2.7	.12	.8	.06	1.4	.05	.4	.01	.1
HOUSING STRUCTURE BY OWNERSHIP											
SINGLE-FAMILY DETACHED	53.8	6.04	60.2	3.34	18.1	1.76	34.0	.71	6.0	.23	2.1
OWN	45.1	5.19	52.3	2.83	15.5	1.54	29.7	.65	5.4	.18	1.7
RENT	8.7	.84	8.0	.51	2.7	.22	4.3	.07	.6	.05	.5
SINGLE-FAMILY ATTACHED	3.9	.43	4.4	.29	1.9	.10	2.1	.04	.4	.01	.1
OWN	2.7	.33	3.3	.22	1.5	.06	1.5	.04	.3	Q	Q
RENT	1.1	.11	1.1	.07	.4	.04	.7	Q	Q	Q	Q
BUILDING WITH 2 TO 4 UNITS	10.1	1.00	9.9	.63	3.9	.20	4.6	.16	1.4	Q	.1
OWN	2.1	.26	2.8	.14	.9	.05	1.3	.07	.6	Q	Q
RENT	8.0	.74	7.0	.49	3.0	.15	3.2	.10	.8	Q	Q
BUILDING WITH 5 OR MORE UNITS	12.2	.89	10.0	.44	2.8	.26	5.6	.19	1.6	Q	Q
OWN	1.0	.09	1.0	.05	.3	.03	.6	.02	.1	Q	Q
RENT	11.3	.80	9.0	.39	2.5	.23	5.0	.18	1.5	Q	Q
MOBILE HOME	3.7	.27	3.2	.08	.4	.11	2.1	.03	.3	.05	.5
OWN	3.0	.21	2.6	.06	.3	.09	1.7	.02	.2	.04	.3
RENT	.8	.06	.6	.02	.1	.02	.4	Q	Q	.02	.2
NUMBER OF ROOMS											
1	.8	.05	.6	.02	.2	.01	.3	.01	.1	Q	Q
2	1.8	.12	1.3	.06	.4	.03	.6	.03	.3	Q	Q
3	8.2	.56	6.2	.27	1.7	.16	3.5	.11	.9	.01	.1
4	16.8	1.37	13.7	.75	4.2	.38	7.4	.18	1.5	.06	.6
5	19.8	1.91	19.4	1.07	6.0	.54	10.9	.23	1.9	.07	.7
6	18.2	2.07	20.9	1.16	6.6	.58	11.6	.25	2.1	.08	.7
7	9.3	1.18	12.0	.67	3.8	.35	6.8	.13	1.1	.03	.3
8 OR MORE	8.8	1.37	13.7	.77	4.4	.37	7.3	.19	1.6	.04	.3

SEE FOOTNOTES AT END OF TABLE

Consumption and Expenditures of Total and Specific Fuels

Table 1. (Continued)

HOUSEHOLD CHARACTERISTICS	ALL MAJOR FUELS			NATURAL GAS		ELECTRICITY		FUEL OIL OR KEROSENE		LIQUEFIED PETROLEUM GAS	
	NUMBER OF HOUSEHOLDS (MILLION)	TOTAL AMOUNT CONSUMED (QUADRILLION BTU)	TOTAL EXPENDITURES (BILLION DOLLARS)	TOTAL AMOUNT CONSUMED (QUADRILLION BTU)	TOTAL EXPENDITURES (BILLION DOLLARS)	TOTAL AMOUNT CONSUMED (QUADRILLION BTU)	TOTAL EXPENDITURES (BILLION DOLLARS)	TOTAL AMOUNT CONSUMED (QUADRILLION BTU)	TOTAL EXPENDITURES (BILLION DOLLARS)	TOTAL AMOUNT CONSUMED (QUADRILLION BTU)	TOTAL EXPENDITURES (BILLION DOLLARS)
NUMBER OF ROOMS THAT CAN BE AIR CONDITIONED											
ALL	32.5	3.32	36.5	1.79	10.0	1.24	24.0	0.20	1.7	0.08	0.7
SOME	16.1	1.84	18.9	1.02	6.1	.43	9.4	.34	2.8	.06	.5
NONE	35.1	3.47	32.5	1.96	10.9	.75	15.0	.60	5.0	.15	1.5
MEASURED HEATED SQUARE FOOTAGE OF RESIDENCE											
LESS THAN 600 SQUARE FEET	7.8	.49	5.5	.25	1.6	.12	2.8	.09	.7	.03	.3
600 TO 999 SQUARE FEET	22.5	1.80	18.5	.98	5.6	.52	10.3	.23	2.0	.07	.7
1,000 TO 1,599 SQUARE FEET	25.1	2.52	25.9	1.36	7.5	.75	14.8	.31	2.6	.11	1.0
1,600 TO 1,999 SQUARE FEET	10.5	1.19	12.2	.66	3.7	.36	7.0	.16	1.3	.02	.2
2,000 TO 2,399 SQUARE FEET	7.2	.95	9.4	.53	3.0	.26	5.1	.14	1.2	.02	.2
2,400 TO 2,999 SQUARE FEET	6.1	.89	8.8	.52	2.9	.23	4.7	.11	.9	.03	.3
3,000 OR MORE SQUARE FEET	4.5	.78	7.5	.48	2.7	.18	3.8	.10	.9	.02	.2
YEAR HOUSE BUILT											
1939 OR EARLIER	23.6	2.73	25.4	1.59	9.3	.48	10.5	.55	4.6	.10	1.0
1940 TO 1949	7.0	.75	7.4	.43	2.5	.18	3.6	.14	1.2	.01	.1
1950 TO 1959	13.4	1.46	14.1	.90	5.0	.34	7.2	.19	1.6	.04	.4
1960 TO 1964	8.6	.90	9.4	.51	2.8	.27	5.4	.11	.9	.02	.2
1965 TO 1969	8.1	.79	8.4	.45	2.6	.28	5.3	.04	.3	.02	.2
1970 TO 1974	10.2	.92	10.3	.46	2.5	.37	7.0	.05	.4	.04	.4
1975 TO 1979	10.0	.87	10.3	.37	2.0	.40	7.4	.07	.6	.04	.3
1980 OR LATER	2.9	.19	2.5	.07	.4	.11	2.0	Q	Q	.01	.1
OWN/RENT											
OWN	53.9	6.08	62.1	3.30	18.5	1.76	34.9	.80	6.7	.22	2.0
RENT	29.8	2.55	25.7	1.48	8.6	.66	13.6	.34	2.9	.07	.7
1981 FAMILY INCOME											
LESS THAN $5,000	9.4	0.80	7.8	0.45	2.7	0.17	3.6	0.14	1.1	0.04	0.4
$5,000 TO $9,999	13.8	1.24	12.2	.70	3.9	.31	6.4	.17	1.4	.06	.6
$10,000 TO $14,999	13.0	1.23	12.6	.62	3.4	.34	6.8	.21	1.8	.06	.6
$15,000 TO $19,999	9.2	.90	9.2	.50	2.9	.25	4.9	.13	1.1	.02	.2
$20,000 TO $24,999	10.6	1.11	11.3	.63	3.6	.31	6.3	.14	1.2	.03	.3
$25,000 TO $34,999	15.2	1.67	17.3	.90	5.1	.52	10.1	.19	1.6	.05	.4
$35,000 OR MORE	12.6	1.67	17.4	.98	5.5	.51	10.3	.17	1.4	.02	.2
BELOW 100% OF POVERTY	12.1	1.11	10.9	.64	3.6	.27	5.4	.15	1.3	.06	.5
BELOW 125% OF POVERTY	17.4	1.61	15.9	.90	5.1	.39	7.9	.24	2.0	.08	.8
RECEIVE ASSISTANCE FOR HEATING IN WINTER											
YES	4.4	.44	4.2	.24	1.4	.10	1.9	.08	.6	.02	.2
NO	79.4	8.19	83.6	4.53	25.7	2.33	46.5	1.06	8.9	.27	2.5
WEATHERIZATION ASSISTANCE FROM FEDERAL, STATE OR LOCAL GOVERNMENT											
YES	1.0	.10	1.0	.05	.3	.03	.5	.02	.1	.01	.1
NO	82.8	8.52	86.8	4.72	26.8	2.40	47.9	1.12	9.4	.28	2.6
ENERGY AUDIT BY ELECTRIC OR GAS COMPANY IN PAST 12 MONTHS											
YES	2.3	.26	2.8	.13	.7	.09	1.7	.04	.3	.01	.1
NO	81.5	8.36	85.0	4.65	26.3	2.33	46.7	1.10	9.3	.28	2.7
HOUSEHOLD OWNS OR HAS REGULAR USE OF A VEHICLE											
YES	72.1	7.50	76.9	4.12	23.0	2.24	44.0	.87	7.3	.27	2.5
NO	11.6	1.13	10.9	.66	4.1	.18	4.4	.27	2.3	.02	.2

SEE FOOTNOTES AT END OF TABLE

Consumption and Expenditures of Total and Specific Fuels

Table 1. (Continued)

HOUSEHOLD CHARACTERISTICS	ALL MAJOR FUELS			NATURAL GAS		ELECTRICITY		FUEL OIL OR KEROSENE		LIQUEFIED PETROLEUM GAS	
	NUMBER OF HOUSEHOLDS (MILLION)	TOTAL AMOUNT CONSUMED (QUADRILLION BTU)	TOTAL EXPENDITURES (BILLION DOLLARS)	TOTAL AMOUNT CONSUMED (QUADRILLION BTU)	TOTAL EXPENDITURES (BILLION DOLLARS)	TOTAL AMOUNT CONSUMED (QUADRILLION BTU)	TOTAL EXPENDITURES (BILLION DOLLARS)	TOTAL AMOUNT CONSUMED (QUADRILLION BTU)	TOTAL EXPENDITURES (BILLION DOLLARS)	TOTAL AMOUNT CONSUMED (QUADRILLION BTU)	TOTAL EXPENDITURES (BILLION DOLLARS)
ORIGIN OF HOUSEHOLDER											
WHITE	71.2	7.30	74.9	3.95	22.2	2.13	42.2	0.93	8.2	0.25	2.3
BLACK	10.5	1.16	11.1	.73	4.3	.24	5.3	.15	1.2	.03	.3
OTHER	2.0	.16	1.7	.09	.5	.05	1.0	.01	.1	.01	.1
HISPANIC DESCENT											
YES	4.3	.42	4.3	.25	1.4	.10	2.2	.06	.5	.01	.1
NO	79.5	8.20	83.5	4.53	25.6	2.32	46.2	1.07	9.1	.28	2.6
AGE OF HOUSEHOLDER											
UNDER 25 YEARS	6.7	.52	5.2	.30	1.6	.15	2.9	.06	.5	.01	.1
25 TO 34 YEARS	19.4	1.83	19.3	1.00	5.7	.59	11.5	.18	1.5	.06	.6
35 TO 44 YEARS	14.8	1.68	17.6	.93	5.3	.52	10.3	.18	1.5	.05	.5
45 TO 59 YEARS	19.3	2.21	22.3	1.25	7.0	.60	12.2	.29	2.4	.07	.7
60 YEARS AND OVER	23.6	2.38	23.4	1.30	7.4	.56	11.5	.43	3.6	.09	.8
HOUSEHOLD SIZE											
1 PERSON	19.3	1.54	15.1	.87	5.1	.35	7.3	.26	2.2	.06	.5
2 PERSONS	26.3	2.57	25.8	1.41	7.9	.72	14.1	.37	3.1	.08	.7
3 PERSONS	13.6	1.48	15.0	.84	4.7	.43	8.4	.17	1.5	.04	.4
4 PERSONS	14.2	1.67	17.8	.91	5.2	.52	10.5	.19	1.6	.05	.5
5 PERSONS	6.2	.79	8.3	.40	2.2	.25	5.0	.10	.9	.03	.3
6 OR MORE PERSONS	4.2	.57	5.8	.35	1.9	.16	3.2	.04	.3	.02	.2
SECONDARY HEATING											
YES	31.3	3.47	36.3	1.76	9.8	1.11	21.2	.47	4.0	.13	1.2
NO	52.4	5.15	51.5	3.01	17.2	1.32	27.2	.67	5.6	.16	1.5
FUEL COMBINATIONS											
NATURAL GAS USED MAIN HEAT	47.5	5.62	48.0	4.53	25.2	1.07	22.7	0.01	0.1	Q	Q
NATURAL GAS FOR HOT WATER AND HAVE AIR CONDITIONING	25.6	3.13	28.3	2.46	13.8	.67	14.4	.01	.1	Q	Q
NATURAL GAS FOR HOT WATER AND NO AIR CONDITIONING	17.8	1.99	15.1	1.73	9.3	.27	5.8	Q	Q	Q	Q
ELECTRICITY FOR HOT WATER AND HAVE AIR CONDITIONING	2.4	.30	3.0	.20	1.2	.10	1.8	Q	Q	Q	Q
ELECTRICITY FOR HOT WATER AND NO AIR CONDITIONING	1.7	.18	1.5	.14	.8	.04	.7	Q	Q	Q	Q
OTHER	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q
ELECTRICITY USED MAIN HEAT	13.4	.83	13.1	.08	.4	.73	12.5	.01	.1	0.01	0.1
ELECTRICITY FOR HOT WATER AND HAVE AIR CONDITIONING	9.0	.54	9.2	.01	Q	.52	9.1	.01	.1	Q	Q
ELECTRICITY FOR HOT WATER AND NO AIR CONDITIONING	2.9	.15	2.1	Q	Q	.14	2.1	Q	Q	Q	Q
OTHER	1.5	.14	1.7	.07	.4	.06	1.3	Q	Q	.01	.1
FUEL OIL USED MAIN HEAT	11.3	1.44	16.4	.12	1.1	.27	6.4	1.04	8.7	.01	.2
FUEL OIL FOR HOT WATER AND HAVE AIR CONDITIONING	2.6	.35	4.1	.02	.3	.05	1.5	.28	2.3	Q	Q
FUEL OIL FOR HOT WATER AND NO AIR CONDITIONING	2.6	.34	3.7	.03	.3	.04	1.1	.27	2.3	Q	Q
ELECTRICITY FOR HOT WATER AND HAVE AIR CONDITIONING	2.0	.21	2.6	Q	Q	.07	1.5	.13	1.1	Q	Q
ELECTRICITY FOR HOT WATER AND NO AIR CONDITIONING	2.2	.25	2.9	Q	Q	.07	1.3	.18	1.5	Q	.1
OTHER	2.0	.30	3.2	.07	.6	.04	1.0	.19	1.6	.01	.1
WOOD USED MAIN HEAT	5.6	.30	4.4	.04	.2	.19	3.5	.03	.3	.03	.3
LPG USED MAIN HEAT	3.8	.33	4.1	Q	Q	.10	2.1	Q	Q	.22	2.0
KEROSENE USED MAIN HEAT	.7	.06	.8	Q	Q	.02	.4	.04	.3	Q	Q
COAL USED MAIN HEAT	.9	.04	.6	Q	Q	.03	.6	Q	Q	Q	Q
NO HEATING FUEL	.4	.01	.3	Q	Q	.01	.2	Q	Q	Q	.1
OTHER FUEL	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q

"-" = DATA NOT APPLICABLE.
"Q" = DATA WITHHELD BECAUSE OF A LARGE VARIANCE.
NOTE: BECAUSE OF ROUNDING, DATA MAY NOT SUM TO TOTALS. PERCENTAGES ARE CALCULATED ON UNROUNDED NUMBERS. SEE GLOSSARY FOR DEFINITION OF TERMS USED IN THIS REPORT.
SOURCE: ENERGY INFORMATION ADMINISTRATION, OFFICE OF ENERGY MARKETS AND END USE, ENERGY END USE DIVISION, FORM EIA-457, THE 1982 RESIDENTIAL ENERGY CONSUMPTION SURVEY.

Percentage of Consumption and Expenditures of Total and Specific Fuels

Table 2. U.S. Residential Energy Consumption and Expenditures—April 1982 Through March 1983 (Percent)

HOUSEHOLD CHARACTERISTICS	ALL MAJOR FUELS			NATURAL GAS		ELECTRICITY		FUEL OIL OR KEROSENE		LIQUEFIED PETROLEUM GAS	
	NUMBER OF HOUSEHOLDS (MILLION)	TOTAL AMOUNT CONSUMED (QUADRILLION BTU)	TOTAL EXPENDITURES (BILLION DOLLARS)	TOTAL AMOUNT CONSUMED (QUADRILLION BTU)	TOTAL EXPENDITURES (BILLION DOLLARS)	TOTAL AMOUNT CONSUMED (QUADRILLION BTU)	TOTAL EXPENDITURES (BILLION DOLLARS)	TOTAL AMOUNT CONSUMED (QUADRILLION BTU)	TOTAL EXPENDITURES (BILLION DOLLARS)	TOTAL AMOUNT CONSUMED (QUADRILLION BTU)	TOTAL EXPENDITURES (BILLION DOLLARS)
TOTAL HOUSEHOLDS	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
CENSUS REGION AND DIVISION											
NORTHEAST	21.4	25.3	28.0	20.7	26.6	15.7	21.6	69.4	69.4	8.0	9.8
NEW ENGLAND	5.0	5.9	6.7	3.4	5.1	3.9	4.9	21.1	21.3	2.9	3.6
MIDDLE ATLANTIC	16.4	19.5	21.3	17.3	21.6	11.8	16.7	48.3	48.2	5.1	6.3
NORTH CENTRAL	25.4	30.1	25.7	36.9	33.9	23.7	23.2	13.3	13.1	37.5	33.6
EAST NORTH CENTRAL	17.9	21.0	18.0	26.0	24.2	16.0	15.9	11.3	11.1	20.2	19.2
WEST NORTH CENTRAL	7.5	9.1	7.7	10.9	9.7	7.7	7.3	2.0	1.9	17.3	14.4
SOUTH	33.5	28.6	32.6	23.7	23.5	43.3	40.6	14.6	14.8	41.5	43.3
SOUTH ATLANTIC	16.6	12.9	16.0	8.6	9.8	19.8	19.3	13.9	14.0	22.2	24.8
EAST SOUTH CENTRAL	6.8	5.5	5.9	4.1	3.9	10.4	8.0	.7	.7	6.1	6.0
WEST SOUTH CENTRAL	10.1	10.2	10.7	11.0	9.8	13.1	13.3	Q	Q	13.2	12.5
WEST	19.7	16.0	13.7	18.7	16.0	17.3	14.7	2.7	2.7	12.9	13.3
MOUNTAIN	5.2	4.9	4.3	5.7	4.8	5.0	4.6	.8	.7	8.2	7.5
PACIFIC	14.5	11.1	9.4	13.0	11.2	12.3	10.0	1.9	2.0	4.7	5.8
AREA TYPE											
METROPOLITAN	75.4	78.0	77.7	82.1	83.8	73.3	75.8	82.3	82.2	34.2	36.2
CENTRAL CITY	35.1	36.6	34.6	42.0	42.6	30.8	31.9	34.3	34.4	3.2	3.9
OUTSIDE CENTRAL CITY	40.3	41.5	43.1	40.1	41.2	42.4	43.8	48.1	47.8	31.0	32.3
NON-METROPOLITAN	24.6	22.0	22.3	17.9	16.2	26.7	24.2	17.7	17.8	65.8	63.8
ANNUAL HEATING DEGREE-DAYS (HDD) AND COOLING DEGREE-DAYS (CDD) --LONG-TERM AVERAGE											
<2,000 CDD AND >7,000 HDD	10.2	11.1	10.1	10.5	9.8	8.9	8.5	15.4	15.2	22.5	21.9
<2,000 CDD AND 5,500 TO 7,000 HDD	25.1	29.9	27.2	34.1	33.4	22.4	23.5	31.1	31.1	20.4	19.3
<2,000 CDD AND 4,000 TO 5,499 HDD	26.4	27.9	29.3	25.1	28.9	25.7	26.7	47.5	47.6	17.4	17.2
<2,000 CDD AND <4,000 HDD	23.3	19.3	18.5	20.7	18.1	23.0	21.1	5.4	5.5	21.1	21.2
>2,000 CDD AND <4,000 HDD	15.0	11.7	14.9	9.7	9.8	20.1	20.2	.6	.7	18.5	20.4
HOW UTILITIES ARE PAID											
ALL PAID BY HOUSEHOLD	82.3	84.2	84.0	84.3	82.6	88.6	86.5	72.7	72.9	90.7	90.9
SOME PAID, SOME IN RENT	9.3	7.9	7.5	8.7	9.4	4.3	5.5	14.0	13.9	2.1	2.3
ALL INCLUDED IN RENT	5.8	5.1	5.5	4.5	5.1	4.7	5.1	9.0	8.9	2.8	2.7
OTHER	2.6	2.8	3.1	2.6	3.0	2.4	2.8	4.3	4.3	4.4	4.1
HOUSING STRUCTURE BY OWNERSHIP											
SINGLE-FAMILY DETACHED	64.2	70.0	68.6	70.0	67.0	72.4	70.2	62.7	62.6	78.1	77.6
OWN	53.8	60.2	59.6	59.3	57.1	63.4	61.4	56.9	56.7	62.4	60.8
RENT	10.3	9.8	9.1	10.8	9.9	9.1	8.8	5.8	5.8	15.7	16.8
SINGLE-FAMILY ATTACHED	4.6	5.0	5.0	6.0	6.9	4.0	4.4	3.7	3.7	2.1	2.2
OWN	3.2	3.8	3.8	4.7	5.5	2.4	3.0	3.6	3.6	1.2	1.1
RENT	1.4	1.2	1.3	1.4	1.5	1.5	1.4	Q	Q	.9	1.0
BUILDING WITH 2 TO 4 UNITS	12.1	11.6	11.3	13.2	14.4	8.3	9.4	14.3	14.3	1.6	2.0
OWN	2.6	3.0	3.2	2.9	3.5	2.1	2.7	5.9	5.9	.6	.7
RENT	9.6	8.6	8.0	10.2	10.9	6.2	6.7	8.4	8.3	1.0	1.3
BUILDING WITH 5 OR MORE UNITS	14.6	10.3	11.4	9.2	10.3	10.7	11.6	16.8	16.8	.1	.1
OWN	1.2	1.0	1.2	1.0	1.1	1.0	1.3	1.4	1.4	Q	Q
RENT	13.4	9.3	10.2	8.2	9.1	9.6	10.4	15.4	15.4	.1	.1
MOBILE HOME	4.5	3.1	3.7	1.6	1.4	4.6	4.3	2.6	2.7	18.1	18.2
OWN	3.6	2.4	2.9	1.2	1.0	3.8	3.6	2.2	2.3	12.3	12.6
RENT	.9	.7	.7	.4	.3	.7	.7	.4	.4	5.7	5.6
NUMBER OF ROOMS											
1	1.0	.5	.7	.4	.6	.6	.7	.9	.9	Q	.1
2	2.2	1.4	1.5	1.2	1.4	1.2	1.3	2.7	2.7	.8	.9
3	9.8	6.4	7.0	5.7	6.2	6.6	7.1	9.6	9.6	3.9	4.3
4	20.1	15.9	15.6	15.6	15.4	15.6	15.3	16.1	16.2	21.4	22.3
5	23.6	22.2	22.1	22.5	22.0	22.3	22.5	20.1	20.1	25.0	24.7
6	21.7	24.0	23.8	24.4	24.2	24.0	23.9	21.8	21.8	26.5	26.4
7	11.1	13.7	13.6	14.0	14.0	14.3	14.0	11.8	11.8	9.8	9.6
8 OR MORE	10.6	15.9	15.6	16.1	16.2	15.3	15.2	17.1	16.9	12.5	11.8

SEE FOOTNOTES AT END OF TABLE

RECS: Consumption and Expenditures, April 1982 Through March 1983: National Data
Energy Information Administration

Percentage of Consumption and Expenditures of Total and Specific Fuels

Table 2. (Continued)

HOUSEHOLD CHARACTERISTICS	ALL MAJOR FUELS			NATURAL GAS		ELECTRICITY		FUEL OIL OR KEROSENE		LIQUEFIED PETROLEUM GAS	
	NUMBER OF HOUSEHOLDS (MILLION)	TOTAL AMOUNT CONSUMED (QUADRILLION BTU)	TOTAL EXPENDITURES (BILLION DOLLARS)	TOTAL AMOUNT CONSUMED (QUADRILLION BTU)	TOTAL EXPENDITURES (BILLION DOLLARS)	TOTAL AMOUNT CONSUMED (QUADRILLION BTU)	TOTAL EXPENDITURES (BILLION DOLLARS)	TOTAL AMOUNT CONSUMED (QUADRILLION BTU)	TOTAL EXPENDITURES (BILLION DOLLARS)	TOTAL AMOUNT CONSUMED (QUADRILLION BTU)	TOTAL EXPENDITURES (BILLION DOLLARS)
NUMBER OF ROOMS THAT CAN BE AIR CONDITIONED											
ALL	38.8	38.5	41.5	37.5	37.0	51.3	49.6	17.9	18.0	27.1	26.3
SOME	19.3	21.3	21.5	21.3	22.6	17.5	19.4	29.8	29.7	19.9	18.9
NONE	41.9	40.2	37.0	41.2	40.4	31.1	31.0	52.3	52.4	53.1	54.8
MEASURED HEATED SQUARE FOOTAGE OF RESIDENCE											
LESS THAN 600 SQUARE FEET	9.3	5.7	6.2	5.3	6.0	5.1	5.9	7.7	7.7	8.7	10.4
600 TO 999 SQUARE FEET	26.9	20.9	21.1	20.6	20.5	21.3	21.3	20.3	20.4	25.3	26.0
1,000 TO 1,599 SQUARE FEET	30.0	29.2	29.5	28.4	27.8	30.9	30.5	27.0	27.2	37.0	36.4
1,600 TO 1,999 SQUARE FEET	12.6	13.8	13.8	13.7	13.8	15.0	14.4	13.7	13.6	5.9	5.9
2,000 TO 2,399 SQUARE FEET	8.6	11.0	10.7	11.1	11.0	10.7	10.5	12.7	12.5	5.8	5.5
2,400 TO 2,999 SQUARE FEET	7.3	10.3	10.0	10.9	10.8	9.5	9.7	9.4	9.4	11.5	10.1
3,000 OR MORE SQUARE FEET	5.4	9.1	8.6	10.1	10.1	7.5	7.8	9.2	9.1	5.8	5.7
YEAR HOUSE BUILT											
1939 OR EARLIER	28.2	31.6	29.0	33.3	34.5	20.0	21.7	46.1	48.0	35.8	36.1
1940 TO 1949	8.4	8.8	8.4	8.9	9.1	7.4	7.5	12.0	12.1	5.0	5.1
1950 TO 1959	15.9	16.9	16.1	18.8	18.5	14.0	14.8	16.4	16.4	13.4	13.5
1960 TO 1964	10.3	10.5	10.7	10.6	10.4	10.9	11.2	9.7	9.6	7.4	7.5
1965 TO 1969	9.6	9.2	9.6	9.5	9.4	11.4	10.9	3.2	3.3	8.5	8.9
1970 TO 1974	12.2	10.7	11.8	9.7	9.3	15.2	14.5	4.3	4.3	14.1	13.5
1975 TO 1979	11.9	10.1	11.7	7.7	7.3	16.5	15.2	6.2	6.2	12.3	11.9
1980 OR LATER	3.5	2.3	2.9	1.5	1.5	4.6	4.1	.1	.1	3.6	3.4
OWN/RENT											
OWN	64.4	70.5	70.7	69.1	68.2	72.8	72.0	70.0	70.0	76.5	75.2
RENT	35.6	29.5	29.3	30.9	31.8	27.2	28.0	30.0	30.0	23.5	24.8
1981 FAMILY INCOME											
LESS THAN $5,000	11.2	9.3	8.9	9.4	9.9	7.2	7.4	11.9	12.0	14.3	14.7
$5,000 TO $9,999	16.4	14.4	13.9	14.7	14.3	12.9	13.1	14.5	14.5	21.1	21.4
$10,000 TO $14,999	15.5	14.3	14.4	12.9	12.7	14.2	14.1	18.3	18.3	22.1	21.8
$15,000 TO $19,999	11.0	10.5	10.5	10.4	10.6	10.3	10.2	11.5	11.6	8.2	8.8
$20,000 TO $24,999	12.7	12.8	12.8	13.2	13.2	12.9	13.0	12.0	12.0	9.4	9.3
$25,000 TO $34,999	18.2	19.3	19.7	18.8	18.9	21.7	21.0	17.0	16.9	17.0	16.2
$35,000 OR MORE	15.1	19.4	19.8	20.5	20.2	20.8	21.3	14.7	14.7	7.9	7.7
BELOW 100% OF POVERTY	14.4	12.9	12.4	13.4	13.4	11.0	11.2	13.5	13.6	19.1	19.4
BELOW 125% OF POVERTY	20.8	18.6	18.1	18.8	19.0	16.1	16.4	20.7	20.8	28.8	29.0
RECEIVE ASSISTANCE FOR HEATING IN WINTER											
YES	5.2	5.1	4.8	5.1	5.1	4.0	4.0	6.7	6.7	7.1	7.4
NO	94.8	94.9	95.2	94.9	94.9	96.0	96.0	93.3	93.3	92.9	92.6
WEATHERIZATION ASSISTANCE FROM FEDERAL, STATE OR LOCAL GOVERNMENT											
YES	1.2	1.2	1.1	1.0	1.0	1.1	1.0	1.6	1.6	2.6	2.7
NO	98.8	98.8	98.9	99.0	99.0	98.9	99.0	98.4	98.4	97.4	97.3
ENERGY AUDIT BY ELECTRIC OR GAS COMPANY IN PAST 12 MONTHS											
YES	2.7	3.1	3.2	2.7	2.7	3.9	3.5	3.2	3.3	2.5	2.4
NO	97.3	96.9	96.8	97.3	97.3	96.1	96.5	96.8	96.7	97.5	97.6
HOUSEHOLD OWNS OR HAS REGULAR USE OF A VEHICLE											
YES	86.1	86.9	87.6	86.2	85.0	92.4	90.9	76.5	76.4	93.9	93.1
NO	13.9	13.1	12.4	13.8	15.0	7.6	9.1	23.5	23.6	6.1	6.9

SEE FOOTNOTES AT END OF TABLE

Percentage of Consumption and Expenditures of Total and Specific Fuels

Table 2. (Continued)

HOUSEHOLD CHARACTERISTICS	ALL MAJOR FUELS			NATURAL GAS		ELECTRICITY		FUEL OIL OR KEROSENE		LIQUEFIED PETROLEUM GAS	
	NUMBER OF HOUSE-HOLDS (MIL-LION)	TOTAL AMOUNT CON-SUMED (QUAD-RILLION BTU)	TOTAL EXPEND-ITURES (BILLION DOLLARS)	TOTAL AMOUNT CON-SUMED (QUAD-RILLION BTU)	TOTAL EXPEND-ITURES (BILLION DOLLARS)	TOTAL AMOUNT CON-SUMED (QUAD-RILLION BTU)	TOTAL EXPEND-ITURES (BILLION DOLLARS)	TOTAL AMOUNT CON-SUMED (QUAD-RILLION BTU)	TOTAL EXPEND-ITURES (BILLION DOLLARS)	TOTAL AMOUNT CON-SUMED (QUAD-RILLION BTU)	TOTAL EXPEND-ITURES (BILLION DOLLARS)
ORIGIN OF HOUSEHOLDER											
WHITE	85.0	84.7	85.3	82.6	82.1	88.0	87.1	86.0	85.9	85.2	84.2
BLACK	12.6	13.4	12.7	15.4	15.9	10.0	10.9	12.9	12.9	11.0	11.3
OTHER	2.4	1.9	2.0	2.0	2.0	1.9	2.0	1.1	1.2	3.9	4.5
HISPANIC DESCENT											
YES	5.1	4.9	4.9	5.2	5.3	4.2	4.6	5.6	5.6	2.4	2.7
NO	94.9	95.1	95.1	94.8	94.7	95.8	95.4	94.4	94.4	97.6	97.3
AGE OF HOUSEHOLDER											
UNDER 25 YEARS	8.0	6.1	5.9	6.3	6.0	6.1	5.9	5.4	5.5	4.9	5.1
25 TO 34 YEARS	23.2	21.2	22.0	20.9	21.0	24.4	23.8	15.9	15.9	20.6	20.5
35 TO 44 YEARS	17.6	19.5	20.1	19.5	19.7	21.5	21.3	15.6	15.6	18.1	18.1
45 TO 59 YEARS	23.0	25.7	25.4	26.1	25.7	24.9	25.2	25.3	25.2	26.0	25.4
60 YEARS AND OVER	28.2	27.6	26.7	27.2	27.5	23.2	23.8	37.8	37.8	30.4	30.9
HOUSEHOLD SIZE											
1 PERSON	23.0	17.9	17.2	18.3	18.7	14.4	15.0	23.2	23.2	19.2	20.1
2 PERSONS	31.4	29.8	29.4	29.5	29.2	29.5	29.1	32.2	32.1	27.7	27.4
3 PERSONS	16.2	17.2	17.1	17.6	17.4	17.7	17.4	15.2	15.2	14.7	14.7
4 PERSONS	17.0	19.4	20.3	19.0	19.4	21.5	21.6	16.8	16.8	17.7	17.7
5 PERSONS	7.4	9.1	9.5	8.4	8.1	10.2	10.2	9.2	9.2	12.0	11.4
6 OR MORE PERSONS	5.0	6.6	6.6	7.2	7.2	6.6	6.7	3.4	3.5	8.6	8.7
SECONDARY HEATING											
YES	37.4	40.3	41.3	36.9	36.3	45.7	43.8	41.3	41.5	46.1	45.5
NO	62.6	59.7	58.7	63.1	63.7	54.3	56.2	58.7	58.5	53.9	54.5
FUEL COMBINATIONS											
NATURAL GAS USED MAIN HEAT	56.7	65.1	54.7	94.9	93.3	44.3	46.9	1.0	1.1	Q	Q
NATURAL GAS FOR HOT WATER AND HAVE AIR CONDITIONING	30.5	36.3	32.2	51.5	51.0	27.5	29.7	.5	.5	Q	Q
NATURAL GAS FOR HOT WATER AND NO AIR CONDITIONING	21.2	23.1	17.2	36.2	34.5	11.0	11.9	.1	.1	Q	Q
ELECTRICITY FOR HOT WATER AND HAVE AIR CONDITIONING	2.8	3.5	3.5	4.2	4.6	4.1	3.7	Q	Q	Q	Q
ELECTRICITY FOR HOT WATER AND NO AIR CONDITIONING	2.0	2.1	1.7	2.9	3.1	1.7	1.4	Q	Q	Q	Q
OTHER	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q
ELECTRICITY USED MAIN HEAT	16.0	9.6	14.9	1.6	1.6	30.1	25.7	.8	.8	3.6	3.7
ELECTRICITY FOR HOT WATER AND HAVE AIR CONDITIONING	10.7	6.2	10.5	.1	.1	21.6	18.8	.5	.5	.5	.7
ELECTRICITY FOR HOT WATER AND NO AIR CONDITIONING	3.4	1.7	2.4	.1	.1	5.9	4.3	.1	.1	.3	.4
OTHER	1.8	1.6	2.0	1.4	1.4	2.5	2.6	.1	.1	2.8	2.7
FUEL OIL USED MAIN HEAT	13.5	16.7	18.7	2.5	4.1	11.0	13.2	91.4	91.2	4.8	6.6
FUEL OIL FOR HOT WATER AND HAVE AIR CONDITIONING	3.1	4.1	4.7	.5	1.0	2.1	3.1	24.3	24.3	.2	.3
FUEL OIL FOR HOT WATER AND NO AIR CONDITIONING	3.1	3.9	4.2	.5	1.0	1.5	2.3	23.9	23.9	.5	.7
ELECTRICITY FOR HOT WATER AND HAVE AIR CONDITIONING	2.3	2.4	2.9	Q	Q	3.0	3.0	11.3	11.3	.6	.8
ELECTRICITY FOR HOT WATER AND NO AIR CONDITIONING	2.6	2.9	3.3	Q	Q	2.9	2.8	15.4	15.4	1.5	2.0
OTHER	2.4	3.5	3.6	1.4	2.0	1.6	2.0	16.4	16.3	2.0	2.8
WOOD USED MAIN HEAT	6.7	3.5	5.0	.8	.9	7.9	7.3	2.8	2.9	11.9	12.7
LPG USED MAIN HEAT	4.5	3.8	4.6	Q	Q	4.2	4.3	.1	.1	76.8	72.5
KEROSENE USED MAIN HEAT	.9	.8	.9	Q	Q	.8	.9	3.4	3.5	1.3	1.8
COAL USED MAIN HEAT	1.1	.4	.7	Q	.1	1.2	1.2	.4	.4	.2	.3
NO HEATING FUEL	.5	.2	.3	.1	.1	.2	.4	.1	.1	1.3	2.3
OTHER FUEL	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q

"-" = DATA NOT APPLICABLE.
"Q" = DATA WITHHELD BECAUSE OF A LARGE VARIANCE.
NOTE: BECAUSE OF ROUNDING, DATA MAY NOT SUM TO TOTALS. PERCENTAGES ARE CALCULATED ON UNROUNDED NUMBERS. SEE GLOSSARY FOR DEFINITION OF TERMS USED IN THIS REPORT.
SOURCE: ENERGY INFORMATION ADMINISTRATION, OFFICE OF ENERGY MARKETS AND END USE, ENERGY END USE DIVISION, FORM EIA-457, THE 1982 RESIDENTIAL ENERGY CONSUMPTION SURVEY.

Consumption of Total and Specific Fuels—Percentage of Total Btu

Table 3. U.S. Residential Proportionate Energy Consumption of Fuels—April 1982 Through March 1983 (Percent of Total Btu)

HOUSEHOLD CHARACTERISTICS	ALL MAJOR FUELS	NATURAL GAS	ELECTRICITY	FUEL OIL OR KEROSENE	LIQUEFIED PETROLEUM GAS
TOTAL HOUSEHOLDS	100.0	55.4	28.1	13.2	3.3
CENSUS REGION AND DIVISION					
NORTHEAST	100.0	45.3	17.4	36.2	1.1
NEW ENGLAND	100.0	32.0	18.7	47.6	1.7
MIDDLE ATLANTIC	100.0	49.3	17.0	32.8	.9
NORTH CENTRAL	100.0	67.9	22.1	5.8	4.2
EAST NORTH CENTRAL	100.0	68.4	21.3	7.1	3.2
WEST NORTH CENTRAL	100.0	66.7	24.0	2.9	6.4
SOUTH	100.0	45.8	42.6	6.8	4.9
SOUTH ATLANTIC	100.0	36.9	43.2	14.2	5.8
EAST SOUTH CENTRAL	100.0	41.4	53.2	1.7	3.7
WEST SOUTH CENTRAL	100.0	59.5	36.1	.1	4.3
WEST	100.0	64.7	30.4	2.2	2.7
MOUNTAIN	100.0	63.7	28.7	2.0	5.6
PACIFIC	100.0	65.1	31.2	2.3	1.4
AREA TYPE					
METROPOLITAN	100.0	58.2	26.4	13.9	1.5
CENTRAL CITY	100.0	63.6	23.7	12.4	.3
OUTSIDE CENTRAL CITY	100.0	53.5	28.7	15.3	2.5
NON-METROPOLITAN	100.0	45.2	34.2	10.6	10.0
ANNUAL HEATING DEGREE-DAYS (HDD) AND COOLING DEGREE-DAYS (CDD) --LONG-TERM AVERAGE					
<2,000 CDD AND >7,000 HDD	100.0	52.2	22.7	18.3	6.8
<2,000 CDD AND 5,500 TO 7,000 HDD	100.0	63.0	21.0	13.7	2.3
<2,000 CDD AND 4,000 TO 5,499 HDD	100.0	49.7	25.8	22.4	2.1
<2,000 CDD AND <4,000 HDD	100.0	59.3	33.4	3.7	3.7
>2,000 CDD AND <4,000 HDD	100.0	45.7	48.2	.7	5.3
HOW UTILITIES ARE PAID					
ALL PAID BY HOUSEHOLD	100.0	55.4	29.6	11.4	3.6
SOME PAID, SOME IN RENT	100.0	60.7	15.1	23.3	.9
ALL INCLUDED IN RENT	100.0	48.7	26.3	23.3	1.8
OTHER	100.0	50.6	24.0	20.3	5.2
HOUSING STRUCTURE BY OWNERSHIP					
SINGLE-FAMILY DETACHED	100.0	55.4	29.1	11.8	3.7
OWN	100.0	54.5	29.6	12.5	3.5
RENT	100.0	60.8	26.0	7.8	5.4
SINGLE-FAMILY ATTACHED	100.0	66.7	22.2	9.7	1.4
OWN	100.0	68.2	18.1	12.7	1.0
RENT	100.0	62.2	34.9	.4	2.5
BUILDING WITH 2 TO 4 UNITS	100.0	63.0	20.2	16.3	.5
OWN	100.0	53.6	19.8	26.0	.7
RENT	100.0	66.3	20.4	12.9	.4
BUILDING WITH 5 OR MORE UNITS	100.0	49.3	29.1	21.5	Q
OWN	100.0	53.8	28.5	17.8	Q
RENT	100.0	48.8	29.2	21.9	Q
MOBILE HOME	100.0	28.3	41.2	11.1	19.4
OWN	100.0	27.3	44.1	11.7	16.8
RENT	100.0	31.9	30.6	8.7	28.8
NUMBER OF ROOMS					
1	100.0	45.3	32.7	21.7	.3
2	100.0	48.3	24.2	25.7	1.9
3	100.0	49.3	29.0	19.7	2.0
4	100.0	54.5	27.6	13.4	4.5
5	100.0	56.0	28.3	11.9	3.8
6	100.0	56.2	28.1	12.0	3.7
7	100.0	56.8	29.4	11.4	2.4
8 OR MORE	100.0	56.1	27.0	14.2	2.6
NUMBER OF ROOMS THAT CAN BE AIR CONDITIONED					
ALL	100.0	54.0	37.5	6.1	2.4
SOME	100.0	55.3	23.1	18.5	3.1
NONE	100.0	56.7	21.8	17.2	4.4

SEE FOOTNOTES AT END OF TABLE

Consumption of Total and Specific Fuels—Percentage of Total Btu

Table 3. (Continued)

HOUSEHOLD CHARACTERISTICS	ALL MAJOR FUELS	NATURAL GAS	ELECTRICITY	FUEL OIL OR KEROSENE	LIQUEFIED PETROLEUM GAS
MEASURED HEATED SQUARE FOOTAGE OF RESIDENCE					
LESS THAN 600 SQUARE FEET.....	100.0	51.6	25.4	17.9	5.1
600 TO 999 SQUARE FEET.....	100.0	54.5	28.6	12.9	4.1
1,000 TO 1,599 SQUARE FEET....	100.0	53.8	29.7	12.2	4.2
1,600 TO 1,999 SQUARE FEET....	100.0	55.0	30.5	13.0	1.4
2,000 TO 2,399 SQUARE FEET....	100.0	55.7	27.4	15.2	1.7
2,400 TO 2,999 SQUARE FEET....	100.0	58.3	25.8	12.1	3.7
3,000 OR MORE SQUARE FEET.....	100.0	61.2	23.3	13.3	2.1
YEAR HOUSE BUILT					
1939 OR EARLIER.....	100.0	58.4	17.8	20.1	3.8
1940 TO 1949.....	100.0	56.3	23.6	18.2	1.9
1950 TO 1959.....	100.0	61.4	23.2	12.8	2.6
1960 TO 1964.....	100.0	56.0	29.4	12.2	2.4
1965 TO 1969.....	100.0	57.4	34.9	4.6	3.1
1970 TO 1974.....	100.0	50.3	40.0	5.3	4.4
1975 TO 1979.....	100.0	42.0	45.9	8.1	4.0
1980 OR LATER.....	100.0	37.0	57.1	.6	5.4
OWN/RENT					
OWN.....	100.0	54.2	29.0	13.1	3.6
RENT.....	100.0	58.0	25.9	13.4	2.7
1981 FAMILY INCOME					
LESS THAN $5,000.....	100.0	56.1	21.8	16.9	5.1
$5,000 TO $9,999.....	100.0	56.6	25.1	13.3	4.9
$10,000 TO $14,999.....	100.0	50.0	27.9	16.9	5.2
$15,000 TO $19,999.....	100.0	55.1	27.7	14.5	2.6
$20,000 TO $24,999.....	100.0	57.0	28.2	12.3	2.5
$25,000 TO $34,999.....	100.0	54.0	31.5	11.6	2.9
$35,000 OR MORE.....	100.0	58.4	30.2	10.0	1.4
BELOW 100% OF POVERTY	100.0	57.4	23.8	13.8	4.9
BELOW 125% OF POVERTY.....	100.0	55.9	24.3	14.7	5.2
RECEIVE ASSISTANCE FOR HEATING IN WINTER					
YES.....	100.0	55.7	22.1	17.5	4.7
NO.....	100.0	55.3	28.4	13.0	3.3
WEATHERIZATION ASSISTANCE FROM FEDERAL, STATE OR LOCAL GOVERNMENT					
YES.....	100.0	48.7	26.0	17.8	7.6
NO.....	100.0	55.4	28.1	13.1	3.3
ENERGY AUDIT BY ELECTRIC OR GAS COMPANY IN PAST 12 MONTHS					
YES.....	100.0	48.0	35.3	13.9	2.7
NO.....	100.0	55.6	27.9	13.2	3.4
HOUSEHOLD OWNS OR HAS REGULAR USE OF A VEHICLE					
YES.....	100.0	54.9	29.9	11.6	3.6
NO.....	100.0	58.3	16.4	23.8	1.6

SEE FOOTNOTES AT END OF TABLE

Consumption of Total and Specific Fuels—Percentage of Total Btu

Table 3. (Continued)

HOUSEHOLD CHARACTERISTICS	ALL MAJOR FUELS	NATURAL GAS	ELECTRICITY	FUEL OIL OR KEROSENE	LIQUEFIED PETROLEUM GAS
ORIGIN OF HOUSEHOLDER					
WHITE	100.0	54.0	29.2	13.4	3.4
BLACK	100.0	63.5	21.1	12.7	2.7
OTHER	100.0	57.3	28.0	7.8	6.8
HISPANIC DESCENT					
YES	100.0	59.0	24.3	15.1	1.6
NO	100.0	55.2	28.3	13.1	3.4
AGE OF HOUSEHOLDER					
UNDER 25 YEARS	100.0	57.3	28.1	11.9	2.7
25 TO 34 YEARS	100.0	54.5	32.3	9.9	3.3
35 TO 44 YEARS	100.0	55.4	31.0	10.5	3.1
45 TO 59 YEARS	100.0	56.4	27.2	13.0	3.4
60 YEARS AND OVER	100.0	54.6	23.6	18.1	3.7
HOUSEHOLD SIZE					
1 PERSON	100.0	56.6	22.6	17.1	3.6
2 PERSONS	100.0	54.8	27.8	14.3	3.1
3 PERSONS	100.0	56.5	29.0	11.6	2.9
4 PERSONS	100.0	54.3	31.2	11.5	3.1
5 PERSONS	100.0	50.9	31.4	13.3	4.4
6 OR MORE PERSONS	100.0	60.7	28.1	6.9	4.3
SECONDARY HEATING					
YES	100.0	50.7	31.9	13.5	3.8
NO	100.0	58.5	25.5	13.0	3.0
FUEL COMBINATIONS					
NATURAL GAS USED MAIN HEAT	100.0	80.7	19.1	0.2	Q
NATURAL GAS FOR HOT WATER AND HAVE AIR CONDITIONING	100.0	78.5	21.3	.2	Q
NATURAL GAS FOR HOT WATER AND NO AIR CONDITIONING	100.0	86.6	13.3	Q	Q
ELECTRICITY FOR HOT WATER AND HAVE AIR CONDITIONING	100.0	66.8	33.0	.1	Q
ELECTRICITY FOR HOT WATER AND NO AIR CONDITIONING	100.0	77.5	22.5	.1	Q
OTHER	Q	Q	Q	Q	Q
ELECTRICITY USED MAIN HEAT	100.0	9.3	88.4	1.0	1.3
ELECTRICITY FOR HOT WATER AND HAVE AIR CONDITIONING	100.0	1.0	97.6	1.1	.3
ELECTRICITY FOR HOT WATER AND NO AIR CONDITIONING	100.0	2.0	96.5	1.0	.6
OTHER	100.0	49.1	44.3	.9	5.7
FUEL OIL USED MAIN HEAT	100.0	8.2	18.6	72.2	1.0
FUEL OIL FOR HOT WATER AND HAVE AIR CONDITIONING	100.0	7.0	14.2	78.7	.1
FUEL OIL FOR HOT WATER AND NO AIR CONDITIONING	100.0	7.7	10.7	81.2	.4
ELECTRICITY FOR HOT WATER AND HAVE AIR CONDITIONING	100.0	.4	35.8	62.9	.8
ELECTRICITY FOR HOT WATER AND NO AIR CONDITIONING	100.0	Q	28.2	70.0	1.8
OTHER	100.0	22.6	12.6	62.8	2.0
WOOD USED MAIN HEAT	100.0	13.3	64.4	10.8	11.5
LPG USED MAIN HEAT	100.0	Q	31.6	.2	68.2
KEROSENE USED MAIN HEAT	100.0	2.6	31.3	60.1	5.9
COAL USED MAIN HEAT	100.0	5.7	80.2	12.3	1.9
NO HEATING FUEL	100.0	26.6	39.1	7.8	26.5
OTHER FUEL	Q	Q	Q	Q	Q

"-" = DATA NOT APPLICABLE.
"Q" = DATA WITHHELD BECAUSE OF A LARGE VARIANCE.
NOTE: BECAUSE OF ROUNDING, DATA MAY NOT SUM TO TOTALS. PERCENTAGES ARE CALCULATED ON UNROUNDED NUMBERS. SEE GLOSSARY FOR DEFINITION OF TERMS USED IN THIS REPORT.
SOURCE: ENERGY INFORMATION ADMINISTRATION, OFFICE OF ENERGY MARKETS AND END USE, ENERGY END USE DIVISION, FORM EIA-457, THE 1982 RESIDENTIAL ENERGY CONSUMPTION SURVEY.

Expenditures for Total and Specific Fuels—Percentage of Total Dollars

Table 4. U.S. Residential Proportionate Energy Expenditures for Fuels—April 1982 Through March 1983 (Percent of Total Dollars)

HOUSEHOLD CHARACTERISTICS	ALL MAJOR FUELS	NATURAL GAS	ELECTRICITY	FUEL OIL OR KEROSENE	LIQUEFIED PETROLEUM GAS
TOTAL HOUSEHOLDS	100.0	30.8	55.2	10.9	3.1
CENSUS REGION AND DIVISION					
NORTHEAST.....	100.0	29.3	42.5	27.1	1.1
NEW ENGLAND.....	100.0	23.3	40.3	34.7	1.7
MIDDLE ATLANTIC.....	100.0	31.2	43.2	24.7	.9
NORTH CENTRAL.....	100.0	40.6	49.8	5.6	4.0
EAST NORTH CENTRAL.....	100.0	41.3	48.6	6.7	3.3
WEST NORTH CENTRAL.....	100.0	39.0	52.4	2.8	5.8
SOUTH.....	100.0	22.2	68.7	5.0	4.1
SOUTH ATLANTIC.....	100.0	19.0	66.6	9.6	4.8
EAST SOUTH CENTRAL.....	100.0	20.2	75.3	1.3	3.2
WEST SOUTH CENTRAL.....	100.0	28.1	68.2	Q	3.6
WEST.....	100.0	35.9	58.9	2.2	3.0
MOUNTAIN.....	100.0	34.1	58.7	1.9	5.4
PACIFIC.....	100.0	36.8	59.0	2.3	1.9
AREA TYPE					
METROPOLITAN.....	100.0	33.2	53.8	11.6	1.4
CENTRAL CITY.....	100.0	38.0	50.9	10.8	.3
OUTSIDE CENTRAL CITY.....	100.0	29.4	56.1	12.1	2.3
NON-METROPOLITAN.....	100.0	22.4	60.0	8.7	8.9
ANNUAL HEATING DEGREE-DAYS (HDD) AND COOLING DEGREE-DAYS (CDD) --LONG-TERM AVERAGE					
<2,000 CDD AND >7,000 HDD.....	100.0	30.0	46.7	16.5	6.8
<2,000 CDD AND 5,500 TO 7,000 HDD.....	100.0	37.8	47.6	12.5	2.2
<2,000 CDD AND 4,000 TO 5,499 HDD.....	100.0	30.3	50.1	17.7	1.8
<2,000 CDD AND <4,000 HDD.....	100.0	30.2	63.1	3.2	3.5
>2,000 CDD AND <4,000 HDD.....	100.0	20.4	74.9	.5	4.2
HOW UTILITIES ARE PAID					
ALL PAID BY HOUSEHOLD.....	100.0	30.3	56.9	9.5	3.4
SOME PAID, SOME IN RENT.....	100.0	38.4	40.3	20.3	1.0
ALL INCLUDED IN RENT.....	100.0	28.8	51.7	17.9	1.6
OTHER.....	100.0	29.8	51.0	15.1	4.1

SEE FOOTNOTES AT END OF TABLE

Expenditures for Total and Specific Fuels—Percentage of Total Dollars

Table 4. (Continued)

HOUSEHOLD CHARACTERISTICS	ALL MAJOR FUELS	NATURAL GAS	ELECTRICITY	FUEL OIL OR KEROSENE	LIQUEFIED PETROLEUM GAS
HOUSING STRUCTURE BY OWNERSHIP					
SINGLE-FAMILY DETACHED	100.0	30.1	56.4	10.0	3.5
OWN	100.0	29.6	56.9	10.4	3.2
RENT	100.0	33.6	53.6	7.0	5.7
SINGLE-FAMILY ATTACHED	100.0	42.4	48.3	8.0	1.3
OWN	100.0	44.6	44.0	10.5	.9
RENT	100.0	35.9	61.3	.3	2.5
BUILDING WITH 2 TO 4 UNITS	100.0	39.5	46.1	13.8	.5
OWN	100.0	33.3	46.0	20.0	.6
RENT	100.0	42.1	46.1	11.3	.5
BUILDING WITH 5 OR MORE UNITS	100.0	27.7	56.2	16.0	Q
OWN	100.0	28.7	58.7	12.6	Q
RENT	100.0	27.6	55.9	16.5	Q
MOBILE HOME	100.0	11.5	65.1	8.1	15.3
OWN	100.0	10.8	67.5	8.4	13.2
RENT	100.0	14.2	55.4	6.6	23.8
NUMBER OF ROOMS					
1	100.0	27.1	58.6	14.1	.3
2	100.0	29.0	48.9	20.3	1.8
3	100.0	27.1	56.1	14.9	1.9
4	100.0	30.3	54.0	11.3	4.4
5	100.0	30.6	56.0	9.9	3.5
6	100.0	31.3	55.2	10.0	3.4
7	100.0	31.7	56.7	9.5	2.2
8 OR MORE	100.0	32.1	53.7	11.8	2.3
NUMBER OF ROOMS THAT CAN BE AIR CONDITIONED					
ALL	100.0	27.4	65.9	4.7	2.0
SOME	100.0	32.5	49.7	15.1	2.7
NONE	100.0	33.7	46.3	15.5	4.6
MEASURED HEATED SQUARE FOOTAGE OF RESIDENCE					
LESS THAN 600 SQUARE FEET	100.0	29.5	51.8	13.5	5.2
600 TO 999 SQUARE FEET	100.0	30.0	55.6	10.6	3.8
1,000 TO 1,599 SQUARE FEET	100.0	29.1	57.0	10.1	3.8
1,600 TO 1,999 SQUARE FEET	100.0	30.6	57.3	10.8	1.3
2,000 TO 2,399 SQUARE FEET	100.0	31.5	54.1	12.7	1.6
2,400 TO 2,999 SQUARE FEET	100.0	33.3	53.3	10.3	3.1
3,000 OR MORE SQUARE FEET	100.0	36.2	50.1	11.6	2.0

SEE FOOTNOTES AT END OF TABLE

Expenditures for Total and Specific Fuels—Percentage of Total Dollars

Table 4. (Continued)

HOUSEHOLD CHARACTERISTICS	ALL MAJOR FUELS	NATURAL GAS	ELECTRICITY	FUEL OIL OR KEROSENE	LIQUEFIED PETROLEUM GAS
YEAR HOUSE BUILT					
1939 OR EARLIER	100.0	36.7	41.4	18.1	3.9
1940 TO 1949	100.0	33.4	49.0	15.7	1.9
1950 TO 1959	100.0	35.5	50.8	11.2	2.6
1960 TO 1964	100.0	30.1	57.8	9.8	2.2
1965 TO 1969	100.0	30.5	62.9	3.7	2.9
1970 TO 1974	100.0	24.4	68.0	4.0	3.6
1975 TO 1979	100.0	19.2	71.9	5.8	3.1
1980 OR LATER	100.0	15.9	80.0	.4	3.7
OWN/RENT					
OWN	100.0	29.7	56.2	10.8	3.3
RENT	100.0	33.4	52.7	11.2	2.6
1981 FAMILY INCOME					
LESS THAN $5,000	100.0	34.4	45.7	14.7	5.1
$5,000 TO $9,999	100.0	31.8	52.1	11.4	4.8
$10,000 TO $14,999	100.0	27.3	54.1	13.9	4.7
$15,000 TO $19,999	100.0	31.4	53.9	12.1	2.6
$20,000 TO $24,999	100.0	31.8	55.8	10.2	2.2
$25,000 TO $34,999	100.0	29.5	58.6	9.4	2.5
$35,000 OR MORE	100.0	31.5	59.2	8.1	1.2
BELOW 100% OF POVERTY	100.0	33.4	49.7	12.0	4.9
BELOW 125% OF POVERTY	100.0	32.4	50.1	12.6	5.0
RECEIVE ASSISTANCE FOR HEATING IN WINTER					
YES	100.0	33.1	46.6	15.5	4.8
NO	100.0	30.7	55.6	10.7	3.0
WEATHERIZATION ASSISTANCE FROM FEDERAL, STATE OR LOCAL GOVERNMENT					
YES	100.0	28.1	49.2	15.3	7.4
NO	100.0	30.9	55.2	10.9	3.0
ENERGY AUDIT BY ELECTRIC OR GAS COMPANY IN PAST 12 MONTHS					
YES	100.0	26.3	60.1	11.2	2.3
NO	100.0	31.0	55.0	10.9	3.1
HOUSEHOLD OWNS OR HAS REGULAR USE OF A VEHICLE					
YES	100.0	29.9	57.3	9.5	3.3
NO	100.0	37.3	40.3	20.7	1.7
ORIGIN OF HOUSEHOLDER					
WHITE	100.0	29.7	56.3	11.0	3.1
BLACK	100.0	38.7	47.5	11.1	2.7
OTHER	100.0	30.9	55.6	6.4	7.1
HISPANIC DESCENT					
YES	100.0	33.7	52.1	12.5	1.7
NO	100.0	30.7	55.3	10.8	3.2
AGE OF HOUSEHOLDER					
UNDER 25 YEARS	100.0	31.7	55.4	10.2	2.7
25 TO 34 YEARS	100.0	29.4	59.8	7.9	2.9
35 TO 44 YEARS	100.0	30.3	58.4	8.5	2.8
45 TO 59 YEARS	100.0	31.2	54.8	10.9	3.1
60 YEARS AND OVER	100.0	31.8	49.2	15.5	3.6
HOUSEHOLD SIZE					
1 PERSON	100.0	33.5	48.1	14.8	3.6
2 PERSONS	100.0	30.6	54.6	11.9	2.9
3 PERSONS	100.0	31.4	56.1	9.8	2.7
4 PERSONS	100.0	29.5	58.8	9.0	2.7
5 PERSONS	100.0	26.3	59.4	10.6	3.7
6 OR MORE PERSONS	100.0	33.8	56.2	5.8	4.1
SECONDARY HEATING					
YES	100.0	27.1	58.5	11.0	3.4
NO	100.0	33.5	52.8	10.9	2.9

SEE FOOTNOTES AT END OF TABLE

Expenditures for Total and Specific Fuels—Percentage of Total Dollars

Table 4. (Continued)

HOUSEHOLD CHARACTERISTICS	ALL MAJOR FUELS	NATURAL GAS	ELECTRICITY	FUEL OIL OR KEROSENE	LIQUEFIED PETROLEUM GAS
FUEL COMBINATIONS					
NATURAL GAS USED MAIN HEAT....	100.0	52.5	47.2	0.2	Q
NATURAL GAS FOR HOT WATER AND HAVE AIR CONDITIONING...	100.0	48.9	51.0	.2	Q
NATURAL GAS FOR HOT WATER AND NO AIR CONDITIONING.....	100.0	61.8	38.2	Q	Q
ELECTRICITY FOR HOT WATER AND HAVE AIR CONDITIONING...	100.0	40.7	59.2	.1	Q
ELECTRICITY FOR HOT WATER AND NO AIR CONDITIONING.....	100.0	55.0	44.9	.1	Q
OTHER.....	Q	Q	Q	Q	Q
ELECTRICITY USED MAIN HEAT....	100.0	3.3	95.4	.6	0.8
ELECTRICITY FOR HOT WATER AND HAVE AIR CONDITIONING...	100.0	.3	99.0	.6	.2
ELECTRICITY FOR HOT WATER AND NO AIR CONDITIONING.....	100.0	1.0	98.0	.6	.5
OTHER.....	100.0	22.0	73.1	.6	4.2
FUEL OIL USED MAIN HEAT.....	100.0	6.7	39.0	53.2	1.1
FUEL OIL FOR HOT WATER AND HAVE AIR CONDITIONING...	100.0	6.3	36.7	56.8	.2
FUEL OIL FOR HOT WATER AND NO AIR CONDITIONING.....	100.0	7.5	30.1	61.9	.5
ELECTRICITY FOR HOT WATER AND HAVE AIR CONDITIONING...	100.0	.4	56.7	42.1	.9
ELECTRICITY FOR HOT WATER AND NO AIR CONDITIONING.....	100.0	.1	46.7	51.3	1.9
OTHER.....	100.0	17.3	31.1	49.2	2.4
WOOD USED MAIN HEAT.....	100.0	5.5	80.3	6.3	7.9
LPG USED MAIN HEAT.....	100.0	Q	51.3	.2	48.6
KEROSENE USED MAIN HEAT.....	100.0	1.4	51.5	41.1	6.0
COAL USED MAIN HEAT.....	100.0	2.8	89.8	5.9	1.5
NO HEATING FUEL.....	100.0	6.5	69.9	3.0	20.5
OTHER FUEL.....	Q	Q	Q	Q	Q

"-" = DATA NOT APPLICABLE.
"Q" = DATA WITHHELD BECAUSE OF A LARGE VARIANCE.
NOTE: BECAUSE OF ROUNDING, DATA MAY NOT SUM TO TOTALS. PERCENTAGES ARE CALCULATED ON UNROUNDED NUMBERS. SEE GLOSSARY FOR DEFINITION OF TERMS USED IN THIS REPORT.
SOURCE: ENERGY INFORMATION ADMINISTRATION, OFFICE OF ENERGY MARKETS AND END USE, ENERGY END USE DIVISION, FORM EIA-457, THE 1982 RESIDENTIAL ENERGY CONSUMPTION SURVEY.

Table 5. U.S. Average Residential Energy Consumption of All Major Fuels Used in the Household, by Main Heating Fuel Type—April 1982 Through March 1983 (Million Btu per Household)

HOUSEHOLD CHARACTERISTICS	ALL HOUSEHOLDS	HOUSEHOLDS USING: NATURAL GAS AS MAIN HEATING FUEL	ELECTRICITY AS MAIN HEATING FUEL		FUEL OIL OR KEROSENE AS MAIN HEATING FUEL	LIQUEFIED PETROLEUM GAS AS MAIN HEATING FUEL
			WITH AIR CONDITIONING	WITHOUT AIR CONDITIONING		
TOTAL HOUSEHOLDS	103	118	64	55	125	86
CENSUS REGION AND DIVISION						
NORTHEAST	122	134	51	52	135	78
NEW ENGLAND	120	130	42	Q	140	Q
MIDDLE ATLANTIC	122	135	53	51	132	72
NORTH CENTRAL	122	133	72	83	120	121
EAST NORTH CENTRAL	121	133	71	80	132	116
WEST NORTH CENTRAL	124	134	72	Q	113	126
SOUTH	88	112	63	47	98	71
SOUTH ATLANTIC	80	113	53	47	98	67
EAST SOUTH CENTRAL	83	108	69	43	Q	74
WEST SOUTH CENTRAL	104	113	82	Q	Q	78
WEST	84	94	63	55	99	89
MOUNTAIN	98	117	50	Q	Q	101
PACIFIC	79	87	75	54	92	70
AREA TYPE						
METROPOLITAN	106	118	63	55	129	76
CENTRAL CITY	107	114	70	48	130	46
OUTSIDE CENTRAL CITY	105	121	58	62	129	84
NON-METROPOLITAN	92	121	66	57	107	92
ANNUAL HEATING DEGREE-DAYS (HDD) AND COOLING DEGREE-DAYS (CDD) --LONG-TERM AVERAGE						
<2,000 CDD AND >7,000 HDD	112	130	82	70	127	109
<2,000 CDD AND 5,500 TO 7,000 HDD	123	135	65	61	139	114
<2,000 CDD AND 4,000 TO 5,499 HDD	109	127	66	57	125	107
<2,000 CDD AND <4,000 HDD	85	96	70	45	90	81
>2,000 CDD AND <4,000 HDD	80	103	57	Q	67	61
HOW UTILITIES ARE PAID						
ALL PAID BY HOUSEHOLD	105	125	62	57	126	86
SOME PAID, SOME IN RENT	87	80	87	53	115	Q
ALL INCLUDED IN RENT	90	88	71	43	124	74
OTHER	114	120	70	Q	148	107
HOUSING STRUCTURE BY OWNERSHIP						
SINGLE-FAMILY DETACHED	112	133	71	66	129	91
OWN	115	135	71	74	131	97
RENT	98	119	68	50	113	74
SINGLE-FAMILY ATTACHED	112	121	69	70	142	Q
OWN	120	125	68	Q	142	Q
RENT	93	110	69	Q	Q	Q
BUILDING WITH 2 TO 4 UNITS	93	101	61	51	124	Q
OWN	121	126	43	Q	139	Q
RENT	92	95	67	51	115	Q
BUILDING WITH 5 OR MORE UNITS	73	72	53	35	121	Q
OWN	90	91	83	Q	152	Q
RENT	71	71	49	37	118	Q
MOBILE HOME	72	91	49	51	80	73
OWN	71	90	49	50	85	71
RENT	75	93	Q	Q	Q	77
NUMBER OF ROOMS						
1	55	49	44	Q	Q	Q
2	67	66	41	47	126	Q
3	68	71	50	38	105	49
4	81	89	53	48	111	70
5	97	112	63	64	116	83
6	114	133	69	73	131	97
7	127	150	80	Q	131	102
8 OR MORE	155	179	97	88	163	131

SEE FOOTNOTES AT END OF TABLE

Average Consumption per Household

Table 5. (Continued)

HOUSEHOLD CHARACTERISTICS	ALL HOUSEHOLDS	HOUSEHOLDS USING:				
		NATURAL GAS AS MAIN HEATING FUEL	ELECTRICITY AS MAIN HEATING FUEL		FUEL OIL OR KEROSENE AS MAIN HEATING FUEL	LIQUEFIED PETROLEUM GAS AS MAIN HEATING FUEL
			WITH AIR CONDITIONING	WITHOUT AIR CONDITIONING		
NUMBER OF ROOMS THAT CAN BE AIR CONDITIONED						
ALL	102	121	65	Q	115	91
SOME	114	126	55	Q	132	92
NONE	99	112	Q	55	125	80
MEASURED HEATED SQUARE FOOTAGE OF RESIDENCE						
LESS THAN 600 SQUARE FEET	63	66	44	38	98	56
600 TO 999 SQUARE FEET	80	90	53	48	103	69
1,000 TO 1,599 SQUARE FEET	100	115	58	76	122	90
1,600 TO 1,999 SQUARE FEET	113	135	76	69	127	91
2,000 TO 2,399 SQUARE FEET	131	147	81	Q	147	114
2,400 TO 2,999 SQUARE FEET	146	167	104	Q	143	149
3,000 OR MORE SQUARE FEET	172	199	101	Q	186	Q
YEAR HOUSE BUILT						
1939 OR EARLIER	115	124	76	52	136	92
1940 TO 1949	108	116	57	59	127	70
1950 TO 1959	109	119	69	67	117	78
1960 TO 1964	105	114	67	60	121	83
1965 TO 1969	98	118	59	59	103	89
1970 TO 1974	90	115	62	58	98	85
1975 TO 1979	88	117	66	52	111	86
1980 OR LATER	67	86	59	42	Q	89
OWN/RENT						
OWN	113	132	69	66	130	91
RENT	85	94	54	47	114	73
1981 FAMILY INCOME						
LESS THAN $5,000	86	93	56	52	117	71
$5,000 TO $9,999	90	104	53	46	115	78
$10,000 TO $14,999	95	108	56	49	117	90
$15,000 TO $19,999	98	118	56	51	119	76
$20,000 TO $24,999	104	118	56	59	134	96
$25,000 TO $34,999	110	125	66	75	132	97
$35,000 OR MORE	132	152	87	63	147	114
BELOW 100% OF POVERTY	92	105	61	56	118	73
BELOW 125% OF POVERTY	92	105	58	53	118	77
RECEIVE ASSISTANCE FOR HEATING IN WINTER						
YES	100	119	52	52	128	63
NO	103	118	64	56	125	88
WEATHERIZATION ASSISTANCE FROM FEDERAL, STATE OR LOCAL GOVERNMENT						
YES	98	117	Q	Q	115	Q
NO	103	118	64	55	125	86
ENERGY AUDIT BY ELECTRIC OR GAS COMPANY IN PAST 12 MONTHS						
YES	118	136	86	Q	145	Q
NO	103	118	63	55	124	86

SEE FOOTNOTES AT END OF TABLE

Average Consumption per Household

Table 5. (Continued)

HOUSEHOLD CHARACTERISTICS	ALL HOUSEHOLDS	HOUSEHOLDS USING:				
		NATURAL GAS AS MAIN HEATING FUEL	ELECTRICITY AS MAIN HEATING FUEL		FUEL OIL OR KEROSENE AS MAIN HEATING FUEL	LIQUEFIED PETROLEUM GAS AS MAIN HEATING FUEL
			WITH AIR CONDITIONING	WITHOUT AIR CONDITIONING		
HOUSEHOLD OWNS OR HAS REGULAR USE OF A VEHICLE						
YES	104	121	64	58	125	88
NO	97	102	52	45	125	58
ORIGIN OF HOUSEHOLDER						
WHITE	103	118	64	56	125	87
BLACK	110	122	64	48	123	74
OTHER	81	92	65	54	Q	Q
HISPANIC DESCENT						
YES	98	106	65	47	131	57
NO	103	119	64	56	125	87
AGE OF HOUSEHOLDER						
UNDER 25 YEARS	77	87	48	44	103	73
25 TO 34 YEARS	94	110	65	51	114	84
35 TO 44 YEARS	114	134	75	61	124	93
45 TO 59 YEARS	115	130	74	79	140	93
60 YEARS AND OVER	101	114	54	45	126	81
HOUSEHOLD SIZE						
1 PERSON	80	85	50	41	113	73
2 PERSONS	98	115	57	49	119	78
3 PERSONS	109	127	71	56	131	82
4 PERSONS	117	139	77	74	136	97
5 PERSONS	127	151	91	Q	148	125
6 OR MORE PERSONS	135	159	95	86	132	120

"-" = DATA NOT APPLICABLE.
"Q" = DATA WITHHELD BECAUSE OF A LARGE VARIANCE.
NOTE: BECAUSE OF ROUNDING, DATA MAY NOT SUM TO TOTALS. PERCENTAGES ARE CALCULATED ON UNROUNDED NUMBERS. SEE GLOSSARY FOR DEFINITION OF TERMS USED IN THIS REPORT.
SOURCE: ENERGY INFORMATION ADMINISTRATION, OFFICE OF ENERGY MARKETS AND END USE, ENERGY END USE DIVISION, FORM EIA-457, THE 1982 RESIDENTIAL ENERGY CONSUMPTION SURVEY.

Average Expenditures per Household

Table 6. U.S. Average Residential Energy Expenditures for All Major Fuels Used in the Household and Expenditures as a Percent of Income by Main Heating Fuel Type—April 1982 Through March 1983

HOUSEHOLD CHARACTERISTICS	AVERAGE TOTAL FUEL EXPENDITURE (DOLLARS PER HOUSEHOLD)						EXPENDITURE AS A PERCENT OF INCOME (MEDIAN PERCENT)					
	HOUSEHOLDS USING:						HOUSEHOLDS USING:					
	ALL HOUSEHOLDS	NATURAL GAS AS MAIN HEATING FUEL	ELECTRICITY AS MAIN HEATING FUEL		FUEL OIL OR KEROSENE AS MAIN HEATING FUEL	LIQUEFIED PETROLEUM GAS AS MAIN HEATING FUEL	ALL HOUSEHOLDS	NATURAL GAS AS MAIN HEATING FUEL	ELECTRICITY AS MAIN HEATING FUEL		FUEL OIL OR KEROSENE AS MAIN HEATING FUEL	LIQUEFIED PETROLEUM GAS AS MAIN HEATING FUEL
			WITH AIR CONDITIONING	WITHOUT AIR CONDITIONING					WITH AIR CONDITIONING	WITHOUT AIR CONDITIONING		
TOTAL HOUSEHOLDS	1048	1011	1040	768	1433	1072	5	5	4	5	8	8
CENSUS REGION AND DIVISION												
NORTHEAST	1369	1331	1128	1080	1549	961	7	6	5	Q	9	Q
NEW ENGLAND	1395	1401	930	Q	1560	Q	6	6	Q	Q	7	Q
MIDDLE ATLANTIC	1361	1318	1180	1035	1544	900	7	6	5	Q	9	Q
NORTH CENTRAL	1060	1024	1064	1236	1404	1350	6	5	6	Q	8	7
EAST NORTH CENTRAL	1056	1018	1052	1204	1440	1324	6	6	6	Q	8	Q
WEST NORTH CENTRAL	1068	1038	1100	Q	1258	1374	5	5	5	Q	9	6
SOUTH	1019	1054	1074	790	1190	973	6	6	4	7	7	8
SOUTH ATLANTIC	1007	1079	990	887	1195	958	5	5	5	Q	7	7
EAST SOUTH CENTRAL	910	929	1007	579	Q	924	6	6	4	Q	Q	Q
WEST SOUTH CENTRAL	1112	1088	1355	Q	Q	1021	6	5	4	Q	Q	11
WEST	731	725	839	574	926	1022	4	3	4	4	4	8
MOUNTAIN	880	876	876	Q	Q	1149	4	4	4	Q	Q	Q
PACIFIC	678	675	804	559	867	833	3	3	4	4	3	Q
AREA TYPE												
METROPOLITAN	1079	1024	1048	728	1485	1035	5	5	4	5	8	7
CENTRAL CITY	1034	982	1027	593	1468	748	6	5	6	5	10	Q
OUTSIDE CENTRAL CITY	1119	1068	1064	862	1497	1102	5	4	4	4	7	7
NON-METROPOLITAN	951	956	1002	842	1217	1098	6	6	5	6	8	10
ANNUAL HEATING DEGREE-DAYS (HDD) AND COOLING DEGREE-DAYS (CDD) --LONG-TERM AVERAGE												
<2,000 CDD AND >7,000 HDD	1038	955	1391	957	1387	1208	6	5	Q	6	9	8
<2,000 CDD AND 5,500 TO 7,000 HDD	1138	1069	992	1055	1576	1303	6	5	5	7	7	7
<2,000 CDD AND 4,000 TO 5,499 HDD	1165	1180	1088	680	1444	1246	6	6	4	4	10	11
<2,000 CDD AND <4,000 HDD	829	784	1013	677	1091	1031	4	4	4	5	6	11
>2,000 CDD AND <4,000 HDD	1038	1094	1040	Q	1122	889	5	6	4	Q	Q	6
HOW UTILITIES ARE PAID												
ALL PAID BY HOUSEHOLD	1069	1063	1027	789	1459	1070	5	5	4	5	7	7
SOME PAID, SOME IN RENT	844	673	1143	661	1240	Q	7	5	Q	Q	9	Q
ALL INCLUDED IN RENT	979	835	1074	495	1444	968	10	8	14	6	15	Q
OTHER	1271	1184	1303	Q	1680	1353	8	7	Q	Q	12	Q

SEE FOOTNOTES AT END OF TABLE

Average Expenditures per Household

Table 6. (Continued)

HOUSEHOLD CHARACTERISTICS	AVERAGE TOTAL FUEL EXPENDITURE (DOLLARS PER HOUSEHOLD)						EXPENDITURE AS A PERCENT OF INCOME (MEDIAN PERCENT)					
		HOUSEHOLDS USING:						HOUSEHOLDS USING:				
	ALL HOUSE-HOLDS	NATURAL GAS AS MAIN HEATING FUEL	ELECTRICITY AS MAIN HEATING FUEL		FUEL OIL OR KERO-SENE AS MAIN HEATING FUEL	LIQUE-FIED PETRO-LEUM GAS AS MAIN HEATING FUEL	ALL HOUSE-HOLDS	NATURAL GAS AS MAIN HEATING FUEL	ELECTRICITY AS MAIN HEATING FUEL		FUEL OIL OR KERO-SENE AS MAIN HEATING FUEL	LIQUE-FIED PETRO-LEUM GAS AS MAIN HEATING FUEL
			WITH AIR CONDI-TIONING	WITHOUT AIR CONDI-TIONING					WITH AIR CONDI-TIONING	WITHOUT AIR CONDI-TIONING		
HOUSING STRUCTURE BY OWNERSHIP												
SINGLE-FAMILY DETACHED	1120	1110	1151	891	1491	1127	5	5	4	5	7	8
OWN	1159	1145	1169	1006	1505	1176	5	5	4	5	7	8
RENT	920	935	917	640	1378	978	6	6	Q	5	8	11
SINGLE-FAMILY ATTACHED	1142	1119	1031	1329	1534	Q	6	6	Q	Q	Q	Q
OWN	1219	1195	1129	Q	1534	Q	6	6	Q	Q	Q	Q
RENT	961	893	958	Q	Q	Q	8	10	Q	Q	Q	Q
BUILDING WITH 2 TO 4 UNITS	974	897	1006	668	1398	Q	7	7	6	7	10	Q
OWN	1326	1257	788	Q	1631	Q	8	7	Q	Q	10	Q
RENT	880	821	1083	671	1256	Q	7	7	Q	7	12	Q
BUILDING WITH 5 OR MORE UNITS	818	648	886	455	1367	Q	6	5	6	4	11	Q
OWN	1065	952	932	Q	2017	Q	3	Q	Q	Q	Q	Q
RENT	796	633	879	453	1314	Q	7	5	6	4	11	Q
MOBILE HOME	861	784	870	781	998	948	6	5	6	Q	7	7
OWN	870	799	870	766	1056	952	6	5	6	Q	7	7
RENT	827	726	Q	Q	Q	937	8	Q	Q	Q	Q	Q
NUMBER OF ROOMS												
1	717	582	865	Q	Q	Q	12	Q	Q	Q	Q	Q
2	720	643	729	465	1271	Q	6	6	Q	Q	Q	Q
3	752	606	894	607	1202	694	7	5	7	5	13	Q
4	816	734	849	673	1259	898	6	5	5	6	10	11
5	982	948	1005	863	1338	1026	6	6	5	6	8	8
6	1149	1131	1104	1028	1519	1186	5	5	4	5	8	7
7	1289	1294	1302	Q	1546	1303	5	5	4	Q	8	8
8 OR MORE	1545	1562	1553	1162	1840	1560	4	4	4	Q	6	Q
NUMBER OF ROOMS THAT CAN BE AIR CONDITIONED												
ALL	1122	1124	1058	Q	1418	1206	5	5	5	Q	7	6
SOME	1168	1112	940	Q	1522	1119	6	6	4	Q	8	7
NONE	924	855	Q	768	1390	960	6	5	Q	5	9	11
MEASURED HEATED SQUARE FOOTAGE OF RESIDENCE												
LESS THAN 600 SQUARE FEET	703	602	785	539	1078	757	8	8	11	7	13	Q
600 TO 999 SQUARE FEET	824	748	914	672	1239	892	6	5	5	5	10	9
1,000 TO 1,599 SQUARE FEET	1032	995	959	982	1419	1141	6	5	4	5	8	8
1,600 TO 1,999 SQUARE FEET	1155	1138	1185	1042	1467	1107	5	5	4	Q	8	Q
2,000 TO 2,399 SQUARE FEET	1303	1272	1285	Q	1642	1372	5	5	4	Q	7	Q
2,400 TO 2,999 SQUARE FEET	1442	1433	1452	Q	1692	1606	5	5	4	Q	6	Q
3,000 OR MORE SQUARE FEET	1652	1656	1677	Q	2078	Q	4	4	Q	Q	6	Q
YEAR HOUSE BUILT												
1939 OR EARLIER	1077	990	1106	703	1500	1109	7	7	Q	7	10	11
1940 TO 1949	1049	978	948	956	1483	931	6	5	Q	Q	8	Q
1950 TO 1959	1056	1022	1104	782	1362	995	5	5	5	Q	8	8
1960 TO 1964	1089	1027	1151	673	1505	1065	5	5	4	Q	7	Q
1965 TO 1969	1040	1066	1041	825	1208	1180	5	5	4	5	7	Q
1970 TO 1974	1012	1011	1063	845	1170	1036	5	4	5	4	7	7
1975 TO 1979	1030	1064	1022	736	1318	1122	4	3	4	7	6	6
1980 OR LATER	859	799	949	701	Q	1031	3	4	3	Q	Q	Q

SEE FOOTNOTES AT END OF TABLE

Average Expenditures per Household

Table 6. (Continued)

HOUSEHOLD CHARACTERISTICS	AVERAGE TOTAL FUEL EXPENDITURE (DOLLARS PER HOUSEHOLD)						EXPENDITURE AS A PERCENT OF INCOME (MEDIAN PERCENT)					
		HOUSEHOLDS USING:						HOUSEHOLDS USING:				
	ALL HOUSE-HOLDS	NATURAL GAS AS MAIN HEATING FUEL	ELECTRICITY AS MAIN HEATING FUEL		FUEL OIL OR KERO-SENE AS MAIN HEATING FUEL	LIQUE-FIED PETRO-LEUM GAS AS MAIN HEATING FUEL	ALL HOUSE-HOLDS	NATURAL GAS AS MAIN HEATING FUEL	ELECTRICITY AS MAIN HEATING FUEL		FUEL OIL OR KERO-SENE AS MAIN HEATING FUEL	LIQUE-FIED PETRO-LEUM GAS AS MAIN HEATING FUEL
			WITH AIR CONDI-TIONING	WITHOUT AIR CONDI-TIONING					WITH AIR CONDI-TIONING	WITHOUT AIR CONDI-TIONING		
OWN/RENT												
OWN	1151	1141	1116	928	1502	1121	5	5	4	5	7	7
RENT	862	792	915	645	1293	945	7	6	6	6	10	11
1981 FAMILY INCOME												
LESS THAN $5,000	834	771	834	716	1259	861	25	24	23	17	38	26
$5,000 TO $9,999	886	833	909	676	1285	943	11	11	12	8	18	13
$10,000 TO $14,999	973	899	939	736	1343	1105	7	7	7	5	10	8
$15,000 TO $19,999	995	967	1013	697	1345	989	5	5	5	4	8	Q
$20,000 TO $24,999	1062	1023	944	811	1544	1257	4	4	4	3	6	Q
$25,000 TO $34,999	1139	1104	1059	966	1543	1192	4	3	3	3	5	4
$35,000 OR MORE	1377	1361	1362	805	1777	1533	2	2	3	Q	3	Q
BELOW 100% OF POVERTY	900	859	894	774	1326	897	21	20	17	16	33	22
BELOW 125% OF POVERTY	910	868	884	763	1326	927	17	17	16	14	25	18
RECEIVE ASSISTANCE FOR HEATING IN WINTER												
YES	959	947	881	760	1379	787	17	17	Q	Q	22	Q
NO	1053	1014	1045	769	1437	1102	5	5	4	5	8	7
WEATHERIZATION ASSISTANCE FROM FEDERAL, STATE OR LOCAL GOVERNMENT												
YES	947	900	Q	Q	1306	Q	13	14	Q	Q	Q	Q
NO	1049	1012	1041	772	1436	1071	5	5	4	5	8	8
ENERGY AUDIT BY ELECTRIC OR GAS COMPANY IN PAST 12 MONTHS												
YES	1243	1168	1387	Q	1756	Q	5	5	Q	Q	Q	Q
NO	1042	1007	1026	772	1425	1067	5	5	4	5	8	8
HOUSEHOLD OWNS OR HAS REGULAR USE OF A VEHICLE												
YES	1066	1040	1049	794	1454	1101	5	5	4	5	7	7
NO	937	836	926	659	1367	735	13	12	12	14	19	Q
ORIGIN OF HOUSEHOLDER												
WHITE	1051	1012	1043	782	1440	1083	5	5	5	5	8	8
BLACK	1060	1042	1037	751	1381	954	10	9	4	Q	21	Q
OTHER	858	791	923	583	Q	Q	5	5	Q	Q	Q	Q
AGE OF HOUSEHOLDER												
UNDER 25 YEARS	766	704	781	625	1155	921	6	6	4	7	10	Q
25 TO 34 YEARS	992	947	1095	706	1360	1049	4	4	4	5	7	6
35 TO 44 YEARS	1195	1191	1213	837	1503	1204	5	5	5	4	6	6
45 TO 59 YEARS	1158	1127	1085	1081	1606	1149	5	4	4	6	6	6
60 YEARS AND OVER	993	939	929	635	1383	988	9	8	7	7	12	15

SEE FOOTNOTES AT END OF TABLE

Average Expenditures per Household

Table 6. (Continued)

HOUSEHOLD CHARACTERISTICS	AVERAGE TOTAL FUEL EXPENDITURE (DOLLARS PER HOUSEHOLD)						EXPENDITURE AS A PERCENT OF INCOME (MEDIAN PERCENT)					
		HOUSEHOLDS USING:						HOUSEHOLDS USING:				
	ALL HOUSE-HOLDS	NATURAL GAS AS MAIN HEATING FUEL	ELECTRICITY AS MAIN HEATING FUEL		FUEL OIL OR KERO-SENE AS MAIN HEATING FUEL	LIQUE-FIED PETRO-LEUM GAS AS MAIN HEATING FUEL	ALL HOUSE-HOLDS	NATURAL GAS AS MAIN HEATING FUEL	ELECTRICITY AS MAIN HEATING FUEL		FUEL OIL OR KERO-SENE AS MAIN HEATING FUEL	LIQUE-FIED PETRO-LEUM GAS AS MAIN HEATING FUEL
			WITH AIR CONDI-TIONING	WITHOUT AIR CONDI-TIONING					WITH AIR CONDI-TIONING	WITHOUT AIR CONDI-TIONING		
HOUSEHOLD SIZE												
1 PERSON	783	696	817	549	1212	873	7	6	6	7	12	15
2 PERSONS	982	962	944	655	1333	960	5	5	4	4	9	10
3 PERSONS	1102	1076	1157	844	1481	1125	5	5	5	5	8	6
4 PERSONS	1253	1253	1308	1129	1657	1202	5	5	4	6	6	6
5 PERSONS	1343	1296	1355	Q	1867	1464	6	6	5	Q	8	Q
6 OR MORE PERSONS	1365	1388	1515	1086	1656	1530	6	7	Q	Q	Q	Q

"-" = DATA NOT APPLICABLE.
"Q" = DATA WITHHELD BECAUSE OF A LARGE VARIANCE.
NOTE: BECAUSE OF ROUNDING, DATA MAY NOT SUM TO TOTALS. PERCENTAGES ARE CALCULATED ON UNROUNDED NUMBERS. SEE GLOSSARY FOR DEFINITION OF TERMS USED IN THIS REPORT.
SOURCE: ENERGY INFORMATION ADMINISTRATION, OFFICE OF ENERGY MARKETS AND END USE, ENERGY END USE DIVISION, FORM EIA-457, THE 1982 RESIDENTIAL ENERGY CONSUMPTION SURVEY.

Natural Gas Consumption and Expenditures

Table 7. U.S. Residential Natural Gas Consumption and Expenditures—April 1982 Through March 1983

HOUSEHOLD CHARACTERISTICS	NATURAL GAS USED: NUMBER OF HOUSEHOLDS (MILLION)	TOTAL AMOUNT CONSUMED (TRILLION CU.FT.)	TOTAL AMOUNT CONSUMED (QUADRILLION BTU)	TOTAL EXPENDITURES (BILLION DOLLARS)	AVG PRICE (DOLLARS PER THOUSAND CU.FT.)	AVG AMOUNT CONSUMED (THOUSAND CU.FT.)	AVG AMOUNT CONSUMED (MILLION BTU)	AVG EXPENDITURES PER HOUSEHOLD (DOLLARS)
TOTAL HOUSEHOLDS	54.2	4.68	4.77	27.1	5.79	86	88	500
CENSUS REGION AND DIVISION								
NORTHEAST	11.6	.97	.99	7.2	7.43	83	85	619
NEW ENGLAND	2.0	.16	.16	1.4	8.64	78	79	670
MIDDLE ATLANTIC	9.6	.81	.83	5.8	7.19	85	86	608
NORTH CENTRAL	16.0	1.73	1.76	9.2	5.32	108	110	574
EAST NORTH CENTRAL	11.1	1.22	1.24	6.5	5.39	109	111	588
WEST NORTH CENTRAL	4.8	.51	.52	2.6	5.15	105	107	542
SOUTH	14.5	1.11	1.13	6.3	5.74	76	78	436
SOUTH ATLANTIC	5.3	.40	.41	2.7	6.62	76	77	501
EAST SOUTH CENTRAL	2.6	.19	.20	1.0	5.43	73	75	397
WEST SOUTH CENTRAL	6.6	.51	.52	2.6	5.16	78	79	401
WEST	12.0	.87	.89	4.3	4.95	73	74	361
MOUNTAIN	2.9	.26	.27	1.3	4.89	90	92	440
PACIFIC	9.0	.61	.62	3.0	4.98	67	69	335
AREA TYPE								
METROPOLITAN	45.1	3.84	3.92	22.7	5.91	85	87	503
CENTRAL CITY	23.8	1.96	2.01	11.5	5.87	83	84	485
OUTSIDE CENTRAL CITY	21.3	1.87	1.91	11.1	5.94	88	90	522
NON-METROPOLITAN	9.1	.84	.86	4.4	5.23	92	94	483
ANNUAL HEATING DEGREE-DAYS (HDD) AND COOLING DEGREE-DAYS (CDD) --LONG-TERM AVERAGE								
<2,000 CDD AND >7,000 HDD	4.7	.49	.50	2.7	5.42	105	107	567
<2,000 CDD AND 5,500 TO 7,000 HDD	15.2	1.59	1.63	9.0	5.67	105	107	594
<2,000 CDD AND 4,000 TO 5,499 HDD	14.0	1.17	1.20	7.8	6.66	84	86	558
<2,000 CDD AND <4,000 HDD	13.4	.97	.99	4.9	5.05	72	74	366
>2,000 CDD AND <4,000 HDD	6.9	.45	.46	2.7	5.88	66	67	385
ALL GAS PAID BY HOUSEHOLD								
YES	43.1	3.98	4.06	22.6	5.69	92	94	525
NO	11.0	.70	.71	4.4	6.32	64	65	401
HOUSING STRUCTURE BY OWNERSHIP								
SINGLE-FAMILY DETACHED	33.1	3.27	3.34	18.1	5.54	99	101	548
OWN	27.6	2.77	2.83	15.5	5.58	100	103	560
RENT	5.5	.50	.51	2.7	5.32	91	93	487
SINGLE-FAMILY ATTACHED	3.1	.28	.29	1.9	6.63	92	94	608
OWN	2.4	.22	.22	1.5	6.78	92	94	626
RENT	.7	.06	.07	.4	6.11	90	92	549
BUILDING WITH 2 TO 4 UNITS	8.3	.62	.63	3.9	6.35	74	76	470
OWN	1.7	.14	.14	.9	6.95	82	84	570
RENT	6.7	.48	.49	3.0	6.18	72	73	445
BUILDING WITH 5 OR MORE UNITS	8.6	.43	.44	2.8	6.47	50	51	324
OWN	.7	.05	.05	.3	6.49	69	70	446
RENT	7.9	.38	.39	2.5	6.46	49	50	314
MOBILE HOME	1.1	.07	.08	.4	4.97	67	68	331
OWN	.9	.06	.06	.3	4.95	65	66	322
RENT	.2	.02	.02	.1	5.00	72	74	362
NUMBER OF ROOMS								
1	.6	.02	.02	.2	7.91	33	34	264
2	1.2	.06	.06	.4	6.61	48	49	314
3	5.4	.27	.27	1.7	6.22	50	51	309
4	11.1	.73	.75	4.2	5.71	66	67	375
5	12.5	1.05	1.07	6.0	5.66	84	86	475
6	11.5	1.14	1.16	6.6	5.75	99	101	570
7	6.0	.66	.67	3.8	5.78	110	112	633
8 OR MORE	5.8	.75	.77	4.4	5.81	129	132	750
NUMBER OF ROOMS THAT CAN BE AIR CONDITIONED								
ALL	20.7	1.75	1.79	10.0	5.70	85	86	483
SOME	10.9	1.00	1.02	6.1	6.14	92	94	563
NONE	22.6	1.92	1.96	10.9	5.68	85	87	485

SEE FOOTNOTES AT END OF TABLE

Natural Gas Consumption and Expenditures

Table 7. (Continued)

HOUSEHOLD CHARACTERISTICS	NATURAL GAS USED: NUMBER OF HOUSEHOLDS (MILLION)	TOTAL AMOUNT CONSUMED (TRILLION CU.FT.)	TOTAL AMOUNT CONSUMED (QUADRILLION BTU)	TOTAL EXPENDITURES (BILLION DOLLARS)	AVG PRICE (DOLLARS PER THOUSAND CU.FT.)	AVG AMOUNT CONSUMED (THOUSAND CU.FT.)	AVG AMOUNT CONSUMED (MILLION BTU)	AVG EXPENDITURES PER HOUSEHOLD (DOLLARS)
MEASURED HEATED SQUARE FOOTAGE OF RESIDENCE								
LESS THAN 600 SQUARE FEET	5.1	0.25	0.25	1.6	6.50	49	50	319
600 TO 999 SQUARE FEET	14.8	.96	.98	5.6	5.78	65	66	375
1,000 TO 1,599 SQUARE FEET	15.8	1.33	1.36	7.5	5.68	84	86	478
1,600 TO 1,999 SQUARE FEET	6.7	.64	.66	3.7	5.80	96	98	559
2,000 TO 2,399 SQUARE FEET	4.7	.52	.53	3.0	5.74	110	113	633
2,400 TO 2,999 SQUARE FEET	4.1	.51	.52	2.9	5.77	124	127	718
3,000 OR MORE SQUARE FEET	3.1	.47	.48	2.7	5.79	152	155	881
YEAR HOUSE BUILT								
1939 OR EARLIER	17.1	1.56	1.59	9.3	5.99	91	93	546
1940 TO 1949	5.0	.42	.43	2.5	5.90	83	84	487
1950 TO 1959	9.9	.88	.90	5.0	5.70	89	91	506
1960 TO 1964	6.3	.50	.51	2.8	5.70	79	80	449
1965 TO 1969	5.1	.45	.45	2.6	5.75	87	89	502
1970 TO 1974	5.4	.45	.46	2.5	5.56	84	86	467
1975 TO 1979	4.1	.36	.37	2.0	5.48	87	89	478
1980 OR LATER	1.2	.07	.07	.4	5.64	57	58	323
OWN/RENT								
OWN	33.2	3.23	3.30	18.5	5.72	97	99	557
RENT	21.0	1.45	1.48	8.6	5.94	69	70	409
1981 FAMILY INCOME								
LESS THAN $5,000	6.4	.44	.45	2.7	6.09	69	70	418
$5,000 TO $9,999	8.9	.69	.70	3.9	5.64	77	78	433
$10,000 TO $14,999	7.6	.60	.62	3.4	5.71	79	81	452
$15,000 TO $19,999	5.6	.49	.50	2.9	5.90	88	89	516
$20,000 TO $24,999	7.3	.62	.63	3.6	5.80	84	86	487
$25,000 TO $34,999	9.5	.88	.90	5.1	5.80	92	94	536
$35,000 OR MORE	8.7	.96	.98	5.5	5.72	110	112	630
BELOW 100% OF POVERTY	8.1	0.63	0.64	3.6	5.80	77	79	448
BELOW 125% OF POVERTY	11.5	.88	.90	5.1	5.84	76	78	445
RECEIVE ASSISTANCE FOR HEATING IN WINTER								
YES	2.6	.24	.24	1.4	5.80	91	93	526
NO	51.5	4.44	4.53	25.7	5.79	86	88	498
WEATHERIZATION ASSISTANCE FROM FEDERAL, STATE OR LOCAL GOVERNMENT								
YES	.6	.05	.05	.3	5.71	86	88	490
NO	53.6	4.63	4.72	26.8	5.79	86	88	500
ENERGY AUDIT BY ELECTRIC OR GAS COMPANY IN PAST 12 MONTHS								
YES	1.2	.12	.13	.7	5.91	102	104	604
NO	52.9	4.55	4.65	26.3	5.78	86	88	497
HOUSEHOLD OWNS OR HAS REGULAR USE OF A VEHICLE								
YES	45.1	4.03	4.12	23.0	5.70	89	91	509
NO	9.0	.64	.66	4.1	6.32	71	73	451
ORIGIN OF HOUSEHOLDER								
WHITE	44.5	3.86	3.95	22.2	5.75	87	89	499
BLACK	8.3	.72	.73	4.3	5.99	86	88	516
OTHER	1.3	.09	.09	.5	5.79	69	71	400
HISPANIC DESCENT								
YES	3.2	.24	.25	1.4	5.93	75	77	447
NO	50.9	4.43	4.53	25.6	5.78	87	89	503

SEE FOOTNOTES AT END OF TABLE

Natural Gas Consumption and Expenditures

Table 7. (Continued)

HOUSEHOLD CHARACTERISTICS	NATURAL GAS USED: NUMBER OF HOUSEHOLDS (MILLION)	TOTAL AMOUNT CONSUMED (TRILLION CU.FT.)	TOTAL AMOUNT CONSUMED (QUADRILLION BTU)	TOTAL EXPENDITURES (BILLION DOLLARS)	AVG PRICE (DOLLARS PER THOUSAND CU.FT.)	AVG AMOUNT CONSUMED (THOUSAND CU.FT.)	AVG AMOUNT CONSUMED (MILLION BTU)	AVG EXPENDITURES PER HOUSEHOLD (DOLLARS)
AGE OF HOUSEHOLDER								
UNDER 25 YEARS	4.6	0.29	0.30	1.6	5.58	63	65	353
25 TO 34 YEARS	11.8	.98	1.00	5.7	5.82	83	84	481
35 TO 44 YEARS	9.5	.91	.93	5.3	5.86	96	98	562
45 TO 59 YEARS	13.0	1.22	1.25	7.0	5.70	94	96	536
60 YEARS AND OVER	15.2	1.27	1.30	7.4	5.85	84	85	488
HOUSEHOLD SIZE								
1 PERSON	13.3	.86	.87	5.1	5.90	64	66	380
2 PERSONS	16.5	1.38	1.41	7.9	5.73	84	86	480
3 PERSONS	8.8	.82	.84	4.7	5.74	93	95	535
4 PERSONS	9.0	.89	.91	5.2	5.91	98	100	582
5 PERSONS	3.7	.39	.40	2.2	5.59	106	108	594
6 OR MORE PERSONS	2.9	.34	.35	1.9	5.75	119	121	683
SECONDARY HEATING								
YES	18.3	1.73	1.76	9.8	5.69	94	96	537
NO	35.9	2.95	3.01	17.2	5.84	82	84	480
FUEL COMBINATIONS								
NATURAL GAS USED MAIN HEAT	47.5	4.44	4.53	25.2	5.69	93	95	531
NATURAL GAS FOR HOT WATER AND HAVE AIR CONDITIONING	25.6	2.41	2.46	13.8	5.73	94	96	540
NATURAL GAS FOR HOT WATER AND NO AIR CONDITIONING	17.8	1.69	1.73	9.3	5.51	95	97	525
ELECTRICITY FOR HOT WATER AND HAVE AIR CONDITIONING	2.4	.20	.20	1.2	6.31	82	84	519
ELECTRICITY FOR HOT WATER AND NO AIR CONDITIONING	1.7	.14	.14	.8	6.02	83	84	498
OTHER	Q	Q	Q	Q	Q	Q	Q	Q
ELECTRICITY USED MAIN HEAT	1.5	.07	.08	.4	5.75	51	52	293
FUEL OIL USED MAIN HEAT	4.3	.12	.12	1.1	9.45	27	28	257
WOOD USED MAIN HEAT	.7	.04	.04	.2	6.23	54	55	338
OTHER/NONE	.2	.01	.01	Q	6.71	37	37	246
MAIN HEATING EQUIPMENT USING NATURAL GAS								
CENTRAL WARM AIR FURNACE	29.0	2.92	2.98	16.2	5.56	101	103	559
STEAM OR HOT-WATER SYSTEM	7.4	.75	.77	4.9	6.47	102	105	663
FLOOR, WALL OR PIPELESS FURNACE	6.5	.43	.44	2.2	5.07	66	67	335
ROOM HEATER	4.2	.31	.32	1.8	5.76	74	75	425
NONE/OTHER	7.0	.26	.26	2.0	7.53	37	38	279

"-" = DATA NOT APPLICABLE.
"Q" = DATA WITHHELD BECAUSE OF A LARGE VARIANCE.
NOTE: BECAUSE OF ROUNDING, DATA MAY NOT SUM TO TOTALS. PERCENTAGES ARE CALCULATED ON UNROUNDED NUMBERS. SEE GLOSSARY FOR DEFINITION OF TERMS USED IN THIS REPORT.
SOURCE: ENERGY INFORMATION ADMINISTRATION, OFFICE OF ENERGY MARKETS AND END USE, ENERGY END USE DIVISION, FORM EIA-457, THE 1982 RESIDENTIAL ENERGY CONSUMPTION SURVEY.

Natural Gas as a Main Heating Fuel

Table 8. U.S. Residential Natural Gas Consumption and Expenditures for Households Using Natural Gas as Main Heating Fuel—April 1982 Through March 1983

HOUSEHOLD CHARACTERISTICS	NATURAL GAS USED:							
	AS MAIN HEATING FUEL				NOT AS MAIN HEATING FUEL			
	NUMBER OF HOUSEHOLDS (MILLION)	AVG AMOUNT CONSUMED (THOUSAND CU.FT.)	AVG AMOUNT CONSUMED (MILLION BTU)	AVG EXPEND-ITURES PER HOUSEHOLD (DOLLARS)	NUMBER OF HOUSEHOLDS (MILLION)	AVG AMOUNT CONSUMED (THOUSAND CU.FT.)	AVG AMOUNT CONSUMED (MILLION BTU)	AVG EXPEND-ITURES PER HOUSEHOLD (DOLLARS)
TOTAL HOUSEHOLDS	47.5	93	95	531	6.7	36	36	273
CENSUS REGION AND DIVISION								
NORTHEAST	7.5	114	116	811	4.1	28	28	265
NEW ENGLAND	1.2	110	112	926	.8	32	32	308
MIDDLE ATLANTIC	6.3	114	117	789	3.3	26	27	253
NORTH CENTRAL	15.5	110	112	584	.5	45	46	263
EAST NORTH CENTRAL	10.8	111	114	599	.4	42	43	243
WEST NORTH CENTRAL	4.7	107	109	549	Q	Q	Q	Q
SOUTH	13.3	79	81	451	1.2	42	43	277
SOUTH ATLANTIC	4.6	83	84	543	.7	30	30	227
EAST SOUTH CENTRAL	2.5	74	75	399	Q	Q	Q	Q
WEST SOUTH CENTRAL	6.2	79	80	404	.4	61	62	351
WEST	11.1	74	76	365	.9	59	60	314
MOUNTAIN	2.8	93	95	450	.2	47	48	289
PACIFIC	8.4	68	69	337	.7	62	63	320
AREA TYPE								
METROPOLITAN	38.8	93	95	540	6.3	35	36	274
CENTRAL CITY	19.9	91	93	523	3.8	37	38	288
OUTSIDE CENTRAL CITY	18.9	95	97	558	2.4	32	33	252
NON-METROPOLITAN	8.7	95	97	493	.4	40	40	255
ANNUAL HEATING DEGREE-DAYS (HDD) AND COOLING DEGREE-DAYS (CDD) --LONG-TERM AVERAGE								
<2,000 CDD AND >7,000 HDD	4.5	107	110	581	.2	42	43	245
<2,000 CDD AND 5,500 TO 7,000 HDD	13.5	114	116	633	1.7	33	34	277
<2,000 CDD AND 4,000 TO 5,499 HDD	10.7	101	103	653	3.3	28	29	257
<2,000 CDD AND <4,000 HDD	12.5	73	75	369	.8	61	62	322
>2,000 CDD AND <4,000 HDD	6.3	68	69	395	.6	46	46	293
ALL GAS PAID BY HOUSEHOLD								
YES	38.7	99	101	555	4.4	34	34	259
NO	8.7	70	71	428	2.3	40	40	300
HOUSING STRUCTURE BY OWNERSHIP								
SINGLE-FAMILY DETACHED	30.5	104	106	570	2.5	40	41	283
OWN	25.4	106	108	584	2.2	39	40	280
RENT	5.1	95	97	501	.4	45	46	297
SINGLE-FAMILY ATTACHED	2.7	101	103	661	.4	33	34	265
OWN	2.0	103	105	690	.4	33	33	275
RENT	.7	93	95	573	Q	Q	Q	Q
BUILDING WITH 2 TO 4 UNITS	7.0	82	84	510	1.3	31	31	264
OWN	1.2	102	104	682	.4	28	28	259
RENT	5.7	78	80	473	.9	32	33	266
BUILDING WITH 5 OR MORE UNITS	6.2	56	57	345	2.4	34	35	270
OWN	.3	72	74	513	.4	66	68	395
RENT	5.9	55	57	336	2.0	28	28	246
MOBILE HOME	1.1	67	69	334	Q	Q	Q	Q
NUMBER OF ROOMS								
1	.5	33	34	268	.2	33	34	253
2	.9	53	54	341	.3	28	29	223
3	4.2	57	58	331	1.2	27	27	235
4	9.7	71	72	395	1.4	30	30	234
5	11.3	88	90	492	1.2	46	47	322
6	10.4	106	108	601	1.1	35	36	273
7	5.4	117	120	669	.6	41	42	314
8 OR MORE	5.2	140	143	805	.7	44	45	321

SEE FOOTNOTES AT END OF TABLE

Natural Gas as a Main Heating Fuel

Table 8. (Continued)

HOUSEHOLD CHARACTERISTICS	NATURAL GAS USED:							
	AS MAIN HEATING FUEL				NOT AS MAIN HEATING FUEL			
	NUMBER OF HOUSEHOLDS (MILLION)	AVG AMOUNT CONSUMED (THOUSAND CU.FT.)	AVG AMOUNT CONSUMED (MILLION BTU)	AVG EXPEND-ITURES PER HOUSEHOLD (DOLLARS)	NUMBER OF HOUSEHOLDS (MILLION)	AVG AMOUNT CONSUMED (THOUSAND CU.FT.)	AVG AMOUNT CONSUMED (MILLION BTU)	AVG EXPEND-ITURES PER HOUSEHOLD (DOLLARS)
NUMBER OF ROOMS THAT CAN BE AIR CONDITIONED								
ALL	18.7	89	91	501	2.0	46	47	309
SOME	9.3	101	103	610	1.5	34	34	279
NONE	19.5	94	96	523	3.1	30	31	247
MEASURED HEATED SQUARE FOOTAGE OF RESIDENCE								
LESS THAN 600 SQUARE FEET	4.1	53	54	332	1.0	33	34	269
600 TO 999 SQUARE FEET	12.7	71	73	400	2.1	28	28	232
1,000 TO 1,599 SQUARE FEET	14.2	89	91	500	1.6	37	38	281
1,600 TO 1,999 SQUARE FEET	5.8	106	108	606	.9	33	34	252
2,000 TO 2,399 SQUARE FEET	4.3	115	118	656	.4	52	53	354
2,400 TO 2,999 SQUARE FEET	3.7	132	135	758	.4	57	59	374
3,000 OR MORE SQUARE FEET	2.8	162	166	929	.3	45	46	362
YEAR HOUSE BUILT								
1939 OR EARLIER	14.0	104	106	606	3.1	32	32	274
1940 TO 1949	4.4	91	93	526	.7	27	27	238
1950 TO 1959	9.1	94	96	528	.8	33	33	254
1960 TO 1964	5.5	86	87	477	.8	30	30	247
1965 TO 1969	4.9	89	91	510	.2	46	47	294
1970 TO 1974	5.0	87	89	481	.5	52	53	311
1975 TO 1979	3.7	89	91	490	.4	72	74	376
1980 OR LATER	1.0	62	64	345	.2	37	38	236
OWN/RENT								
OWN	29.8	104	106	587	3.3	40	41	290
RENT	17.7	76	78	438	3.3	31	32	256
1981 FAMILY INCOME								
LESS THAN $5,000	5.4	76	78	455	1.0	28	28	219
$5,000 TO $9,999	7.6	85	87	465	1.3	30	31	247
$10,000 TO $14,999	6.7	86	88	480	1.0	31	31	261
$15,000 TO $19,999	4.8	96	98	554	.8	38	39	298
$20,000 TO $24,999	6.5	91	93	518	.9	31	31	260
$25,000 TO $34,999	8.7	97	99	558	.8	44	45	296
$35,000 OR MORE	7.8	117	119	661	.9	52	53	356
BELOW 100% OF POVERTY	6.9	85	87	482	1.2	33	33	255
BELOW 125% OF POVERTY	9.7	85	87	484	1.8	29	30	235
RECEIVE ASSISTANCE FOR HEATING IN WINTER								
YES	2.3	98	100	558	.3	38	39	305
NO	45.2	93	95	530	6.3	35	36	271
WEATHERIZATION ASSISTANCE FROM FEDERAL, STATE OR LOCAL GOVERNMENT								
YES	.5	100	102	557	Q	Q	Q	Q
NO	47.0	93	95	531	6.6	36	37	274
ENERGY AUDIT BY ELECTRIC OR GAS COMPANY IN PAST 12 MONTHS								
YES	1.1	106	108	623	Q	Q	Q	Q
NO	46.3	93	95	529	6.6	36	36	272
HOUSEHOLD OWNS OR HAS REGULAR USE OF A VEHICLE								
YES	40.8	95	97	533	4.3	40	41	286
NO	6.7	87	89	522	2.3	27	28	249

SEE FOOTNOTES AT END OF TABLE

Table 8. (Continued)

HOUSEHOLD CHARACTERISTICS	NATURAL GAS USED:							
	AS MAIN HEATING FUEL				NOT AS MAIN HEATING FUEL			
	NUMBER OF HOUSEHOLDS (MILLION)	AVG AMOUNT CONSUMED (THOUSAND CU.FT.)	AVG AMOUNT CONSUMED (MILLION BTU)	AVG EXPEND-ITURES PER HOUSEHOLD (DOLLARS)	NUMBER OF HOUSEHOLDS (MILLION)	AVG AMOUNT CONSUMED (THOUSAND CU.FT.)	AVG AMOUNT CONSUMED (MILLION BTU)	AVG EXPEND-ITURES PER HOUSEHOLD (DOLLARS)
ORIGIN OF HOUSEHOLDER								
WHITE	39.3	93	95	528	5.2	38	38	282
BLACK	7.0	98	100	569	1.4	28	29	246
OTHER	1.2	73	75	422	Q	Q	Q	Q
HISPANIC DESCENT								
YES	2.7	85	87	494	0.6	28	28	224
NO	44.8	94	96	534	6.1	36	37	278
AGE OF HOUSEHOLDER								
UNDER 25 YEARS	3.9	69	71	374	.7	29	29	234
25 TO 34 YEARS	10.7	87	89	500	1.1	43	44	306
35 TO 44 YEARS	8.5	103	105	597	1.0	36	37	275
45 TO 59 YEARS	11.3	101	104	569	1.6	43	44	304
60 YEARS AND OVER	13.0	93	95	529	2.2	28	29	244
HOUSEHOLD SIZE								
1 PERSON	11.5	70	71	401	1.9	32	33	249
2 PERSONS	14.5	91	93	514	2.0	30	31	231
3 PERSONS	7.8	100	102	564	1.0	38	39	306
4 PERSONS	8.0	106	108	617	1.0	39	39	309
5 PERSONS	3.2	116	119	636	.5	47	48	346
6 OR MORE PERSONS	2.6	125	128	715	.3	54	55	350

"-" = DATA NOT APPLICABLE.
"Q" = DATA WITHHELD BECAUSE OF A LARGE VARIANCE.
NOTE: BECAUSE OF ROUNDING, DATA MAY NOT SUM TO TOTALS. PERCENTAGES ARE CALCULATED ON UNROUNDED NUMBERS. SEE GLOSSARY FOR DEFINITION OF TERMS USED IN THIS REPORT.
SOURCE: ENERGY INFORMATION ADMINISTRATION, OFFICE OF ENERGY MARKETS AND END USE, ENERGY END USE DIVISION, FORM EIA-457, THE 1982 RESIDENTIAL ENERGY CONSUMPTION SURVEY.

Electricity Consumption and Expenditures

Table 9. U.S. Residential Electricity Consumption and Expenditures—April 1982 Through March 1983

HOUSEHOLD CHARACTERISTICS	ELECTRICITY							
	NUMBER OF HOUSEHOLDS (MILLION)	TOTAL AMOUNT CONSUMED (QUADRILLION BTU)	TOTAL EXPENDITURES (BILLION DOLLARS)	AVG PRICE (CENTS PER KWH)	TOTAL AMOUNT CONSUMED (BILLION KWH)	AVG AMOUNT CONSUMED (THOUSAND KWH)	AVG AMOUNT CONSUMED (MILLION BTU)	AVG EXPENDITURES PER HOUSEHOLD (DOLLARS)
TOTAL HOUSEHOLDS	83.7	2.42	48.4	6.8	710	8.5	29	578
CENSUS REGION AND DIVISION								
NORTHEAST	18.0	.38	10.4	9.4	112	6.2	21	582
NEW ENGLAND	4.2	.09	2.4	8.5	28	6.6	23	562
MIDDLE ATLANTIC	13.7	.29	8.1	9.6	84	6.1	21	588
NORTH CENTRAL	21.3	.57	11.2	6.7	168	7.9	27	527
EAST NORTH CENTRAL	15.0	.39	7.7	6.8	113	7.6	26	514
WEST NORTH CENTRAL	6.3	.19	3.5	6.4	55	8.7	30	560
SOUTH	28.0	1.05	19.6	6.4	307	11.0	37	700
SOUTH ATLANTIC	13.9	.48	9.3	6.6	141	10.1	35	671
EAST SOUTH CENTRAL	5.7	.25	3.9	5.3	74	13.0	44	686
WEST SOUTH CENTRAL	8.5	.32	6.4	6.9	93	11.0	37	759
WEST	16.4	.42	7.1	5.8	123	7.5	26	431
MOUNTAIN	4.3	.12	2.2	6.3	36	8.3	28	520
PACIFIC	12.2	.30	4.9	5.6	87	7.2	25	400
AREA TYPE								
METROPOLITAN	63.2	1.78	36.7	7.0	521	8.2	28	580
CENTRAL CITY	29.4	.75	15.5	7.1	219	7.5	25	526
OUTSIDE CENTRAL CITY	33.8	1.03	21.2	7.0	301	8.9	30	628
NON-METROPOLITAN	20.5	.65	11.7	6.2	190	9.2	32	571
ANNUAL HEATING DEGREE-DAYS (HDD) AND COOLING DEGREE-DAYS (CDD) --LONG-TERM AVERAGE								
<2,000 CDD AND >7,000 HDD	8.5	.22	4.1	6.5	64	7.5	25	485
<2,000 CDD AND 5,500 TO 7,000 HDD	21.0	.54	11.4	7.2	159	7.6	26	542
<2,000 CDD AND 4,000 TO 5,499 HDD	22.1	.62	12.9	7.1	182	8.3	28	584
<2,000 CDD AND <4,000 HDD	19.6	.56	10.2	6.3	163	8.3	28	523
>2,000 CDD AND <4,000 HDD	12.6	.49	9.8	6.9	143	11.3	39	778
ALL ELECTRICITY PAID BY HOUSEHOLD								
YES	76.8	2.24	44.5	6.8	658	8.6	29	579
NO	6.9	.18	3.9	7.4	53	7.6	26	564
HOUSING STRUCTURE BY OWNERSHIP								
SINGLE-FAMILY DETACHED	53.7	1.76	34.0	6.6	515	9.6	33	633
OWN	45.1	1.54	29.7	6.6	450	10.0	34	660
RENT	8.7	.22	4.3	6.6	64	7.4	25	493
SINGLE-FAMILY ATTACHED	3.9	.10	2.1	7.6	28	7.3	25	552
OWN	2.7	.06	1.5	8.4	17	6.4	22	536
RENT	1.1	.04	.7	6.2	11	9.5	32	589
BUILDING WITH 2 TO 4 UNITS	10.1	.20	4.6	7.7	59	5.8	20	449
OWN	2.1	.05	1.3	8.7	15	7.0	24	611
RENT	8.0	.15	3.2	7.4	44	5.5	19	406
BUILDING WITH 5 OR MORE UNITS	12.2	.26	5.6	7.4	76	6.2	21	460
OWN	1.0	.03	.6	8.4	7	7.5	25	625
RENT	11.3	.23	5.0	7.3	69	6.1	21	445
MOBILE HOME	3.7	.11	2.1	6.5	33	8.7	30	561
OWN	3.0	.09	1.7	6.4	27	9.2	31	587
RENT	.8	.02	.4	6.8	5	6.7	23	458
NUMBER OF ROOMS								
1	.8	.01	.3	7.9	4	5.3	18	421
2	1.8	.03	.6	7.4	9	4.8	16	357
3	8.2	.16	3.5	7.3	47	5.8	20	422
4	16.8	.38	7.4	6.7	111	6.6	22	440
5	19.8	.54	10.9	6.9	159	8.0	27	550
6	18.2	.58	11.6	6.8	171	9.4	32	635
7	9.3	.35	6.8	6.7	102	10.9	37	731
8 OR MORE	8.8	.37	7.3	6.8	109	12.3	42	830

SEE FOOTNOTES AT END OF TABLE

Electricity Consumption and Expenditures

Table 9. (Continued)

HOUSEHOLD CHARACTERISTICS	ELECTRICITY							
	NUMBER OF HOUSEHOLDS (MILLION)	TOTAL AMOUNT CONSUMED (QUADRILLION BTU)	TOTAL EXPENDITURES (BILLION DOLLARS)	AVG PRICE (CENTS PER KWH)	TOTAL AMOUNT CONSUMED (BILLION KWH)	AVG AMOUNT CONSUMED (THOUSAND KWH)	AVG AMOUNT CONSUMED (MILLION BTU)	AVG EXPENDITURES PER HOUSEHOLD (DOLLARS)
NUMBER OF ROOMS THAT CAN BE AIR CONDITIONED								
ALL	32.5	1.24	24.0	6.6	365	11.2	38	739
SOME	16.1	.43	9.4	7.5	125	7.7	26	580
NONE	35.1	.75	15.0	6.8	221	6.3	22	428
MEASURED HEATED SQUARE FOOTAGE OF RESIDENCE								
LESS THAN 600 SQUARE FEET	7.8	.12	2.8	7.8	36	4.7	16	365
600 TO 999 SQUARE FEET	22.5	.52	10.3	6.8	151	6.7	23	458
1,000 TO 1,599 SQUARE FEET	25.1	.75	14.8	6.7	219	8.7	30	589
1,600 TO 1,999 SQUARE FEET	10.5	.36	7.0	6.5	107	10.1	35	662
2,000 TO 2,399 SQUARE FEET	7.2	.26	5.1	6.7	76	10.5	36	705
2,400 TO 2,999 SQUARE FEET	6.1	.23	4.7	7.0	67	11.0	38	768
3,000 OR MORE SQUARE FEET	4.5	.18	3.8	7.0	54	11.8	40	828
YEAR HOUSE BUILT								
1939 OR EARLIER	23.6	.48	10.5	7.4	142	6.0	21	446
1940 TO 1949	7.0	.18	3.6	6.9	52	7.4	25	515
1950 TO 1959	13.4	.34	7.2	7.2	99	7.4	25	536
1960 TO 1964	8.6	.27	5.4	7.0	78	9.0	31	630
1965 TO 1969	8.1	.28	5.3	6.5	81	10.0	34	654
1970 TO 1974	10.2	.37	7.0	6.5	108	10.6	36	689
1975 TO 1979	10.0	.40	7.4	6.3	117	11.8	40	740
1980 OR LATER	2.9	.11	2.0	6.2	33	11.2	38	688
OWN/RENT								
OWN	53.9	1.76	34.9	6.7	517	9.6	33	647
RENT	29.8	.66	13.6	7.0	193	6.5	22	454
1981 FAMILY INCOME								
LESS THAN $5,000	9.3	0.17	3.6	6.9	51	5.5	19	381
$5,000 TO $9,999	13.8	.31	6.4	7.0	91	6.6	23	462
$10,000 TO $14,999	13.0	.34	6.8	6.8	101	7.8	27	527
$15,000 TO $19,999	9.2	.25	4.9	6.7	73	8.0	27	537
$20,000 TO $24,999	10.6	.31	6.3	6.9	91	8.6	29	593
$25,000 TO $34,999	15.2	.52	10.1	6.6	154	10.1	34	667
$35,000 OR MORE	12.6	.51	10.3	7.0	148	11.7	40	815
BELOW 100% OF POVERTY	12.1	.27	5.4	6.9	78	6.4	22	447
BELOW 125% OF POVERTY	17.4	.39	7.9	6.9	114	6.6	22	455
RECEIVE ASSISTANCE FOR HEATING IN WINTER								
YES	4.3	.10	1.9	6.9	28	6.5	22	447
NO	79.4	2.33	46.5	6.8	682	8.6	29	585
WEATHERIZATION ASSISTANCE FROM FEDERAL, STATE OR LOCAL GOVERNMENT								
YES	1.0	.03	.5	6.3	8	7.4	25	466
NO	82.7	2.40	47.9	6.8	703	8.5	29	580
ENERGY AUDIT BY ELECTRIC OR GAS COMPANY IN PAST 12 MONTHS								
YES	2.3	.09	1.7	6.1	27	12.2	42	747
NO	81.5	2.33	46.7	6.8	683	8.4	29	573
HOUSEHOLD OWNS OR HAS REGULAR USE OF A VEHICLE								
YES	72.1	2.24	44.0	6.7	656	9.1	31	611
NO	11.6	.18	4.4	8.1	54	4.7	16	378

SEE FOOTNOTES AT END OF TABLE

Electricity Consumption and Expenditures

Table 9. (Continued)

HOUSEHOLD CHARACTERISTICS	ELECTRICITY							
	NUMBER OF HOUSEHOLDS (MILLION)	TOTAL AMOUNT CONSUMED (QUADRILLION BTU)	TOTAL EXPENDITURES (BILLION DOLLARS)	AVG PRICE (CENTS PER KWH)	TOTAL AMOUNT CONSUMED (BILLION KWH)	AVG AMOUNT CONSUMED (THOUSAND KWH)	AVG AMOUNT CONSUMED (MILLION BTU)	AVG EXPENDITURES PER HOUSEHOLD (DOLLARS)
ORIGIN OF HOUSEHOLDER								
WHITE	71.2	2.13	42.2	6.7	625	8.8	30	592
BLACK	10.5	.24	5.3	7.4	71	6.8	23	503
OTHER	2.0	.05	1.0	7.1	14	6.8	23	484
HISPANIC DESCENT								
YES	4.3	.10	2.2	7.4	30	7.0	24	520
NO	79.5	2.32	46.2	6.8	680	8.6	29	581
AGE OF HOUSEHOLDER								
UNDER 25 YEARS	6.7	.15	2.9	6.6	43	6.4	22	424
25 TO 34 YEARS	19.4	.59	11.5	6.7	173	8.9	30	593
35 TO 44 YEARS	14.7	.52	10.3	6.7	153	10.4	35	699
45 TO 59 YEARS	19.3	.60	12.2	6.9	177	9.2	31	634
60 YEARS AND OVER	23.6	.56	11.5	7.0	165	7.0	24	488
HOUSEHOLD SIZE								
1 PERSON	19.2	.35	7.3	7.1	103	5.3	18	377
2 PERSONS	26.3	.72	14.1	6.7	210	8.0	27	536
3 PERSONS	13.6	.43	8.4	6.7	126	9.3	32	619
4 PERSONS	14.2	.52	10.5	6.9	153	10.7	37	737
5 PERSONS	6.2	.25	5.0	6.8	72	11.7	40	799
6 OR MORE PERSONS	4.2	.16	3.2	6.9	47	11.2	38	768
ALL-ELECTRIC HOME								
YES	11.6	.66	11.0	5.7	194	16.8	57	954
NO	72.2	1.76	37.4	7.2	516	7.2	24	518
SECONDARY HEATING								
YES	31.3	1.11	21.2	6.5	325	10.4	35	677
NO	52.4	1.32	27.2	7.1	386	7.4	25	519
FUEL COMBINATIONS								
NATURAL GAS USED MAIN HEAT	47.5	1.07	22.7	7.2	314	6.6	23	478
NATURAL GAS FOR HOT WATER AND HAVE AIR CONDITIONING	25.6	.67	14.4	7.4	195	7.6	26	563
NATURAL GAS FOR HOT WATER AND NO AIR CONDITIONING	17.8	.27	5.8	7.4	78	4.4	15	325
ELECTRICITY FOR HOT WATER AND HAVE AIR CONDITIONING	2.4	.10	1.8	6.2	29	12.2	41	756
ELECTRICITY FOR HOT WATER AND NO AIR CONDITIONING	1.7	.04	.7	5.7	12	7.2	24	407
OTHER	Q	Q	Q	Q	Q	Q	Q	Q
ELECTRICITY USED MAIN HEAT	13.4	.73	12.5	5.8	214	16.0	55	931
ELECTRICITY FOR HOT WATER AND HAVE AIR CONDITIONING	9.0	.52	9.1	5.9	154	17.1	58	1009
ELECTRICITY FOR HOT WATER AND NO AIR CONDITIONING	2.9	.14	2.1	5.0	42	14.8	50	733
OTHER	1.5	.06	1.3	7.1	18	11.9	41	840
FUEL OIL USED MAIN HEAT	11.3	.27	6.4	8.2	78	6.9	24	568
FUEL OIL FOR HOT WATER AND HAVE AIR CONDITIONING	2.6	.05	1.5	10.3	15	5.6	19	577
FUEL OIL FOR HOT WATER AND NO AIR CONDITIONING	2.6	.04	1.1	10.6	11	4.1	14	433
ELECTRICITY FOR HOT WATER AND HAVE AIR CONDITIONING	2.0	.07	1.5	6.8	22	11.0	37	742
ELECTRICITY FOR HOT WATER AND NO AIR CONDITIONING	2.2	.07	1.3	6.5	21	9.5	33	621
OTHER	2.0	.04	1.0	8.9	11	5.6	19	500
WOOD USED MAIN HEAT	5.6	.19	3.5	6.2	56	10.0	34	627
LPG USED MAIN HEAT	3.8	.10	2.1	6.9	30	8.0	27	550
KEROSENE USED MAIN HEAT	.7	.02	.4	7.1	6	8.0	27	569
COAL USED MAIN HEAT	.9	.03	.6	6.6	8	9.3	32	616
NO HEATING FUEL	.4	.01	.2	13.2	2	3.9	13	515
OTHER FUEL	Q	Q	Q	Q	Q	Q	Q	Q

"-" = DATA NOT APPLICABLE.
"Q" = DATA WITHHELD BECAUSE OF A LARGE VARIANCE.
NOTE: BECAUSE OF ROUNDING, DATA MAY NOT SUM TO TOTALS. PERCENTAGES ARE CALCULATED ON UNROUNDED NUMBERS. SEE GLOSSARY FOR DEFINITION OF TERMS USED IN THIS REPORT.
SOURCE: ENERGY INFORMATION ADMINISTRATION, OFFICE OF ENERGY MARKETS AND END USE, ENERGY END USE DIVISION, FORM EIA-457, THE 1982 RESIDENTIAL ENERGY CONSUMPTION SURVEY.

Table 10. U.S. Residential Electricity Consumption and Expenditures for Households Using Electricity as Main Heating Fuel—April 1982 Through March 1983

HOUSEHOLD CHARACTERISTICS	ELECTRICITY USED: AS MAIN HEATING FUEL											
					FOR AIR CONDITIONING				NOT FOR AIR CONDITIONING			
	NUMBER OF HOUSEHOLDS (MILLION)	AVG AMOUNT CONSUMED (THOUSAND KWH)	AVG AMOUNT CONSUMED (MILLION BTU)	AVG EXPENDITURES PER HOUSEHOLD (DOLLARS)	NUMBER OF HOUSEHOLDS (MILLION)	AVG AMOUNT CONSUMED (THOUSAND KWH)	AVG AMOUNT CONSUMED (MILLION BTU)	AVG EXPENDITURES PER HOUSEHOLD (DOLLARS)	NUMBER OF HOUSEHOLDS (MILLION)	AVG AMOUNT CONSUMED (THOUSAND KWH)	AVG AMOUNT CONSUMED (MILLION BTU)	AVG EXPENDITURES PER HOUSEHOLD (DOLLARS)
TOTAL HOUSEHOLDS	13.4	16.0	55	931	10.2	16.6	57	997	3.1	14.1	48	715
CENSUS REGION AND DIVISION												
NORTHEAST	1.3	13.9	47	1082	.9	14.1	48	1109	.4	13.4	46	1029
NEW ENGLAND	.3	12.4	42	991	.2	11.4	39	906	Q	Q	Q	Q
MIDDLE ATLANTIC	1.0	14.3	49	1109	.7	14.9	51	1162	.3	13.2	45	994
NORTH CENTRAL	2.1	19.0	65	1026	1.8	19.3	66	1026	.3	17.3	59	1024
SOUTH	6.8	16.4	56	1004	6.0	17.0	58	1037	.8	12.6	43	763
SOUTH ATLANTIC	3.7	14.3	49	947	3.1	14.4	49	962	.6	13.2	45	863
EAST SOUTH CENTRAL	1.8	18.5	63	938	1.6	19.5	67	992	.2	12.0	41	565
WEST SOUTH CENTRAL	1.3	19.5	67	1256	1.3	19.8	67	1272	Q	Q	Q	Q
WEST	3.1	13.9	47	646	1.6	13.3	45	751	1.6	14.5	49	540
MOUNTAIN	.9	13.5	46	824	.8	13.4	46	850	Q	Q	Q	Q
PACIFIC	2.3	14.0	48	578	.8	13.2	45	660	1.5	14.5	49	532
AREA TYPE												
METROPOLITAN	10.5	15.7	54	938	8.4	16.1	55	1000	2.0	14.0	48	684
CENTRAL CITY	4.5	15.5	53	860	3.5	16.5	56	951	1.0	11.8	40	549
OUTSIDE CENTRAL CITY	5.9	15.9	54	998	4.9	15.8	54	1035	1.0	16.2	55	819
NON-METROPOLITAN	2.9	17.0	58	905	1.8	18.6	64	985	1.1	14.4	49	773
ANNUAL HEATING DEGREE-DAYS (HDD) AND COOLING DEGREE-DAYS (CDD) --LONG-TERM AVERAGE												
<2,000 CDD AND >7,000 HDD	.6	16.5	56	979	.2	22.5	77	1347	.4	13.0	44	758
<2,000 CDD AND 5,500 TO 7,000 HDD	2.4	17.3	59	973	1.9	17.5	60	962	.6	16.4	56	1011
<2,000 CDD AND 4,000 TO 5,499 HDD	3.1	17.0	58	879	1.7	17.6	60	1053	1.4	16.2	55	664
<2,000 CDD AND <4,000 HDD	3.2	15.5	53	881	2.5	16.9	58	950	.7	10.5	36	628
>2,000 CDD AND <4,000 HDD	4.1	14.8	50	978	3.9	15.1	52	1000	Q	Q	Q	Q
ALL ELECTRICITY PAID BY HOUSEHOLD												
YES	11.9	16.2	55	932	9.2	16.6	57	987	2.7	14.9	51	741
NO	1.5	14.4	49	923	1.0	16.5	56	1093	.5	10.2	35	573
HOUSING STRUCTURE BY OWNERSHIP												
SINGLE-FAMILY DETACHED	6.9	18.8	64	1054	5.4	19.4	66	1121	1.5	16.5	56	811
OWN	6.1	19.6	67	1106	5.0	19.8	68	1145	1.0	18.5	63	914
RENT	.9	13.2	45	690	.4	14.2	48	813	.5	12.3	42	588
SINGLE-FAMILY ATTACHED	.6	18.3	62	1059	.5	17.5	60	970	.2	20.4	70	1329
BUILDING WITH 2 TO 4 UNITS	1.1	14.1	48	814	.7	15.0	51	942	.4	12.8	44	615
BUILDING WITH 5 OR MORE UNITS	3.9	11.7	40	750	3.1	12.4	42	826	.7	8.7	30	427
MOBILE HOME	.9	13.7	47	810	.6	13.3	45	834	.3	14.3	49	770
NUMBER OF ROOMS												
1	.2	11.3	39	797	.2	11.7	40	838	Q	Q	Q	Q
2	.5	9.6	33	571	.3	11.3	39	709	.2	6.5	22	334
3	2.1	11.6	40	757	1.5	12.6	43	843	.7	9.6	33	572
4	2.9	13.3	45	756	1.9	13.5	46	810	1.0	12.9	44	649
5	3.0	15.1	51	908	2.5	15.2	52	946	.5	14.5	50	730
6	2.4	18.7	64	1051	2.0	18.4	63	1063	.4	20.0	68	997
7	1.3	22.0	75	1233	1.2	22.1	75	1274	Q	Q	Q	Q
8 OR MORE	.9	26.5	91	1440	.7	27.2	93	1523	.2	24.1	82	1118
NUMBER OF ROOMS THAT CAN BE AIR CONDITIONED												
ALL	8.7	17.1	58	1016	8.7	17.1	58	1016	Q	Q	Q	Q
SOME	1.5	13.8	47	889	1.5	13.8	47	889	Q	Q	Q	Q
NONE	3.1	14.1	48	715	Q	Q	Q	Q	3.1	14.1	48	715

SEE FOOTNOTES AT END OF TABLE

Table 10. (Continued)

HOUSEHOLD CHARACTERISTICS	ELECTRICITY USED: AS MAIN HEATING FUEL											
					FOR AIR CONDITIONING				NOT FOR AIR CONDITIONING			
	NUMBER OF HOUSE-HOLDS (MIL-LION)	AVG AMOUNT CON-SUMED (THOU-SAND KWH)	AVG AMOUNT CON-SUMED (MIL-LION BTU)	AVG EXPEND-ITURES PER HOUSE-HOLD (DOL-LARS)	NUMBER OF HOUSE-HOLDS (MIL-LION)	AVG AMOUNT CON-SUMED (THOU-SAND KWH)	AVG AMOUNT CON-SUMED (MIL-LION BTU)	AVG EXPEND-ITURES PER HOUSE-HOLD (DOL-LARS)	NUMBER OF HOUSE-HOLDS (MIL-LION)	AVG AMOUNT CON-SUMED (THOU-SAND KWH)	AVG AMOUNT CON-SUMED (MIL-LION BTU)	AVG EXPEND-ITURES PER HOUSE-HOLD (DOL-LARS)
MEASURED HEATED SQUARE FOOTAGE OF RESIDENCE												
LESS THAN 600 SQUARE FEET.....	1.4	9.7	33	617	0.7	11.2	38	746	0.6	7.9	27	472
600 TO 999 SQUARE FEET........	4.4	13.6	46	806	3.0	13.8	47	876	1.4	13.1	45	651
1,000 TO 1,599 SQUARE FEET....	4.0	15.5	53	910	3.4	15.1	52	922	.6	17.5	60	843
1,600 TO 1,999 SQUARE FEET....	1.8	20.1	69	1125	1.5	20.1	69	1143	.3	19.8	67	1025
2,000 TO 2,399 SQUARE FEET....	.8	21.9	75	1197	.8	22.7	77	1255	Q	Q	Q	Q
2,400 TO 2,999 SQUARE FEET....	.6	22.2	76	1292	.5	21.8	74	1295	Q	Q	Q	Q
3,000 OR MORE SQUARE FEET.....	.4	28.0	96	1549	.3	29.2	100	1668	Q	Q	Q	Q
YEAR HOUSE BUILT												
1939 OR EARLIER...............	.7	14.9	51	776	.2	18.8	64	1031	.5	13.0	44	649
1940 TO 1949..................	.3	14.5	50	889	.2	15.9	54	924	.2	12.9	44	848
1950 TO 1959..................	.9	15.0	51	879	.7	17.1	58	1032	.3	9.8	33	498
1960 TO 1964..................	1.0	16.5	56	970	.7	17.2	59	1091	.2	14.7	50	610
1965 TO 1969..................	1.8	16.1	55	951	1.3	16.1	55	1007	.5	16.2	55	797
1970 TO 1974..................	3.0	16.3	55	993	2.5	16.1	55	1022	.5	17.0	58	839
1975 TO 1979..................	4.2	16.6	57	933	3.4	17.2	59	985	.8	13.9	48	715
1980 OR LATER.................	1.5	14.8	51	872	1.3	15.3	52	903	.2	12.3	42	701
OWN/RENT												
OWN..........................	7.8	18.1	62	1036	6.4	18.3	62	1074	1.4	17.1	58	859
RENT.........................	5.6	13.1	45	786	3.8	13.7	47	869	1.8	11.8	40	605
1981 FAMILY INCOME												
LESS THAN $5,000.............	1.1	12.6	43	723	.6	12.1	41	760	.5	13.2	45	677
$5,000 TO $9,999.............	2.2	12.8	44	784	1.6	13.2	45	851	.7	11.8	40	631
$10,000 TO $14,999...........	2.0	14.7	50	855	1.4	15.2	52	907	.5	13.4	46	715
$15,000 TO $19,999...........	1.4	15.5	53	929	1.1	15.9	54	999	.3	14.2	48	682
$20,000 TO $24,999...........	1.7	14.9	51	881	1.3	14.9	51	909	.3	15.1	52	770
$25,000 TO $34,999...........	2.9	17.7	60	990	2.3	17.9	61	1030	.5	16.7	57	817
$35,000 OR MORE..............	2.1	21.4	73	1235	1.9	21.9	75	1292	.2	17.3	59	778
BELOW 100% OF POVERTY	1.4	13.7	47	773	0.8	13.5	46	811	0.6	14.0	48	723
BELOW 125% OF POVERTY...........	2.1	13.4	46	772	1.3	13.5	46	818	.9	13.2	45	707
RECEIVE ASSISTANCE FOR HEATING IN WINTER												
YES..........................	.5	13.8	47	785	.3	13.2	45	827	.3	14.4	49	744
NO...........................	12.8	16.1	55	937	10.0	16.7	57	1002	2.9	14.1	48	713
WEATHERIZATION ASSISTANCE FROM FEDERAL, STATE OR LOCAL GOVERNMENT												
YES..........................	.2	17.5	60	763	Q	Q	Q	Q	Q	Q	Q	Q
NO...........................	13.2	16.0	55	933	10.2	16.6	57	998	3.1	14.1	48	718
ENERGY AUDIT BY ELECTRIC OR GAS COMPANY IN PAST 12 MONTHS												
YES..........................	.5	23.5	80	1220	.4	24.0	82	1363	Q	Q	Q	Q
NO...........................	12.9	15.7	54	920	9.8	16.3	56	983	3.0	13.9	47	717
HOUSEHOLD OWNS OR HAS REGULAR USE OF A VEHICLE												
YES..........................	12.1	16.4	56	951	9.5	16.8	57	1006	2.5	14.9	51	741
NO...........................	1.3	11.9	41	749	.7	12.8	44	870	.6	10.8	37	606
ORIGIN OF HOUSEHOLDER												
WHITE........................	12.1	16.2	55	943	9.4	16.6	57	1002	2.7	14.7	50	737
BLACK........................	1.0	14.0	48	866	.6	15.4	53	962	.3	11.1	38	671
OTHER........................	.3	13.6	46	678	.2	16.9	58	890	.2	10.1	34	455

SEE FOOTNOTES AT END OF TABLE

Electricity as a Main Heating Fuel

Table 10. (Continued)

HOUSEHOLD CHARACTERISTICS	ELECTRICITY USED: AS MAIN HEATING FUEL				FOR AIR CONDITIONING				NOT FOR AIR CONDITIONING			
	NUMBER OF HOUSEHOLDS (MILLION)	AVG AMOUNT CONSUMED (THOUSAND KWH)	AVG AMOUNT CONSUMED (MILLION BTU)	AVG EXPENDITURES PER HOUSEHOLD (DOLLARS)	NUMBER OF HOUSEHOLDS (MILLION)	AVG AMOUNT CONSUMED (THOUSAND KWH)	AVG AMOUNT CONSUMED (MILLION BTU)	AVG EXPENDITURES PER HOUSEHOLD (DOLLARS)	NUMBER OF HOUSEHOLDS (MILLION)	AVG AMOUNT CONSUMED (THOUSAND KWH)	AVG AMOUNT CONSUMED (MILLION BTU)	AVG EXPENDITURES PER HOUSEHOLD (DOLLARS)
HISPANIC DESCENT												
YES	0.6	15.0	51	882	0.3	17.7	60	1118	0.2	11.4	39	563
NO	12.8	16.0	55	933	9.9	16.5	56	993	2.9	14.4	49	728
AGE OF HOUSEHOLDER												
UNDER 25 YEARS	1.4	11.9	41	686	.9	12.6	43	752	.5	10.6	36	572
25 TO 34 YEARS	3.9	16.5	56	971	3.0	17.4	59	1060	.9	13.7	47	682
35 TO 44 YEARS	2.1	19.6	67	1101	1.7	20.3	69	1176	.4	16.9	58	815
45 TO 59 YEARS	2.5	17.4	59	989	1.9	17.5	60	1013	.6	17.0	58	913
60 YEARS AND OVER	3.4	13.8	47	838	2.8	14.0	48	889	.7	13.1	45	628
HOUSEHOLD SIZE												
1 PERSON	3.3	11.1	38	694	2.5	11.5	39	755	.8	9.7	33	501
2 PERSONS	4.6	14.7	50	852	3.6	15.0	51	911	1.0	13.7	47	637
3 PERSONS	2.2	18.4	63	1049	1.7	19.1	65	1113	.5	16.2	55	834
4 PERSONS	1.8	21.3	73	1241	1.4	21.9	75	1287	.4	19.4	66	1080
5 PERSONS	.8	21.5	74	1195	.7	22.2	76	1271	Q	Q	Q	Q
6 OR MORE PERSONS	.6	21.3	73	1155	.3	27.6	94	1506	.3	15.1	52	816
ALL-ELECTRIC HOME												
YES	11.6	16.8	57	954	8.9	17.3	59	1019	2.7	15.2	52	744
NO	1.8	11.0	37	781	1.4	12.0	41	857	.4	7.5	26	533
SECONDARY HEATING												
YES	4.6	19.2	65	1069	3.7	19.8	68	1145	.9	16.8	57	775
NO	8.8	14.3	49	859	6.6	14.8	50	915	2.2	13.0	44	690
MAIN HEATING EQUIPMENT USING ELECTRICITY												
CENTRAL WARM AIR FURNACE	3.5	18.2	62	1032	3.1	18.1	62	1066	.4	18.5	63	782
BUILT-IN ELECTRIC UNITS	5.0	14.8	50	867	2.8	15.2	52	974	2.2	14.3	49	727
HEAT PUMP	3.6	17.1	58	995	3.6	17.1	58	995	Q	Q	Q	Q
OTHER	1.2	11.6	39	715	.7	12.7	43	795	.5	10.1	34	613

"-" = DATA NOT APPLICABLE.
"Q" = DATA WITHHELD BECAUSE OF A LARGE VARIANCE.
NOTE: BECAUSE OF ROUNDING, DATA MAY NOT SUM TO TOTALS. PERCENTAGES ARE CALCULATED ON UNROUNDED NUMBERS. SEE GLOSSARY FOR DEFINITION OF TERMS USED IN THIS REPORT.
SOURCE: ENERGY INFORMATION ADMINISTRATION, OFFICE OF ENERGY MARKETS AND END USE, ENERGY END USE DIVISION, FORM EIA-457, THE 1982 RESIDENTIAL ENERGY CONSUMPTION SURVEY.

Electricity Not as a Main Heating Fuel

Table 11. U.S. Residential Electricity Consumption and Expenditures for Households Not Using Electricity as Main Heating Fuel—April 1982 Through March 1983

HOUSEHOLD CHARACTERISTICS	ELECTRICITY USED: NOT AS MAIN HEATING FUEL											
					FOR AIR CONDITIONING				NOT FOR AIR CONDITIONING			
	NUMBER OF HOUSE-HOLDS (MIL-LION)	AVG AMOUNT CON-SUMED (THOU-SAND KWH)	AVG AMOUNT CON-SUMED (MIL-LION BTU)	AVG EXPEND-ITURES PER HOUSE-HOLD (DOL-LARS)	NUMBER OF HOUSE-HOLDS (MIL-LION)	AVG AMOUNT CON-SUMED (THOU-SAND KWH)	AVG AMOUNT CON-SUMED (MIL-LION BTU)	AVG EXPEND-ITURES PER HOUSE-HOLD (DOL-LARS)	NUMBER OF HOUSE-HOLDS (MIL-LION)	AVG AMOUNT CON-SUMED (THOU-SAND KWH)	AVG AMOUNT CON-SUMED (MIL-LION BTU)	AVG EXPEND-ITURES PER HOUSE-HOLD (DOL-LARS)
TOTAL HOUSEHOLDS	70.4	7.1	24	511	37.8	8.3	28	605	32.6	5.6	19	402
CENSUS REGION AND DIVISION												
NORTHEAST	16.6	5.6	19	543	8.3	6.3	21	636	8.4	4.9	17	451
NEW ENGLAND	3.9	6.2	21	530	1.7	7.1	24	609	2.3	5.5	19	473
MIDDLE ATLANTIC	12.7	5.4	19	547	6.6	6.1	21	643	6.1	4.7	16	443
NORTH CENTRAL	19.2	6.7	23	473	10.4	7.5	26	531	8.8	5.7	20	404
EAST NORTH CENTRAL	13.4	6.2	21	454	6.1	7.0	24	524	7.2	5.5	19	394
WEST NORTH CENTRAL	5.8	7.7	26	516	4.3	8.1	28	540	1.6	6.7	23	451
SOUTH	21.2	9.2	31	603	15.1	10.4	36	676	6.1	6.2	21	422
SOUTH ATLANTIC	10.2	8.6	29	573	6.4	9.8	34	651	3.9	6.7	23	444
EAST SOUTH CENTRAL	3.8	10.3	35	564	3.1	11.3	39	612	.7	6.2	21	363
WEST SOUTH CENTRAL	7.2	9.4	32	667	5.6	10.6	36	740	1.5	5.1	18	397
WEST	13.3	6.0	20	381	4.1	7.0	24	468	9.2	5.5	19	342
MOUNTAIN	3.4	7.0	24	443	1.0	8.8	30	555	2.4	6.2	21	395
PACIFIC	9.9	5.6	19	359	3.0	6.4	22	440	6.8	5.2	18	324
AREA TYPE												
METROPOLITAN	52.7	6.8	23	509	29.6	8.0	27	607	23.2	5.1	17	385
CENTRAL CITY	24.9	6.0	20	465	13.3	7.6	26	581	11.6	4.2	14	332
OUTSIDE CENTRAL CITY	27.9	7.4	25	549	16.3	8.4	29	628	11.5	6.0	20	438
NON-METROPOLITAN	17.6	8.0	27	517	8.2	9.4	32	598	9.4	6.7	23	445
ANNUAL HEATING DEGREE-DAYS (HDD) AND COOLING DEGREE-DAYS (CDD) --LONG-TERM AVERAGE												
<2,000 CDD AND >7,000 HDD	7.9	6.8	23	450	2.5	7.5	26	496	5.5	6.5	22	429
<2,000 CDD AND 5,500 TO 7,000 HDD	18.5	6.3	21	485	9.2	7.0	24	545	9.4	5.6	19	426
<2,000 CDD AND 4,000 TO 5,499 HDD	19.0	6.8	23	535	11.2	7.5	26	617	7.8	5.8	20	418
<2,000 CDD AND <4,000 HDD	16.4	7.0	24	454	8.7	9.0	31	567	7.7	4.7	16	328
>2,000 CDD AND <4,000 HDD	8.5	9.7	33	681	6.3	11.2	38	767	2.2	5.2	18	437
ALL ELECTRICITY PAID BY HOUSEHOLD												
YES	64.9	7.2	24	515	35.3	8.3	28	600	29.6	5.8	20	413
NO	5.4	5.8	20	467	2.5	8.8	30	683	3.0	3.3	11	291
HOUSING STRUCTURE BY OWNERSHIP												
SINGLE-FAMILY DETACHED	46.8	8.2	28	570	25.9	9.5	32	660	20.9	6.7	23	460
OWN	39.0	8.5	29	590	22.6	9.6	33	669	16.5	7.0	24	482
RENT	7.8	6.8	23	471	3.3	8.7	30	596	4.5	5.4	18	378
SINGLE-FAMILY ATTACHED	3.2	5.2	18	455	1.6	6.5	22	598	1.6	3.9	13	308
OWN	2.5	5.5	19	494	1.5	6.5	22	610	1.0	3.9	13	312
RENT	.7	4.2	14	325	.1	Q	Q	Q	.6	3.8	13	301
BUILDING WITH 2 TO 4 UNITS	9.1	4.8	16	405	4.2	6.2	21	508	4.8	3.7	13	315
OWN	2.0	6.5	22	598	1.2	7.9	27	716	.7	4.2	14	398
RENT	7.1	4.4	15	351	3.0	5.4	19	421	4.1	3.6	12	301
BUILDING WITH 5 OR MORE UNITS	8.4	3.7	13	326	4.7	4.8	16	402	3.7	2.2	8	229
OWN	.5	5.4	18	595	.3	6.4	22	676	.2	3.1	11	424
RENT	7.9	3.6	12	310	4.4	4.7	16	382	3.5	2.2	8	220
MOBILE HOME	2.9	7.1	24	483	1.3	8.5	29	577	1.5	6.0	20	405
OWN	2.2	7.6	26	507	1.0	8.7	30	587	1.2	6.6	22	435
RENT	.7	5.7	19	407	.3	7.7	26	539	.4	4.3	15	316
NUMBER OF ROOMS												
1	.6	3.3	11	296	.4	4.4	15	377	.2	1.5	5	166
2	1.3	3.2	11	284	.4	4.6	16	426	.9	2.4	8	210
3	6.0	3.7	13	304	3.0	4.1	14	340	3.0	3.3	11	267
4	13.9	5.2	18	374	6.5	6.4	22	453	7.4	4.1	14	304
5	16.8	6.7	23	485	9.0	7.7	26	559	7.7	5.6	19	399
6	15.8	7.9	27	571	8.9	9.2	31	653	6.9	6.3	22	464
7	8.0	9.1	31	647	4.5	10.6	36	756	3.4	7.1	24	503
8 OR MORE	8.0	10.7	36	762	4.9	11.8	40	862	3.1	9.0	31	600

SEE FOOTNOTES AT END OF TABLE

Table 11. (Continued)

HOUSEHOLD CHARACTERISTICS	ELECTRICITY USED: NOT AS MAIN HEATING FUEL				FOR AIR CONDITIONING				NOT FOR AIR CONDITIONING			
	NUMBER OF HOUSEHOLDS (MILLION)	AVG AMOUNT CONSUMED (THOUSAND KWH)	AVG AMOUNT CONSUMED (MILLION BTU)	AVG EXPENDITURES PER HOUSEHOLD (DOLLARS)	NUMBER OF HOUSEHOLDS (MILLION)	AVG AMOUNT CONSUMED (THOUSAND KWH)	AVG AMOUNT CONSUMED (MILLION BTU)	AVG EXPENDITURES PER HOUSEHOLD (DOLLARS)	NUMBER OF HOUSEHOLDS (MILLION)	AVG AMOUNT CONSUMED (THOUSAND KWH)	AVG AMOUNT CONSUMED (MILLION BTU)	AVG EXPENDITURES PER HOUSEHOLD (DOLLARS)
NUMBER OF ROOMS THAT CAN BE AIR CONDITIONED												
ALL	23.8	9.1	31	638	23.2	9.2	31	642	0.6	6.1	21	487
SOME	14.6	7.1	24	548	14.6	7.0	24	546	Q	Q	Q	Q
NONE	31.9	5.5	19	400	Q	Q	Q	Q	31.9	5.5	19	400
MEASURED HEATED SQUARE FOOTAGE OF RESIDENCE												
LESS THAN 600 SQUARE FEET	6.4	3.6	12	312	2.4	4.7	16	394	4.1	3.0	10	264
600 TO 999 SQUARE FEET	18.1	5.1	17	375	9.2	6.0	20	444	9.0	4.1	14	303
1,000 TO 1,599 SQUARE FEET	21.1	7.5	25	528	11.7	8.8	30	616	9.4	5.9	20	419
1,600 TO 1,999 SQUARE FEET	8.7	8.1	28	567	4.9	9.1	31	635	3.8	6.8	23	478
2,000 TO 2,399 SQUARE FEET	6.4	9.1	31	642	3.8	10.0	34	725	2.6	7.8	27	522
2,400 TO 2,999 SQUARE FEET	5.5	9.8	33	708	3.3	10.8	37	786	2.2	8.2	28	589
3,000 OR MORE SQUARE FEET	4.1	10.1	34	752	2.6	11.2	38	857	1.6	8.2	28	581
YEAR HOUSE BUILT												
1939 OR EARLIER	22.9	5.7	20	436	9.1	7.0	24	541	13.8	4.9	17	366
1940 TO 1949	6.7	7.1	24	495	3.6	8.4	29	589	3.1	5.6	19	387
1950 TO 1959	12.4	6.9	23	511	7.0	8.1	27	601	5.4	5.4	18	394
1960 TO 1964	7.6	8.1	28	586	4.8	9.2	31	663	2.8	6.2	21	456
1965 TO 1969	6.3	8.3	28	571	4.3	9.2	31	628	2.0	6.6	22	451
1970 TO 1974	7.2	8.3	28	564	4.6	8.7	30	594	2.6	7.5	25	512
1975 TO 1979	5.8	8.3	28	602	3.6	9.9	34	716	2.2	5.9	20	417
1980 OR LATER	1.4	7.3	25	495	.8	7.6	26	542	.6	7.0	24	427
OWN/RENT												
OWN	46.2	8.2	28	581	26.7	9.2	32	665	19.5	6.7	23	467
RENT	24.2	4.9	17	377	11.1	6.2	21	461	13.1	3.9	13	306
1981 FAMILY INCOME												
LESS THAN $5,000	8.2	4.5	15	333	3.1	5.6	19	394	5.1	3.8	13	296
$5,000 TO $9,999	11.5	5.4	19	399	5.2	6.5	22	471	6.3	4.5	15	339
$10,000 TO $14,999	11.0	6.5	22	468	5.8	7.6	26	537	5.3	5.4	18	392
$15,000 TO $19,999	7.8	6.6	23	467	3.8	7.8	27	558	4.0	5.5	19	382
$20,000 TO $24,999	8.9	7.5	25	539	5.3	8.8	30	620	3.7	5.6	19	423
$25,000 TO $34,999	12.3	8.3	28	592	7.8	8.9	30	639	4.6	7.5	25	510
$35,000 OR MORE	10.5	9.8	34	732	6.9	11.0	37	831	3.6	7.6	26	542
BELOW 100% OF POVERTY	10.7	5.5	19	404	3.7	6.8	23	475	7.0	4.8	16	367
BELOW 125% OF POVERTY	15.3	5.6	19	411	5.8	6.8	23	480	9.4	4.8	16	368
RECEIVE ASSISTANCE FOR HEATING IN WINTER												
YES	3.8	5.5	19	400	1.4	7.0	24	496	2.4	4.6	16	342
NO	66.6	7.1	24	517	36.4	8.4	29	609	30.2	5.6	19	407
WEATHERIZATION ASSISTANCE FROM FEDERAL, STATE OR LOCAL GOVERNMENT												
YES	.9	5.7	19	415	.1	Q	Q	Q	.7	5.9	20	430
NO	69.5	7.1	24	512	37.7	8.4	29	606	31.8	5.6	19	401
ENERGY AUDIT BY ELECTRIC OR GAS COMPANY IN PAST 12 MONTHS												
YES	1.8	9.0	31	615	1.0	9.8	33	691	.8	8.0	27	524
NO	68.6	7.0	24	508	36.8	8.3	28	603	31.8	5.5	19	399

SEE FOOTNOTES AT END OF TABLE

Electricity Not as a Main Heating Fuel

Table 11. (Continued)

HOUSEHOLD CHARACTERISTICS	ELECTRICITY USED: NOT AS MAIN HEATING FUEL				FOR AIR CONDITIONING				NOT FOR AIR CONDITIONING			
	NUMBER OF HOUSE-HOLDS (MIL-LION)	AVG AMOUNT CON-SUMED (THOU-SAND KWH)	AVG AMOUNT CON-SUMED (MIL-LION BTU)	AVG EXPEND-ITURES PER HOUSE-HOLD (DOL-LARS)	NUMBER OF HOUSE-HOLDS (MIL-LION)	AVG AMOUNT CON-SUMED (THOU-SAND KWH)	AVG AMOUNT CON-SUMED (MIL-LION BTU)	AVG EXPEND-ITURES PER HOUSE-HOLD (DOL-LARS)	NUMBER OF HOUSE-HOLDS (MIL-LION)	AVG AMOUNT CON-SUMED (THOU-SAND KWH)	AVG AMOUNT CON-SUMED (MIL-LION BTU)	AVG EXPEND-ITURES PER HOUSE-HOLD (DOL-LARS)
HOUSEHOLD OWNS OR HAS REGULAR USE OF A VEHICLE												
YES	60.0	7.6	26	542	34.2	8.7	30	625	25.9	6.2	21	433
NO	10.3	3.8	13	331	3.6	4.8	17	420	6.7	3.2	11	283
ORIGIN OF HOUSEHOLDER												
WHITE	59.2	7.3	25	520	33.3	8.4	29	607	25.9	5.8	20	408
BLACK	9.5	6.1	21	467	4.0	8.3	28	596	5.6	4.5	15	375
OTHER	1.7	5.4	18	444	.6	7.2	24	535	1.1	4.4	15	395
HISPANIC DESCENT												
YES	3.7	5.8	20	465	1.4	7.4	25	600	2.3	4.8	16	383
NO	66.7	7.1	24	514	36.4	8.4	29	605	30.3	5.6	19	403
AGE OF HOUSEHOLDER												
UNDER 25 YEARS	5.3	4.9	17	355	2.5	6.1	21	436	2.8	3.9	13	282
25 TO 34 YEARS	15.6	7.0	24	498	8.0	8.3	28	601	7.5	5.6	19	390
35 TO 44 YEARS	12.6	8.8	30	631	7.2	10.1	34	721	5.4	7.1	24	512
45 TO 59 YEARS	16.7	7.9	27	581	9.4	9.2	31	674	7.3	6.3	22	460
60 YEARS AND OVER	20.2	5.8	20	429	10.7	7.0	24	509	9.5	4.6	16	340
HOUSEHOLD SIZE												
1 PERSON	15.9	4.1	14	311	8.1	5.1	17	374	7.8	3.1	11	246
2 PERSONS	21.6	6.5	22	468	12.0	7.8	27	558	9.6	5.0	17	355
3 PERSONS	11.4	7.5	25	535	6.6	8.7	30	625	4.8	5.7	20	408
4 PERSONS	12.4	9.2	31	664	6.8	10.6	36	780	5.6	7.4	25	523
5 PERSONS	5.4	10.2	35	740	2.7	11.8	40	867	2.7	8.6	29	611
6 OR MORE PERSONS	3.7	9.6	33	709	1.5	11.9	41	864	2.1	7.9	27	595
SECONDARY HEATING												
YES	26.8	8.8	30	610	14.9	10.1	34	704	11.9	7.3	25	492
NO	43.6	6.0	20	451	22.9	7.2	25	541	20.7	4.6	16	350
FUEL COMBINATIONS												
NATURAL GAS USED MAIN HEAT	45.7	6.6	23	480	27.4	8.0	27	580	18.3	4.5	15	331
NATURAL GAS FOR HOT WATER AND HAVE AIR CONDITIONING	25.6	7.6	26	563	25.1	7.7	26	565	.5	6.3	21	484
NATURAL GAS FOR HOT WATER AND NO AIR CONDITIONING	17.8	4.4	15	325	Q	Q	Q	Q	17.8	4.4	15	325
ELECTRICITY FOR HOT WATER AND HAVE AIR CONDITIONING	2.4	12.2	41	756	2.3	12.1	41	750	Q	Q	Q	Q
ELECTRICITY FOR HOT WATER AND NO AIR CONDITIONING	1.7	7.2	24	407	Q	Q	Q	Q	1.7	7.2	24	407
OTHER	.1	Q	Q	Q	.1	Q	Q	Q	Q	Q	Q	Q
FUEL OIL USED MAIN HEAT	7.5	8.3	28	639	5.3	7.8	27	650	2.2	9.4	32	614
FUEL OIL FOR HOT WATER AND HAVE AIR CONDITIONING	2.6	5.6	19	577	2.6	5.7	19	582	.1	Q	Q	Q
FUEL OIL FOR HOT WATER AND NO AIR CONDITIONING	2.6	4.1	14	433	Q	Q	Q	Q	2.6	4.1	14	433
ELECTRICITY FOR HOT WATER AND HAVE AIR CONDITIONING	2.0	11.0	37	742	2.0	11.0	37	742	Q	Q	Q	Q
NATURAL GAS FOR HOT WATER AND HAVE AIR CONDITIONING	.8	6.8	23	638	.8	6.8	23	638	Q	Q	Q	Q
OTHER	3.3	7.9	27	546	.1	Q	Q	Q	3.2	7.9	27	548
WOOD USED MAIN HEAT	5.6	10.0	34	627	2.1	12.1	41	745	3.5	8.8	30	555
LPG USED MAIN HEAT	3.8	8.0	27	550	2.0	9.8	33	666	1.8	5.9	20	422
COAL USED MAIN HEAT	.9	9.3	32	616	.3	10.7	36	705	.6	8.5	29	567
NO HEATING FUEL	.4	3.9	13	515	Q	Q	Q	Q	.4	3.8	13	505
OTHER FUEL	.9	8.1	28	572	.4	8.9	30	633	.4	7.3	25	510

"-" = DATA NOT APPLICABLE.
"Q" = DATA WITHHELD BECAUSE OF A LARGE VARIANCE.
NOTE: BECAUSE OF ROUNDING, DATA MAY NOT SUM TO TOTALS. PERCENTAGES ARE CALCULATED ON UNROUNDED NUMBERS. SEE GLOSSARY FOR DEFINITION OF TERMS USED IN THIS REPORT.
SOURCE: ENERGY INFORMATION ADMINISTRATION, OFFICE OF ENERGY MARKETS AND END USE, ENERGY END USE DIVISION, FORM EIA-457, THE 1982 RESIDENTIAL ENERGY CONSUMPTION SURVEY.

Fuel Oil or Kerosene Consumption and Expenditures

Table 12. U.S. Residential Fuel Oil or Kerosene Consumption and Expenditures—April 1982 Through March 1983

HOUSEHOLD CHARACTERISTICS	FUEL OIL OR KEROSENE USED:								
						AS MAIN HEATING FUEL			
	NUMBER OF HOUSEHOLDS (MILLION)	TOTAL AMOUNT CONSUMED (BILLION GALLONS)	TOTAL AMOUNT CONSUMED (QUADRILLION BTU)	TOTAL EXPENDITURES (BILLION DOLLARS)	AVG PRICE (DOLLARS PER GALLON)	NUMBER OF HOUSEHOLDS (MILLION)	AVG AMOUNT CONSUMED (GALLONS)	AVG AMOUNT CONSUMED (MILLION BTU)	AVG EXPENDITURES PER HOUSEHOLD (DOLLARS)
TOTAL HOUSEHOLDS	15.5	8.23	1.14	9.6	1.17	12.0	647	90	754
CENSUS REGION AND DIVISION									
NORTHEAST	8.8	5.70	.79	6.7	1.17	7.6	726	101	848
NEW ENGLAND	2.5	1.74	.24	2.0	1.17	2.1	765	106	899
MIDDLE ATLANTIC	6.3	3.97	.55	4.6	1.16	5.4	711	99	828
NORTH CENTRAL	2.4	1.10	.15	1.3	1.14	1.6	650	90	740
EAST NORTH CENTRAL	1.8	.93	.13	1.1	1.15	1.3	681	94	779
WEST NORTH CENTRAL	.5	.17	.02	.2	1.11	.3	519	72	576
SOUTH	3.7	1.21	.17	1.4	1.18	2.5	442	61	519
SOUTH ATLANTIC	3.2	1.14	.16	1.3	1.18	2.4	445	61	523
EAST SOUTH CENTRAL	.4	.06	.01	.1	1.16	Q	Q	Q	Q
WEST SOUTH CENTRAL	Q	Q	Q	Q	Q	Q	Q	Q	Q
WEST	.6	.22	.03	.3	1.19	.4	445	61	526
AREA TYPE									
METROPOLITAN	11.6	6.77	.94	7.9	1.16	9.7	672	93	782
CENTRAL CITY	4.7	2.82	.39	3.3	1.17	4.1	666	92	779
OUTSIDE CENTRAL CITY	6.9	3.95	.55	4.6	1.16	5.6	676	94	785
NON-METROPOLITAN	3.9	1.46	.20	1.7	1.17	2.3	546	75	638
ANNUAL HEATING DEGREE-DAYS (HDD) AND COOLING DEGREE-DAYS (CDD) --LONG-TERM AVERAGE									
<2,000 CDD AND >7,000 HDD	2.4	1.27	.17	1.5	1.15	1.7	683	94	783
<2,000 CDD AND 5,500 TO 7,000 HDD	4.1	2.56	.35	3.0	1.17	3.4	734	102	856
<2,000 CDD AND 4,000 TO 5,499 HDD	7.1	3.90	.54	4.6	1.17	5.7	658	91	769
<2,000 CDD AND <4,000 HDD	1.6	.44	.06	.5	1.18	1.1	389	54	459
>2,000 CDD AND <4,000 HDD	.5	.05	.01	.1	1.20	.3	147	20	177
FUEL OIL PAID BY HOUSEHOLD									
YES	12.1	6.09	0.84	7.1	1.17	8.9	644	89	750
NO	3.4	2.14	.30	2.5	1.17	3.2	657	91	766
HOUSING STRUCTURE BY OWNERSHIP									
SINGLE-FAMILY DETACHED	10.0	5.16	.71	6.0	1.16	7.2	665	92	773
OWN	8.9	4.68	.65	5.4	1.16	6.4	682	94	792
RENT	1.1	.48	.07	.6	1.18	.8	529	73	623
SINGLE-FAMILY ATTACHED	.6	.30	.04	.4	1.17	.4	737	102	859
OWN	.5	.30	.04	.3	1.17	.4	737	102	859
RENT	Q	Q	Q	Q	Q	Q	Q	Q	Q
BUILDING WITH 2 TO 4 UNITS	1.9	1.17	.16	1.4	1.17	1.8	658	91	768
OWN	.7	.49	.07	.6	1.17	.7	723	100	848
RENT	1.2	.69	.10	.8	1.16	1.1	618	86	719
BUILDING WITH 5 OR MORE UNITS	2.3	1.38	.19	1.6	1.17	2.1	648	90	756
MOBILE HOME	.8	.22	.03	.3	1.20	.6	341	47	410
NUMBER OF ROOMS									
1	Q	Q	Q	Q	Q	Q	Q	Q	Q
2	.3	.22	.03	.3	1.17	.3	771	106	906
3	1.6	.79	.11	.9	1.17	1.3	564	78	657
4	2.6	1.33	.18	1.5	1.17	2.2	581	80	679
5	3.3	1.65	.23	1.9	1.17	2.7	593	82	691
6	3.3	1.79	.25	2.1	1.17	2.5	680	94	795
7	2.0	.97	.13	1.1	1.17	1.3	650	90	760
8 OR MORE	2.2	1.40	.19	1.6	1.15	1.6	829	115	957

SEE FOOTNOTES AT END OF TABLE

Fuel Oil or Kerosene Consumption and Expenditures

Table 12. (Continued)

HOUSEHOLD CHARACTERISTICS	FUEL OIL OR KEROSENE USED:								
						AS MAIN HEATING FUEL			
	NUMBER OF HOUSEHOLDS (MILLION)	TOTAL AMOUNT CONSUMED (BILLION GALLONS)	TOTAL AMOUNT CONSUMED (QUADRILLION BTU)	TOTAL EXPENDITURES (BILLION DOLLARS)	AVG PRICE (DOLLARS PER GALLON)	NUMBER OF HOUSEHOLDS (MILLION)	AVG AMOUNT CONSUMED (GALLONS)	AVG AMOUNT CONSUMED (MILLION BTU)	AVG EXPENDITURES PER HOUSEHOLD (DOLLARS)
NUMBER OF ROOMS THAT CAN BE AIR CONDITIONED									
ALL	3.6	1.47	0.20	1.7	1.17	2.5	554	77	648
SOME	4.3	2.45	.34	2.8	1.16	3.5	680	94	789
NONE	7.5	4.30	.60	5.0	1.17	6.1	667	92	778
MEASURED HEATED SQUARE FOOTAGE OF RESIDENCE									
LESS THAN 600 SQUARE FEET	1.4	.63	.09	.7	1.16	1.2	494	68	575
600 TO 999 SQUARE FEET	3.6	1.67	.23	2.0	1.17	2.8	561	78	656
1,000 TO 1,599 SQUARE FEET	4.3	2.22	.31	2.6	1.17	3.4	628	87	736
1,600 TO 1,999 SQUARE FEET	2.1	1.12	.16	1.3	1.16	1.6	648	90	755
2,000 TO 2,399 SQUARE FEET	1.8	1.04	.14	1.2	1.15	1.3	779	108	896
2,400 TO 2,999 SQUARE FEET	1.4	.78	.11	.9	1.16	.9	741	103	862
3,000 OR MORE SQUARE FEET	1.0	.76	.10	.9	1.16	.7	979	136	1134
YEAR HOUSE BUILT									
1939 OR EARLIER	6.4	3.95	.55	4.6	1.16	5.4	709	98	825
1940 TO 1949	1.6	.99	.14	1.2	1.17	1.4	661	92	771
1950 TO 1959	2.7	1.35	.19	1.6	1.17	2.0	613	85	716
1960 TO 1964	1.5	.79	.11	.9	1.16	1.3	596	83	692
1965 TO 1969	1.0	.27	.04	.3	1.18	.4	507	70	601
1970 TO 1974	1.1	.35	.05	.4	1.18	.7	472	65	555
1975 TO 1979	1.2	.51	.07	.6	1.17	.8	604	84	704
1980 OR LATER	Q	Q	Q	Q	Q	Q	Q	Q	Q
OWN/RENT									
OWN	10.9	5.76	0.80	6.7	1.17	8.1	671	93	781
RENT	4.6	2.47	.34	2.9	1.17	4.0	599	83	700
1981 FAMILY INCOME									
LESS THAN $5,000	1.6	.98	.14	1.1	1.17	1.5	655	91	765
$5,000 TO $9,999	2.3	1.20	.17	1.4	1.16	1.9	607	84	706
$10,000 TO $14,999	2.9	1.51	.21	1.8	1.16	2.4	610	84	711
$15,000 TO $19,999	1.8	.95	.13	1.1	1.17	1.5	600	83	703
$20,000 TO $24,999	1.8	.99	.14	1.2	1.17	1.3	688	95	804
$25,000 TO $34,999	3.1	1.40	.19	1.6	1.16	1.9	661	92	764
$35,000 OR MORE	2.1	1.20	.17	1.4	1.17	1.5	742	103	868
BELOW 100% OF POVERTY	2.1	1.12	.15	1.3	1.17	1.8	616	85	719
BELOW 125% OF POVERTY	3.0	1.70	.24	2.0	1.17	2.6	634	88	740
RECEIVE ASSISTANCE FOR HEATING IN WINTER									
YES	.9	.55	.08	.6	1.17	.8	702	97	822
NO	14.6	7.67	1.06	8.9	1.17	11.3	644	89	750

SEE FOOTNOTES AT END OF TABLE

Fuel Oil or Kerosene Consumption and Expenditures

Table 12. (Continued)

HOUSEHOLD CHARACTERISTICS	FUEL OIL OR KEROSENE USED:								
						AS MAIN HEATING FUEL			
	NUMBER OF HOUSEHOLDS (MILLION)	TOTAL AMOUNT CONSUMED (BILLION GALLONS)	TOTAL AMOUNT CONSUMED (QUADRILLION BTU)	TOTAL EXPENDITURES (BILLION DOLLARS)	AVG PRICE (DOLLARS PER GALLON)	NUMBER OF HOUSEHOLDS (MILLION)	AVG AMOUNT CONSUMED (GALLONS)	AVG AMOUNT CONSUMED (MILLION BTU)	AVG EXPENDITURES PER HOUSEHOLD (DOLLARS)
WEATHERIZATION ASSISTANCE FROM FEDERAL, STATE OR LOCAL GOVERNMENT									
YES	0.2	0.13	0.02	0.1	1.15	0.2	568	79	655
NO	15.3	8.10	1.12	9.4	1.17	11.8	649	90	756
ENERGY AUDIT BY ELECTRIC OR GAS COMPANY IN PAST 12 MONTHS									
YES	.4	.27	.04	.3	1.18	.3	783	109	920
NO	15.1	7.96	1.10	9.3	1.17	11.7	644	89	750
HOUSEHOLD OWNS OR HAS REGULAR USE OF A VEHICLE									
YES	12.6	6.29	.87	7.3	1.17	9.2	637	88	741
NO	2.9	1.93	.27	2.3	1.17	2.8	683	95	797
ORIGIN OF HOUSEHOLDER									
WHITE	13.4	7.07	.98	8.2	1.16	10.3	648	90	754
BLACK	1.9	1.06	.15	1.2	1.17	1.6	634	88	742
OTHER	.2	.09	.01	.1	1.19	Q	Q	Q	Q
HISPANIC DESCENT									
YES	0.7	0.46	0.06	0.5	1.17	0.6	718	99	836
NO	14.8	7.77	1.07	9.1	1.17	11.4	644	89	750
AGE OF HOUSEHOLDER									
UNDER 25 YEARS	.9	.45	.06	.5	1.17	.8	532	74	623
25 TO 34 YEARS	3.1	1.31	.18	1.5	1.17	2.1	561	78	655
35 TO 44 YEARS	2.8	1.28	.18	1.5	1.16	1.9	615	85	716
45 TO 59 YEARS	3.6	2.08	.29	2.4	1.16	2.8	714	99	830
60 YEARS AND OVER	5.0	3.11	.43	3.6	1.17	4.4	682	94	795
HOUSEHOLD SIZE									
1 PERSON	3.2	1.91	.26	2.2	1.17	2.9	634	88	739
2 PERSONS	5.1	2.65	.37	3.1	1.16	4.0	632	88	734
3 PERSONS	2.3	1.25	.17	1.5	1.17	1.7	671	93	787
4 PERSONS	2.8	1.38	.19	1.6	1.16	1.9	673	93	781
5 PERSONS	1.4	.75	.10	.9	1.17	1.0	686	95	805
6 OR MORE PERSONS	.8	.28	.04	.3	1.18	.4	579	80	684

SEE FOOTNOTES AT END OF TABLE

Fuel Oil or Kerosene Consumption and Expenditures

Table 12. (Continued)

HOUSEHOLD CHARACTERISTICS	FUEL OIL OR KEROSENE USED:								
						AS MAIN HEATING FUEL			
	NUMBER OF HOUSEHOLDS (MILLION)	TOTAL AMOUNT CONSUMED (BILLION GALLONS)	TOTAL AMOUNT CONSUMED (QUADRILLION BTU)	TOTAL EXPENDITURES (BILLION DOLLARS)	AVG PRICE (DOLLARS PER GALLON)	NUMBER OF HOUSEHOLDS (MILLION)	AVG AMOUNT CONSUMED (GALLONS)	AVG AMOUNT CONSUMED (MILLION BTU)	AVG EXPENDITURES PER HOUSEHOLD (DOLLARS)
SECONDARY HEATING									
YES	7.9	3.40	0.47	4.0	1.17	4.8	634	88	741
NO	7.6	4.83	.67	5.6	1.16	7.2	656	91	763
FUEL COMBINATIONS									
FUEL OIL USED MAIN HEAT	11.3	7.51	1.04	8.7	1.16	11.3	665	92	774
FUEL OIL FOR HOT WATER AND HAVE AIR CONDITIONING	2.2	1.27	.18	1.5	1.17	2.2	584	81	681
FUEL OIL FOR HOT WATER AND NO AIR CONDITIONING	2.6	2.00	.28	2.3	1.17	2.6	764	106	893
ELECTRICITY HOT WATER AND HAVE AIR CONDITIONING	2.0	.93	.13	1.1	1.16	2.0	476	66	551
NATURAL GAS FOR HOT WATER AND HAVE AIR CONDITIONING	.8	.53	.07	.6	1.16	.8	670	93	779
OTHER	3.8	2.78	.39	3.2	1.16	3.8	741	103	862
OTHER FUEL	4.2	.71	.10	.8	1.18	.7	381	52	455
MAIN HEATING EQUIPMENT USING FUEL OIL									
STEAM OR HOT WATER SYSTEM	6.2	4.67	.65	5.4	1.17	6.2	755	105	879
CENTRAL WARM AIR FURNACE	4.5	2.58	.36	3.0	1.16	4.5	571	79	662
OTHER/NONE	4.8	.98	.13	1.2	1.19	1.3	411	56	490

"-" = DATA NOT APPLICABLE.
"Q" = DATA WITHHELD BECAUSE OF A LARGE VARIANCE.
NOTE: BECAUSE OF ROUNDING, DATA MAY NOT SUM TO TOTALS. PERCENTAGES ARE CALCULATED ON UNROUNDED NUMBERS. SEE GLOSSARY FOR DEFINITION OF TERMS USED IN THIS REPORT.
SOURCE: ENERGY INFORMATION ADMINISTRATION, OFFICE OF ENERGY MARKETS AND END USE, ENERGY END USE DIVISION, FORM EIA-457, THE 1982 RESIDENTIAL ENERGY CONSUMPTION SURVEY.

Table 13. U.S. Residential Liquefied Petroleum Gas Consumption and Expenditures—April 1982 Through March 1983

HOUSEHOLD CHARACTERISTICS	LIQUEFIED PETROLEUM GAS (LPG) USED:												
						AS MAIN HEATING FUEL				NOT AS MAIN HEATING FUEL			
	NUMBER OF HOUSEHOLDS (MILLION)	TOTAL AMOUNT CONSUMED (BILLION GALLONS)	TOTAL AMOUNT CONSUMED (QUADRILLION BTU)	TOTAL EXPENDITURES (BILLION DOLLARS)	AVG PRICE (DOLLARS PER GALLON)	NUMBER OF HOUSEHOLDS (MILLION)	AVG AMOUNT CONSUMED (GALLONS)	AVG AMOUNT CONSUMED (MILLION BTU)	AVG EXPENDITURES PER HOUSEHOLD (DOLLARS)	NUMBER OF HOUSEHOLDS (MILLION)	AVG AMOUNT CONSUMED (GALLONS)	AVG AMOUNT CONSUMED (MILLION BTU)	AVG EXPENDITURES PER HOUSEHOLD (DOLLARS)
TOTAL HOUSEHOLDS	7.3	3.15	0.29	2.7	0.86	3.8	640	59	521	3.4	205	19	203
CENSUS REGION AND DIVISION													
NORTHEAST	1.1	.25	.02	.3	1.05	.2	692	63	622	.9	128	12	157
NORTH CENTRAL	1.8	1.18	.11	.9	.77	1.0	998	91	750	.8	277	25	237
EAST NORTH CENTRAL	1.0	.64	.06	.5	.82	.5	965	88	768	.6	320	29	278
WEST NORTH CENTRAL	.7	.55	.05	.4	.72	.5	1030	94	733	.3	183	17	148
SOUTH	3.5	1.31	.12	1.2	.90	2.3	472	43	409	1.3	191	17	201
SOUTH ATLANTIC	2.2	.70	.06	.7	.96	1.2	434	40	398	1.0	170	16	188
EAST SOUTH CENTRAL	.5	.19	.02	.2	.85	.3	427	39	353	.2	291	27	268
WEST SOUTH CENTRAL	.8	.42	.04	.3	.82	.7	560	51	454	Q	Q	Q	Q
WEST	.9	.41	.04	.4	.89	.4	713	65	561	.3	289	26	256
MOUNTAIN	.4	.26	.02	.2	.79	.2	834	76	640	.2	390	36	332
PACIFIC	.5	.15	.01	.2	1.05	.2	531	49	442	.2	177	16	172
AREA TYPE													
METROPOLITAN	3.3	1.08	.10	1.0	.91	1.5	525	48	448	1.7	156	14	170
CENTRAL CITY	.5	.10	.01	.1	1.04	.3	265	24	276	.2	146	13	153
OUTSIDE CENTRAL CITY	2.8	.98	.09	.9	.90	1.3	586	54	488	1.6	157	14	172
NON-METROPOLITAN	4.1	2.07	.19	1.7	.84	2.2	719	66	571	1.7	256	23	238
ANNUAL HEATING DEGREE-DAYS (HDD) AND COOLING DEGREE-DAYS (CDD) --LONG-TERM AVERAGE													
<2,000 CDD AND >7,000 HDD	1.4	.71	.07	.6	.84	.5	926	85	727	.9	251	23	242
<2,000 CDD AND 5,500 TO 7,000 HDD	1.3	.64	.06	.5	.82	.5	937	86	709	.8	215	20	212
<2,000 CDD AND 4,000 TO 5,499 HDD	1.3	.55	.05	.5	.86	.5	874	80	691	.9	157	14	165
<2,000 CDD AND <4,000 HDD	1.6	.67	.06	.6	.86	1.0	556	51	465	.6	183	17	184
>2,000 CDD AND <4,000 HDD	1.7	.58	.05	.6	.95	1.3	378	35	337	.3	224	20	217
ALL LPG PAID BY HOUSEHOLD													
YES	6.8	2.91	0.27	2.5	0.86	3.5	640	59	522	3.2	206	19	204
NO	.5	.24	.02	.2	.83	.3	635	58	510	.2	174	16	181
HOUSING STRUCTURE BY OWNERSHIP													
SINGLE-FAMILY DETACHED	5.6	2.53	.23	2.2	.86	2.8	684	63	551	2.6	216	20	214
OWN	4.3	2.00	.18	1.7	.84	2.1	733	67	578	2.2	208	19	204
RENT	1.3	.52	.05	.5	.93	.7	542	50	474	.4	260	24	260
BUILDING WITH 2 OR MORE UNITS	.2	.06	.01	.1	1.01	Q	Q	Q	Q	Q	Q	Q	Q
MOBILE HOME	1.5	.57	.05	.5	.87	.9	518	47	434	.6	174	16	172
NUMBER OF ROOMS													
1 - 3	.6	.15	.01	.1	.94	.3	343	31	316	.3	158	14	157
4	1.8	.67	.06	.6	.90	1.0	535	49	465	.8	178	16	175
5	1.8	.79	.07	.7	.85	.9	630	58	509	.9	254	23	238
6	1.7	.84	.08	.7	.86	.9	735	67	588	.7	218	20	220
7	.7	.31	.03	.3	.85	.4	669	61	519	.3	186	17	202
8 OR MORE	.8	.40	.04	.3	.81	.3	990	91	745	.4	175	16	183
NUMBER OF ROOMS THAT CAN BE AIR CONDITIONED													
ALL	1.9	.85	.08	.7	.84	1.3	604	55	495	.6	152	14	150
SOME	1.4	.63	.06	.5	.82	.7	685	63	529	.6	203	19	204
NONE	4.1	1.67	.15	1.5	.89	1.8	647	59	535	2.1	220	20	218

SEE FOOTNOTES AT END OF TABLE

LPG Consumption and Expenditures

Table 13. (Continued)

HOUSEHOLD CHARACTERISTICS	LIQUEFIED PETROLEUM GAS (LPG) USED:												
						AS MAIN HEATING FUEL				NOT AS MAIN HEATING FUEL			
	NUMBER OF HOUSEHOLDS (MILLION)	TOTAL AMOUNT CONSUMED (BILLION GALLONS)	TOTAL AMOUNT CONSUMED (QUADRILLION BTU)	TOTAL EXPENDITURES (BILLION DOLLARS)	AVG PRICE (DOLLARS PER GALLON)	NUMBER OF HOUSEHOLDS (MILLION)	AVG AMOUNT CONSUMED (GALLONS)	AVG AMOUNT CONSUMED (MILLION BTU)	AVG EXPENDITURES PER HOUSEHOLD (DOLLARS)	NUMBER OF HOUSEHOLDS (MILLION)	AVG AMOUNT CONSUMED (GALLONS)	AVG AMOUNT CONSUMED (MILLION BTU)	AVG EXPENDITURES PER HOUSEHOLD (DOLLARS)
MEASURED HEATED SQUARE FOOTAGE OF RESIDENCE													
LESS THAN 600 SQUARE FEET	1.0	0.27	0.03	0.3	1.03	0.4	391	36	349	0.4	164	15	171
600 TO 999 SQUARE FEET	2.0	.80	.07	.7	.88	1.3	528	48	454	.7	150	14	155
1,000 TO 1,599 SQUARE FEET	2.4	1.17	.11	1.0	.85	1.4	639	58	522	1.1	276	25	261
1,600 TO 1,999 SQUARE FEET	.5	.19	.02	.2	.87	.2	673	62	522	.3	193	18	198
2,000 TO 2,399 SQUARE FEET	.4	.18	.02	.2	.83	.2	866	79	670	.2	138	13	148
2,400 TO 2,999 SQUARE FEET	.6	.36	.03	.3	.75	.3	1226	112	879	.3	166	15	160
3,000 OR MORE SQUARE FEET	.3	.18	.02	.2	.84	Q	Q	Q	Q	.2	275	25	285
YEAR HOUSE BUILT													
1939 OR EARLIER	2.5	1.13	.10	1.0	.87	1.2	723	66	586	1.3	204	19	214
1940 TO 1949	.5	.16	.01	.1	.88	.2	500	46	412	.3	135	12	138
1950 TO 1959	1.0	.42	.04	.4	.87	.5	587	54	485	.5	269	25	252
1960 TO 1964	.7	.23	.02	.2	.88	.3	569	52	465	.4	168	15	175
1965 TO 1969	.7	.27	.02	.2	.91	.3	582	53	493	.4	215	20	210
1970 TO 1974	.9	.44	.04	.4	.83	.6	644	59	519	.3	148	14	146
1975 TO 1979	.7	.39	.04	.3	.84	.5	610	56	492	.2	386	35	318
1980 OR LATER	.2	.11	.01	.1	.81	.2	700	64	554	Q	Q	Q	Q
OWN/RENT													
OWN	5.5	2.41	.22	2.0	.85	2.7	675	62	539	2.8	199	18	196
RENT	1.8	.74	.07	.7	.91	1.1	549	50	473	.6	230	21	235
1981 FAMILY INCOME													
LESS THAN $5,000	1.2	0.45	0.04	0.4	0.89	0.6	575	53	492	0.5	159	15	165
$5,000 TO $9,999	1.5	.67	.06	.6	.87	.9	618	57	514	.5	182	17	192
$10,000 TO $14,999	1.6	.70	.06	.6	.85	.8	672	62	547	.8	210	19	202
$15,000 TO $19,999	.8	.26	.02	.2	.92	.3	508	47	417	.5	235	22	237
$20,000 TO $24,999	.7	.30	.03	.3	.85	.3	650	59	519	.3	215	20	218
$25,000 TO $34,999	1.1	.54	.05	.4	.82	.6	721	66	566	.5	264	24	248
$35,000 OR MORE	.6	.25	.02	.2	.84	.3	734	67	552	.3	162	15	156
BELOW 100% OF POVERTY	1.5	.60	.06	.5	.88	.8	575	53	479	.6	196	18	200
BELOW 125% OF POVERTY	2.1	.91	.08	.8	.87	1.2	615	56	509	.9	181	17	184
RECEIVE ASSISTANCE FOR HEATING IN WINTER													
YES	.7	.22	.02	.2	.90	.4	496	45	424	.4	127	12	139
NO	6.6	2.93	.27	2.5	.86	3.4	655	60	531	3.0	214	20	211
WEATHERIZATION ASSISTANCE FROM FEDERAL, STATE OR LOCAL GOVERNMENT													
YES	.2	.08	.01	.1	.87	Q	Q	Q	Q	Q	Q	Q	Q
NO	7.1	3.07	.28	2.6	.86	3.7	635	58	517	3.3	207	19	205
ENERGY AUDIT BY ELECTRIC OR GAS COMPANY IN PAST 12 MONTHS													
YES	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q
NO	7.2	3.07	.28	2.7	.86	3.7	639	58	519	3.3	206	19	205

SEE FOOTNOTES AT END OF TABLE

LPG Consumption and Expenditures

Table 13. (Continued)

HOUSEHOLD CHARACTERISTICS	LIQUEFIED PETROLEUM GAS (LPG) USED:											
						AS MAIN HEATING FUEL				NOT AS MAIN HEATING FUEL		
	NUMBER OF HOUSEHOLDS (MILLION)	TOTAL AMOUNT CONSUMED (BILLION GALLONS)	TOTAL AMOUNT CONSUMED (QUADRILLION BTU)	TOTAL EXPENDITURES (BILLION DOLLARS)	AVG PRICE (DOLLARS PER GALLON)	NUMBER OF HOUSEHOLDS (MILLION)	AVG AMOUNT CONSUMED (GALLONS)	AVG AMOUNT CONSUMED (MILLION BTU)	AVG EXPENDITURES PER HOUSEHOLD (DOLLARS)	NUMBER OF HOUSEHOLDS (MILLION)	AVG AMOUNT CONSUMED (GALLONS)	AVG AMOUNT CONSUMED (MILLION BTU)	AVG EXPENDITURES PER HOUSEHOLD (DOLLARS)
HOUSEHOLD OWNS OR HAS REGULAR USE OF A VEHICLE													
YES	6.6	2.96	0.27	2.5	0.85	3.5	655	60	528	3.0	215	20	212
NO	.7	.19	.02	.2	.97	.3	468	43	433	.4	125	11	135
ORIGIN OF HOUSEHOLDER													
WHITE	6.2	2.69	.25	2.3	.85	3.2	652	60	528	3.0	202	18	199
BLACK	.8	.35	.03	.3	.89	.5	542	50	459	.3	210	19	219
OTHER	.3	.12	.01	.1	1.00	Q	Q	Q	Q	Q	Q	Q	Q
HISPANIC DESCENT													
YES	.3	.08	.01	.1	.99	.2	337	31	305	Q	Q	Q	Q
NO	7.0	3.08	.28	2.6	.86	3.6	654	60	531	3.3	207	19	205
AGE OF HOUSEHOLDER													
UNDER 25 YEARS	.5	.15	.01	.1	.90	.2	516	47	432	.2	187	17	179
25 TO 34 YEARS	1.5	.65	.06	.6	.86	.8	623	57	507	.7	202	18	189
35 TO 44 YEARS	1.3	.57	.05	.5	.86	.7	660	60	533	.6	192	18	204
45 TO 59 YEARS	1.7	.82	.07	.7	.84	.8	682	62	538	.8	278	25	259
60 YEARS AND OVER	2.3	.96	.09	.8	.87	1.3	631	58	525	1.0	161	15	174
HOUSEHOLD SIZE													
1 PERSON	1.5	.61	.06	.5	.90	.8	617	56	534	.7	157	14	166
2 PERSONS	2.2	.87	.08	.7	.85	1.3	584	53	473	1.0	141	13	150
3 PERSONS	1.2	.47	.04	.4	.86	.6	523	48	424	.5	240	22	238
4 PERSONS	1.3	.56	.05	.5	.86	.6	687	63	544	.6	188	17	188
5 PERSONS	.7	.38	.03	.3	.82	.3	1032	94	788	.4	245	22	235
6 OR MORE PERSONS	.4	.27	.02	.2	.87	.2	799	73	651	.2	576	53	497
SECONDARY HEATING													
YES	3.5	1.45	0.13	1.2	0.85	1.5	657	60	518	2.1	240	22	233
NO	3.8	1.70	.16	1.5	.87	2.3	629	58	522	1.3	149	14	157
MAIN HEATING EQUIPMENT USING LPG													
CENTRAL WARM AIR FURNACE	1.7	1.25	.11	1.0	.79	1.7	747	68	591	-	-	-	-
OTHER/NONE	5.6	1.91	.17	1.7	.91	2.1	556	51	465	3.4	205	19	203

"-" = DATA NOT APPLICABLE.
"Q" = DATA WITHHELD BECAUSE OF A LARGE VARIANCE.
NOTE: BECAUSE OF ROUNDING, DATA MAY NOT SUM TO TOTALS. PERCENTAGES ARE CALCULATED ON UNROUNDED NUMBERS. SEE GLOSSARY FOR DEFINITION OF TERMS USED IN THIS REPORT.
SOURCE: ENERGY INFORMATION ADMINISTRATION, OFFICE OF ENERGY MARKETS AND END USE, ENERGY END USE DIVISION, FORM EIA-457, THE 1982 RESIDENTIAL ENERGY CONSUMPTION SURVEY.

Average Consumption by Climate Zone and Heated Square Footage

Table 14. U.S. Residential Average Energy Consumption, of All Major Fuels, by Climate Zone and Heated Square Footage—April 1982 Through March 1983 (Million Btu per Household)

HOUSEHOLD CHARACTERISTICS	TOTAL	HEATING DEGREE-DAYS (HDD) APRIL 1982 THROUGH MARCH 1983								
		> 5,499 HDD			4,000 TO 5,499 HDD			< 4,000 HDD		
		< 1,000 SQ.FT.	1,000 TO 1,999 SQ.FT.	> 1,999 SQ.FT.	< 1,000 SQ.FT.	1,000 TO 1,999 SQ.FT.	> 1,999 SQ.FT.	< 1,000 SQ.FT.	1,000 TO 1,999 SQ.FT.	> 1,999 SQ.FT.
TOTAL HOUSEHOLDS	103	86	124	155	86	107	146	61	88	129
AREA TYPE										
METROPOLITAN	106	89	128	167	90	114	152	63	88	127
CENTRAL CITY	107	91	133	184	98	124	173	62	93	124
OUTSIDE CENTRAL CITY	106	86	124	157	79	106	142	64	84	129
NON-METROPOLITAN	92	80	117	129	66	81	110	56	87	138
HOW UTILITIES ARE PAID										
ALL PAID BY HOUSEHOLD	105	89	125	155	74	106	145	61	88	128
SOME PAID, SOME IN RENT	87	81	116	Q	97	110	Q	60	65	Q
ALL INCLUDED IN RENT	90	82	116	Q	103	113	Q	61	92	Q
OTHER	114	93	124	166	97	137	179	69	103	Q
HOUSING STRUCTURE BY OWNERSHIP										
SINGLE-FAMILY DETACHED	112	99	128	155	79	105	142	67	92	130
OWN	115	93	128	156	80	105	141	69	92	129
RENT	98	120	134	145	77	107	158	64	92	145
SINGLE-FAMILY ATTACHED	112	109	108	162	79	111	181	60	80	Q
OWN	120	Q	Q	165	Q	111	181	Q	82	Q
RENT	93	93	115	Q	Q	113	Q	59	Q	Q
BUILDING WITH 2 TO 4 UNITS	98	95	129	142	93	120	166	67	74	Q
OWN	121	Q	124	122	90	148	175	Q	69	Q
RENT	92	94	132	Q	93	105	Q	67	78	Q
BUILDING WITH 5 OR MORE										
UNITS	73	70	82	Q	90	102	Q	49	55	113
OWN	90	84	Q	Q	124	Q	Q	Q	49	113
RENT	71	69	81	Q	89	96	Q	50	57	Q
MOBILE HOME	72	87	100	Q	69	Q	Q	56	72	Q
OWN	71	89	95	Q	69	Q	Q	52	73	Q
RENT	75	82	Q	Q	71	Q	Q	68	Q	Q
YEAR HOUSE BUILT										
1939 OR EARLIER	115	98	135	163	94	124	156	63	89	147
1940 TO 1949	108	95	122	166	97	105	154	71	97	168
1950 TO 1959	109	101	133	160	93	115	147	68	95	131
1960 TO 1964	105	85	127	153	94	114	165	62	93	125
1965 TO 1969	98	80	120	147	69	104	144	62	88	128
1970 TO 1974	90	70	104	138	72	77	138	52	91	134
1975 TO 1979	88	70	91	159	66	82	132	53	68	112
1980 OR LATER	67	Q	77	93	61	58	104	52	65	Q
OWN/RENT										
OWN	113	94	126	155	82	108	146	64	89	128
RENT	85	82	120	151	88	105	153	59	83	145
1981 FAMILY INCOME										
LESS THAN $5,000	86	87	117	177	85	107	124	60	79	Q
$5,000 TO $9,999	90	84	126	171	88	96	125	60	76	111
$10,000 TO $14,999	95	90	124	128	74	105	138	59	88	125
$15,000 TO $19,999	98	84	119	138	86	104	140	60	88	139
$20,000 TO $24,999	104	88	120	143	92	108	140	59	97	106
$25,000 TO $34,999	110	85	126	148	83	110	141	65	89	111
$35,000 OR MORE	132	83	131	177	100	121	166	76	93	140
BELOW 100% OF POVERTY	92	92	130	180	89	106	128	64	84	Q
BELOW 125% OF POVERTY	92	89	131	171	86	102	135	63	82	150
RECEIVE ASSISTANCE FOR HEATING IN WINTER										
YES	100	103	125	205	86	109	140	59	89	Q
NO	103	84	124	154	86	107	147	61	88	128

SEE FOOTNOTES AT END OF TABLE

Average Consumption by Climate Zone and Heated Square Footage

Table 14. (Continued)

HOUSEHOLD CHARACTERISTICS	TOTAL	HEATING DEGREE-DAYS (HDD) APRIL 1982 THROUGH MARCH 1983								
		> 5,499 HDD			4,000 TO 5,499 HDD			< 4,000 HDD		
		< 1,000 SQ.FT.	1,000 TO 1,999 SQ.FT.	> 1,999 SQ.FT.	< 1,000 SQ.FT.	1,000 TO 1,999 SQ.FT.	> 1,999 SQ.FT.	< 1,000 SQ.FT.	1,000 TO 1,999 SQ.FT.	> 1,999 SQ.FT.
WEATHERIZATION ASSISTANCE FROM FEDERAL, STATE OR LOCAL GOVERNMENT										
YES	98	106	115	Q	Q	Q	Q	Q	Q	Q
NO	103	85	124	155	86	107	147	61	88	129
ENERGY AUDIT BY ELECTRIC OR GAS COMPANY IN PAST 12 MONTHS										
YES	118	Q	122	164	Q	95	141	77	96	128
NO	103	86	124	155	86	107	147	61	88	129
HOUSEHOLD OWNS OR HAS REGULAR USE OF A VEHICLE										
YES	104	84	123	153	80	105	147	62	88	129
NO	97	92	133	211	99	118	126	58	80	Q
ORIGIN OF HOUSEHOLDER										
WHITE	103	84	122	152	81	105	145	60	84	126
BLACK	110	100	152	251	107	119	170	68	109	173
OTHER	81	Q	Q	Q	82	126	Q	47	82	Q
HISPANIC DESCENT										
YES	98	91	124	148	104	155	144	66	88	95
NO	103	86	124	155	84	105	146	61	88	131
AGE OF HOUSEHOLDER										
UNDER 25 YEARS	77	84	102	123	82	108	Q	58	67	Q
25 TO 34 YEARS	94	80	113	139	81	92	144	63	90	116
35 TO 44 YEARS	114	95	131	154	87	107	144	64	98	133
45 TO 59 YEARS	115	89	137	164	93	118	147	67	94	132
60 YEARS AND OVER	101	88	124	161	88	109	153	56	78	128
HOUSEHOLD SIZE										
1 PERSON	80	79	110	135	79	96	127	51	71	123
2 PERSONS	98	84	116	142	83	111	146	60	80	121
3 PERSONS	109	98	135	174	87	100	136	68	90	133
4 PERSONS	117	104	127	150	102	107	155	76	98	132
5 PERSONS	127	95	131	159	111	125	151	76	121	115
6 OR MORE PERSONS	135	Q	161	188	105	126	151	80	102	170
SECONDARY HEATING										
YES	111	85	118	152	77	99	139	69	92	132
NO	98	86	128	158	88	113	158	59	84	123
FUEL USED FOR MAIN HEATING										
NATURAL GAS USED MAIN HEAT	118	94	141	174	91	125	171	71	103	147
ELECTRICITY USED MAIN HEAT	62	50	71	89	52	68	88	47	63	92
FUEL OIL USED MAIN HEAT	128	110	130	161	111	128	151	72	96	Q
WOOD USED MAIN HEAT	53	41	56	67	38	47	72	35	53	80
LPG USED MAIN HEAT	86	75	110	158	91	109	Q	58	79	101
COAL USED MAIN HEAT	39	Q	Q	Q	Q	40	54	Q	Q	Q
NO HEATING FUEL	34	Q	Q	Q	Q	Q	Q	32	Q	Q
OTHER FUEL	79	Q	Q	Q	Q	Q	Q	56	Q	Q
HEATING CONTROLS										
HAVE CONTROLS	110	89	127	160	81	109	150	65	90	130
DO NOT HAVE CONTROLS, UNKNOWN, NOT REPORTED	76	75	100	68	93	94	58	57	80	118
DAYTIME TEMPERATURE WHEN SOMEONE IS AT HOME										
HEAT TURNED ON	111	89	127	160	81	109	150	65	91	131
66 DEGREES OR LESS	108	87	119	153	64	92	149	64	89	111
67-69 DEGREES	117	90	130	162	88	114	154	64	89	129
70 DEGREES	108	86	128	168	73	109	145	63	92	132
71 DEGREES OR MORE	108	97	131	157	97	116	149	66	92	141
HEAT TURNED OFF	75	Q	Q	Q	Q	Q	Q	80	68	Q
UNKNOWN/NO ANSWER	84	89	Q	Q	Q	Q	Q	57	Q	Q

SEE FOOTNOTES AT END OF TABLE

Average Consumption by Climate Zone and Heated Square Footage

Table 14. (Continued)

HOUSEHOLD CHARACTERISTICS	TOTAL	HEATING DEGREE-DAYS (HDD) APRIL 1982 THROUGH MARCH 1983								
		> 5,499 HDD			4,000 TO 5,499 HDD			< 4,000 HDD		
		< 1,000 SQ.FT.	1,000 TO 1,999 SQ.FT.	> 1,999 SQ.FT.	< 1,000 SQ.FT.	1,000 TO 1,999 SQ.FT.	> 1,999 SQ.FT.	< 1,000 SQ.FT.	1,000 TO 1,999 SQ.FT.	> 1,999 SQ.FT.
DAYTIME TEMPERATURE WHEN NO ONE IS AT HOME										
HEAT TURNED ON	116	91	127	160	85	110	146	71	95	137
63 DEGREES OR LESS	110	79	118	154	79	100	144	70	96	119
64-66 DEGREES	119	93	123	167	73	111	144	77	93	163
67-69 DEGREES	120	97	133	163	91	119	137	68	90	119
70 DEGREES OR MORE	118	99	142	160	98	115	159	70	97	137
HEAT TURNED OFF	79	70	108	Q	63	105	242	58	80	89
UNKNOWN/NO ANSWER	97	81	Q	Q	Q	Q	Q	68	Q	Q
NIGHTTIME (SLEEPING HOURS)										
HEAT TURNED ON	114	90	127	160	84	110	150	67	92	134
63 DEGREES OR LESS	111	81	121	158	75	98	158	66	93	118
64-66 DEGREES	113	84	117	163	71	115	148	70	95	143
67-69 DEGREES	117	102	138	155	93	114	140	68	92	138
70 DEGREES OR MORE	114	94	139	167	96	116	154	65	90	139
HEAT TURNED OFF	78	72	87	Q	59	87	125	59	82	110
UNKNOWN/NO ANSWER	86	86	Q	Q	Q	Q	Q	65	Q	Q

"-" = DATA NOT APPLICABLE.
"Q" = DATA WITHHELD BECAUSE OF A LARGE VARIANCE.
NOTE: BECAUSE OF ROUNDING, DATA MAY NOT SUM TO TOTALS. PERCENTAGES ARE CALCULATED ON UNROUNDED NUMBERS. SEE GLOSSARY FOR DEFINITION OF TERMS USED IN THIS REPORT.
SOURCE: ENERGY INFORMATION ADMINISTRATION, OFFICE OF ENERGY MARKETS AND END USE, ENERGY END USE DIVISION, FORM EIA-457, THE 1982 RESIDENTIAL ENERGY CONSUMPTION SURVEY.

Average Expenditures by Climate Zone and Heated Square Footage

Table 15. U.S. Residential Average Energy Expenditures, for All Major Fuels, by Climate Zone and Heated Square Footage—April 1982 Through March 1983 (Dollars per Household)

HOUSEHOLD CHARACTERISTICS	TOTAL	HEATING DEGREE-DAYS (HDD) APRIL 1982 THROUGH MARCH 1983								
		> 5,499 HDD			4,000 TO 5,499 HDD			< 4,000 HDD		
		< 1,000 SQ.FT.	1,000 TO 1,999 SQ.FT.	> 1,999 SQ.FT.	< 1,000 SQ.FT.	1,000 TO 1,999 SQ.FT.	> 1,999 SQ.FT.	< 1,000 SQ.FT.	1,000 TO 1,999 SQ.FT.	> 1,999 SQ.FT.
TOTAL HOUSEHOLDS	1048	788	1146	1399	938	1125	1535	694	975	1372
AREA TYPE										
METROPOLITAN	1079	805	1187	1489	986	1187	1585	690	958	1364
CENTRAL CITY	1034	789	1136	1439	1053	1184	1738	676	934	1379
OUTSIDE CENTRAL CITY	1119	822	1220	1516	893	1189	1516	712	977	1353
NON-METROPOLITAN	951	752	1060	1195	721	902	1187	705	1030	1403
HOW UTILITIES ARE PAID										
ALL PAID BY HOUSEHOLD	1069	820	1158	1396	786	1099	1514	711	976	1367
SOME PAID, SOME IN RENT	844	719	1048	Q	1019	1275	Q	556	595	Q
ALL INCLUDED IN RENT	979	784	982	Q	1209	1227	Q	740	1121	Q
OTHER	1263	898	1253	1610	1175	1715	2128	667	1263	Q
HOUSING STRUCTURE BY OWNERSHIP										
SINGLE-FAMILY DETACHED	1120	820	1168	1400	778	1082	1457	749	1010	1393
OWN	1159	788	1171	1413	796	1094	1449	812	1029	1397
RENT	919	937	1140	1199	750	983	1577	659	920	1358
SINGLE-FAMILY ATTACHED	1142	1027	1101	1295	915	1167	2075	524	740	Q
OWN	1219	Q	Q	1292	Q	1152	2075	Q	778	Q
RENT	961	886	1206	Q	Q	1225	Q	509	Q	Q
BUILDING WITH 2 TO 4 UNITS	974	854	1154	1421	1036	1346	1885	574	871	Q
OWN	1326	Q	1185	1300	1011	1789	1988	Q	861	Q
RENT	880	840	1136	Q	1041	1104	Q	564	877	Q
BUILDING WITH 5 OR MORE UNITS	818	670	886	Q	1026	1141	Q	675	703	1152
OWN	1065	822	Q	Q	1601	Q	Q	Q	607	1152
RENT	796	663	870	Q	989	1090	Q	676	737	Q
MOBILE HOME	861	946	1151	Q	758	Q	Q	755	938	Q
OWN	870	1016	1123	Q	759	Q	Q	717	944	Q
RENT	827	693	Q	Q	756	Q	Q	855	Q	Q
YEAR HOUSE BUILT										
1939 OR EARLIER	1076	849	1201	1406	997	1222	1551	590	882	1309
1940 TO 1949	1049	788	1079	1592	991	1078	1529	778	950	1611
1950 TO 1959	1056	800	1156	1372	949	1203	1560	667	986	1267
1960 TO 1964	1089	713	1165	1343	1154	1116	1727	702	1048	1459
1965 TO 1969	1040	783	1127	1444	728	1036	1451	746	1041	1422
1970 TO 1974	1012	774	1075	1335	933	1059	1448	696	994	1414
1975 TO 1979	1030	687	1105	1514	724	944	1541	815	931	1327
1980 OR LATER	859	Q	706	830	715	927	1352	706	991	Q
OWN/RENT										
OWN	1151	872	1165	1408	875	1140	1532	783	1004	1373
RENT	861	750	1089	1287	964	1072	1576	643	872	1358
1981 FAMILY INCOME										
LESS THAN $5,000	833	756	958	1415	880	1021	1313	636	869	Q
$5,000 TO $9,999	886	794	1044	1324	931	975	1362	676	841	1031
$10,000 TO $14,999	973	867	1163	1160	792	1124	1410	685	944	1258
$15,000 TO $19,999	995	746	1106	1189	1006	1118	1425	700	939	1357
$20,000 TO $24,999	1062	769	1153	1337	984	1146	1484	674	1052	1129
$25,000 TO $34,999	1139	769	1210	1394	931	1187	1488	761	984	1240
$35,000 OR MORE	1377	826	1262	1602	1248	1277	1745	936	1126	1517
BELOW 100% OF POVERTY	899	772	1076	1374	944	1058	1493	684	881	Q
BELOW 125% OF POVERTY	909	791	1084	1371	908	1042	1586	682	883	1289
RECEIVE ASSISTANCE FOR HEATING IN WINTER										
YES	957	920	1162	1467	760	1030	1712	668	948	Q
NO	1053	774	1145	1397	948	1131	1530	696	976	1368

SEE FOOTNOTES AT END OF TABLE

Average Expenditures by Climate Zone and Heated Square Footage

Table 15. (Continued)

HOUSEHOLD CHARACTERISTICS	TOTAL	HEATING DEGREE-DAYS (HDD) APRIL 1982 THROUGH MARCH 1983								
		> 5,499 HDD			4,000 TO 5,499 HDD			< 4,000 HDD		
		< 1,000 SQ.FT.	1,000 TO 1,999 SQ.FT.	> 1,999 SQ.FT.	< 1,000 SQ.FT.	1,000 TO 1,999 SQ.FT.	> 1,999 SQ.FT.	< 1,000 SQ.FT.	1,000 TO 1,999 SQ.FT.	> 1,999 SQ.FT.
WEATHERIZATION ASSISTANCE FROM FEDERAL, STATE OR LOCAL GOVERNMENT										
YES	947	993	949	Q	Q	Q	Q	Q	Q	Q
NO	1049	783	1149	1401	940	1128	1542	693	976	1372
ENERGY AUDIT BY ELECTRIC OR GAS COMPANY IN PAST 12 MONTHS										
YES	1243	Q	1202	1487	Q	1060	1805	773	985	1506
NO	1042	786	1145	1394	941	1127	1521	692	975	1362
HOUSEHOLD OWNS OR HAS REGULAR USE OF A VEHICLE										
YES	1066	773	1154	1396	873	1115	1540	716	989	1373
NO	937	832	1091	1496	1077	1189	1405	595	767	Q
ORIGIN OF HOUSEHOLDER										
WHITE	1051	779	1140	1387	903	1114	1508	699	966	1349
BLACK	1059	881	1254	1792	1115	1168	1811	694	1062	1766
OTHER	858	Q	Q	Q	759	1311	Q	611	817	Q
HISPANIC DESCENT										
YES	999	771	1090	1218	1200	1559	1490	623	930	1201
NO	1050	789	1147	1404	911	1108	1536	701	977	1382
AGE OF HOUSEHOLDER										
UNDER 25 YEARS	766	739	1029	1029	804	1041	Q	633	732	Q
25 TO 34 YEARS	992	731	1106	1313	925	1001	1555	721	1016	1358
35 TO 44 YEARS	1194	834	1232	1478	972	1178	1577	742	1102	1512
45 TO 59 YEARS	1158	834	1250	1442	1029	1264	1545	737	1013	1347
60 YEARS AND OVER	993	824	1077	1360	951	1080	1489	653	879	1274
HOUSEHOLD SIZE										
1 PERSON	783	717	945	1064	845	912	1241	552	778	1163
2 PERSONS	982	785	1067	1215	900	1099	1422	713	900	1196
3 PERSONS	1102	927	1209	1485	952	1100	1406	731	1005	1539
4 PERSONS	1253	861	1230	1484	1166	1239	1695	878	1120	1406
5 PERSONS	1343	972	1337	1557	1207	1399	1657	857	1298	1397
6 OR MORE PERSONS	1361	Q	1448	1638	1213	1302	1770	931	1058	1916
SECONDARY HEATING										
YES	1157	814	1192	1431	865	1094	1477	750	1020	1421
NO	983	782	1117	1361	954	1148	1632	678	942	1259
FUEL USED FOR MAIN HEATING										
NATURAL GAS USED MAIN HEAT	1011	718	1088	1332	851	1107	1598	634	958	1391
ELECTRICITY USED MAIN HEAT	976	852	1111	1476	764	978	1290	794	1030	1373
FUEL OIL USED MAIN HEAT	1455	1170	1456	1806	1263	1504	1734	1018	1179	Q
WOOD USED MAIN HEAT	775	583	819	1019	563	707	1002	514	776	1062
LPG USED MAIN HEAT	1072	917	1237	1637	1091	1260	Q	799	1072	1335
COAL USED MAIN HEAT	686	Q	Q	Q	Q	662	905	Q	Q	Q
NO HEATING FUEL	736	Q	Q	Q	Q	Q	Q	736	Q	Q
OTHER FUEL	1035	Q	Q	Q	Q	Q	Q	794	Q	Q
HEATING CONTROLS										
HAVE CONTROLS	1103	795	1160	1432	869	1147	1563	753	1000	1382
DO NOT HAVE CONTROLS, UNKNOWN, NOT REPORTED	832	763	1012	850	1045	968	802	621	878	1251

SEE FOOTNOTES AT END OF TABLE

Average Expenditures by Climate Zone and Heated Square Footage

Table 15. (Continued)

HOUSEHOLD CHARACTERISTICS	TOTAL	HEATING DEGREE-DAYS (HDD) APRIL 1982 THROUGH MARCH 1983								
		> 5,499 HDD			4,000 TO 5,499 HDD			< 4,000 HDD		
		< 1,000 SQ.FT.	1,000 TO 1,999 SQ.FT.	> 1,999 SQ.FT.	< 1,000 SQ.FT.	1,000 TO 1,999 SQ.FT.	> 1,999 SQ.FT.	< 1,000 SQ.FT.	1,000 TO 1,999 SQ.FT.	> 1,999 SQ.FT.
DAYTIME TEMPERATURE WHEN SOMEONE IS AT HOME										
HEAT TURNED ON	1111	795	1160	1432	866	1148	1563	761	1013	1386
66 DEGREES OR LESS	1088	828	1141	1488	722	994	1535	715	935	1161
67-69 DEGREES	1173	830	1202	1463	879	1219	1645	739	1000	1363
70 DEGREES	1082	740	1145	1443	814	1178	1515	783	1002	1295
71 DEGREES OR MORE	1089	799	1128	1264	1029	1119	1515	773	1054	1596
HEAT TURNED OFF	765	Q	Q	Q	Q	Q	Q	672	746	Q
UNKNOWN/NO ANSWER	939	805	Q	Q	Q	Q	Q	612	Q	Q
DAYTIME TEMPERATURE WHEN NO ONE IS AT HOME										
HEAT TURNED ON	1155	806	1165	1431	908	1168	1532	829	1067	1474
63 DEGREES OR LESS	1087	737	1093	1428	784	1063	1480	811	1019	1240
64-66 DEGREES	1178	825	1132	1442	859	1231	1579	832	1004	1676
67-69 DEGREES	1194	880	1262	1452	1019	1229	1472	754	977	1339
70 DEGREES OR MORE	1194	837	1230	1398	1016	1206	1599	874	1190	1568
HEAT TURNED OFF	823	622	953	Q	652	921	2372	662	870	890
UNKNOWN/NO ANSWER	1039	755	Q	Q	Q	Q	Q	689	Q	Q
NIGHTTIME (SLEEPING HOURS)										
HEAT TURNED ON	1142	797	1165	1433	893	1167	1571	794	1048	1458
63 DEGREES OR LESS	1105	743	1137	1426	748	1097	1599	768	983	1187
64-66 DEGREES	1131	751	1102	1461	815	1216	1604	813	975	1496
67-69 DEGREES	1193	873	1242	1470	1046	1226	1474	733	1068	1649
70 DEGREES OR MORE	1147	828	1204	1351	957	1145	1594	829	1137	1565
HEAT TURNED OFF	793	730	900	Q	657	734	1254	655	839	1020
UNKNOWN/NO ANSWER	941	831	Q	Q	Q	Q	Q	698	Q	Q

"-" = DATA NOT APPLICABLE.
"Q" = DATA WITHHELD BECAUSE OF A LARGE VARIANCE.
NOTE: BECAUSE OF ROUNDING, DATA MAY NOT SUM TO TOTALS. PERCENTAGES ARE CALCULATED ON UNROUNDED NUMBERS. SEE GLOSSARY FOR DEFINITION OF TERMS USED IN THIS REPORT.
SOURCE: ENERGY INFORMATION ADMINISTRATION, OFFICE OF ENERGY MARKETS AND END USE, ENERGY END USE DIVISION, FORM EIA-457, THE 1982 RESIDENTIAL ENERGY CONSUMPTION SURVEY.

Number of Households by Climate Zone and Heated Square Footage

Table 16. Number of U.S. Households by Climate Zone and Heated Square Footage—November 1982 (Million Households)

HOUSEHOLD CHARACTERISTICS	Total	HEATING DEGREE-DAYS (HDD) APRIL 1982 THROUGH MARCH 1983								
		> 5,499 HDD			4,000 TO 5,499 HDD			< 4,000 HDD		
		< 1,000 SQ.FT.	1,000 TO 1,999 SQ.FT.	> 1,999 SQ.FT.	< 1,000 SQ.FT.	1,000 TO 1,999 SQ.FT.	> 1,999 SQ.FT.	< 1,000 SQ.FT.	1,000 TO 1,999 SQ.FT.	> 1,999 SQ.FT.
TOTAL HOUSEHOLDS	83.8	9.1	10.7	8.1	8.7	10.0	6.0	12.5	14.9	3.7
AREA TYPE										
METROPOLITAN	63.2	6.3	7.3	5.6	7.1	7.8	5.3	9.5	11.4	3.0
CENTRAL CITY	29.4	3.2	2.8	2.0	4.1	3.6	1.7	5.6	5.1	1.2
OUTSIDE CENTRAL CITY	33.8	3.0	4.5	3.6	3.0	4.2	3.6	3.8	6.3	1.7
NON-METROPOLITAN	20.6	2.9	3.4	2.5	1.6	2.2	.8	3.0	3.5	.7
HOW UTILITIES ARE PAID										
ALL PAID BY HOUSEHOLD	68.9	5.1	9.3	7.9	4.6	9.1	5.7	9.5	14.1	3.6
SOME PAID, SOME IN RENT	7.8	2.6	.7	Q	2.1	.4	Q	1.5	.3	Q
ALL INCLUDED IN RENT	4.9	1.2	.4	Q	1.6	.2	Q	1.1	.2	Q
OTHER	2.1	.2	.3	.2	.3	.3	.2	.4	.2	Q
HOUSING STRUCTURE BY OWNERSHIP										
SINGLE-FAMILY DETACHED	53.8	2.3	8.0	7.6	2.3	7.0	5.2	5.6	12.3	3.4
OWN	45.1	1.8	7.1	7.2	1.4	6.2	4.8	3.3	10.2	3.1
RENT	8.7	.5	.9	.5	.9	.8	.3	2.3	2.2	.3
SINGLE-FAMILY ATTACHED	3.9	.3	.4	.2	.2	1.3	.5	.4	.5	Q
OWN	2.7	Q	Q	.2	Q	1.1	.5	Q	.5	Q
RENT	1.1	.2	.3	Q	Q	.3	Q	.2	Q	Q
BUILDING WITH 2 TO 4 UNITS	10.1	2.2	1.4	.3	1.7	1.1	.4	2.3	.8	Q
OWN	2.1	Q	.5	.2	.3	.4	.3	Q	.3	Q
RENT	8.0	2.0	.9	Q	1.5	.7	Q	2.2	.5	Q
BUILDING WITH 5 OR MORE UNITS	12.2	3.5	.6	Q	3.7	.4	Q	3.0	.8	.2
OWN	1.0	.2	Q	Q	.2	Q	Q	Q	.2	.2
RENT	11.3	3.3	.6	Q	3.6	.3	Q	2.9	.6	Q
MOBILE HOME	3.7	.8	.3	Q	.7	Q	Q	1.3	.6	Q
OWN	3.0	.7	.2	Q	.6	Q	Q	.9	.5	Q
RENT	.8	.2	Q	Q	.2	Q	Q	.3	Q	Q
YEAR HOUSE BUILT										
1939 OR EARLIER	23.6	3.3	4.5	2.7	2.7	3.0	1.7	2.8	2.4	0.5
1940 TO 1949	7.0	.6	.9	.5	1.1	.9	.4	1.0	1.4	.2
1950 TO 1959	13.4	.6	1.9	1.3	1.1	1.9	.8	2.2	3.1	.5
1960 TO 1964	8.6	.6	.6	.8	.8	1.1	.6	1.5	1.9	.6
1965 TO 1969	8.1	.9	.6	.7	.7	.8	.7	1.3	1.7	.6
1970 TO 1974	10.2	1.7	1.0	1.1	1.0	1.0	.7	1.5	1.8	.6
1975 TO 1979	10.0	1.2	1.0	.9	.8	1.2	1.0	1.4	1.9	.8
1980 OR LATER	2.9	Q	.2	.2	.3	.2	.2	.8	.8	Q
OWN/RENT										
OWN	53.9	2.8	8.0	7.5	2.5	7.9	5.6	4.5	11.6	3.4
RENT	29.8	6.3	2.7	.6	6.2	2.1	.4	8.0	3.3	.3
1981 FAMILY INCOME										
LESS THAN $5,000	9.4	1.9	.7	.2	1.6	1.0	.2	2.5	1.3	Q
$5,000 TO $9,999	13.8	2.5	1.7	.6	1.9	1.4	.3	2.9	2.1	.2
$10,000 TO $14,999	13.0	1.4	1.9	.9	1.3	2.0	.7	2.5	2.1	.3
$15,000 TO $19,999	9.2	1.2	1.3	.7	1.2	1.0	.7	1.4	1.4	.2
$20,000 TO $24,999	10.6	1.0	1.5	1.4	1.0	1.3	.6	1.3	2.3	.3
$25,000 TO $34,999	15.2	.7	2.1	2.1	1.0	2.0	1.7	1.2	3.6	.8
$35,000 OR MORE	12.6	.5	1.6	2.4	.6	1.2	1.8	.6	2.2	1.9
BELOW 100% OF POVERTY	12.1	1.9	1.1	.4	1.8	1.4	.4	3.1	1.9	Q
BELOW 125% OF POVERTY	17.4	2.8	1.7	.7	2.5	2.0	.6	4.1	3.0	.2
RECEIVE ASSISTANCE FOR HEATING IN WINTER										
YES	4.4	.9	.5	.2	.4	.6	.2	1.0	.5	Q
NO	79.4	8.2	10.2	7.9	8.2	9.4	5.9	11.5	14.4	3.7

SEE FOOTNOTES AT END OF TABLE

Number of Households by Climate Zone and Heated Square Footage

Table 16. (Continued)

HOUSEHOLD CHARACTERISTICS	Total	HEATING DEGREE-DAYS (HDD) APRIL 1982 THROUGH MARCH 1983								
		> 5,499 HDD			4,000 TO 5,499 HDD			< 4,000 HDD		
		< 1,000 SQ.FT.	1,000 TO 1,999 SQ.FT.	> 1,999 SQ.FT.	< 1,000 SQ.FT.	1,000 TO 1,999 SQ.FT.	> 1,999 SQ.FT.	< 1,000 SQ.FT.	1,000 TO 1,999 SQ.FT.	> 1,999 SQ.FT.
WEATHERIZATION ASSISTANCE FROM FEDERAL, STATE OR LOCAL GOVERNMENT										
YES	1.0	0.2	0.2	Q	Q	Q	Q	Q	Q	Q
NO	82.8	8.9	10.5	8.0	8.6	9.9	5.9	12.3	14.9	3.7
ENERGY AUDIT BY ELECTRIC OR GAS COMPANY IN PAST 12 MONTHS										
YES	2.3	Q	.2	.5	Q	.2	.3	.3	.4	.3
NO	81.5	9.0	10.5	7.7	8.6	9.8	5.8	12.2	14.5	3.4
HOUSEHOLD OWNS OR HAS REGULAR USE OF A VEHICLE										
YES	72.1	6.7	9.3	7.9	5.9	8.6	5.8	10.2	14.0	3.7
NO	11.6	2.4	1.4	.2	2.7	1.4	.2	2.3	.9	Q
ORIGIN OF HOUSEHOLDER										
WHITE	71.2	7.9	9.8	7.9	7.0	8.4	5.4	9.3	12.0	3.4
BLACK	10.5	1.1	.8	.2	1.6	1.3	.5	2.5	2.3	.2
OTHER	2.0	Q	Q	Q	.2	.2	Q	.6	.6	Q
HISPANIC DESCENT										
YES	4.3	.3	.2	.2	.8	.4	.2	1.1	.8	.2
NO	79.5	8.8	10.5	7.9	7.9	9.6	5.9	11.3	14.1	3.5
AGE OF HOUSEHOLDER										
UNDER 25 YEARS	6.7	1.6	.5	.2	1.3	.3	Q	2.1	.7	Q
25 TO 34 YEARS	19.4	2.4	2.6	1.5	2.2	2.2	1.3	3.6	3.2	.4
35 TO 44 YEARS	14.8	1.0	1.9	2.1	1.3	1.8	1.6	1.6	2.5	1.0
45 TO 59 YEARS	19.3	1.6	2.3	2.4	1.4	2.5	1.8	1.9	4.0	1.3
60 YEARS AND OVER	23.6	2.6	3.4	2.0	2.4	3.2	1.3	3.3	4.6	.9
HOUSEHOLD SIZE										
1 PERSON	19.3	3.9	2.0	0.5	3.3	1.9	0.5	4.3	2.5	0.3
2 PERSONS	26.3	3.0	3.3	2.4	2.5	3.0	1.8	3.8	5.3	1.3
3 PERSONS	13.6	1.1	1.8	1.5	1.3	1.7	1.0	2.0	2.5	.7
4 PERSONS	14.2	.7	1.8	2.0	1.0	2.0	1.7	1.5	2.6	.8
5 PERSONS	6.2	.4	1.0	1.1	.3	.8	.7	.6	1.1	.3
6 OR MORE PERSONS	4.2	Q	.7	.6	.3	.5	.4	.4	.9	.3
SECONDARY HEATING										
YES	31.3	1.7	4.1	4.4	1.6	4.2	3.8	2.7	6.2	2.6
NO	52.4	7.4	6.6	3.7	7.1	5.8	2.3	9.8	8.7	1.1
FUEL USED FOR MAIN HEATING										
NATURAL GAS USED MAIN HEAT	47.5	6.0	6.3	5.1	3.7	5.0	3.3	7.0	8.6	2.4
ELECTRICITY USED MAIN HEAT	13.4	1.3	.7	.5	1.6	1.7	.6	2.9	3.4	.8
FUEL OIL USED MAIN HEAT	11.3	1.0	2.3	1.5	2.5	1.9	1.3	.2	.6	Q
WOOD USED MAIN HEAT	5.6	.4	.9	.7	.5	.8	.4	.6	1.1	.2
LPG USED MAIN HEAT	3.8	.4	.3	.3	.2	.2	Q	1.1	1.0	.2
COAL USED MAIN HEAT	.9	Q	Q	Q	Q	.2	.2	Q	Q	Q
NO HEATING FUEL	.4	Q	Q	Q	Q	Q	Q	.4	Q	Q
OTHER FUEL	.9	Q	Q	Q	Q	Q	Q	.3	Q	Q
HEATING CONTROLS										
HAVE CONTROLS	66.6	7.1	9.7	7.7	5.3	8.8	5.8	6.9	11.9	3.4
DO NOT HAVE CONTROLS, UNKNOWN, NOT REPORTED	17.2	2.0	1.0	.5	3.4	1.2	.2	5.6	3.0	.3

SEE FOOTNOTES AT END OF TABLE

Number of Households by Climate Zone and Heated Square Footage

Table 16. (Continued)

HOUSEHOLD CHARACTERISTICS	Total	HEATING DEGREE-DAYS (HDD) APRIL 1982 THROUGH MARCH 1983								
		> 5,499 HDD			4,000 TO 5,499 HDD			< 4,000 HDD		
		< 1,000 SQ.FT.	1,000 TO 1,999 SQ.FT.	> 1,999 SQ.FT.	< 1,000 SQ.FT.	1,000 TO 1,999 SQ.FT.	> 1,999 SQ.FT.	< 1,000 SQ.FT.	1,000 TO 1,999 SQ.FT.	> 1,999 SQ.FT.
DAYTIME TEMPERATURE WHEN SOMEONE IS AT HOME										
HEAT TURNED ON	64.8	6.9	9.7	7.6	5.2	8.7	5.8	6.4	11.2	3.3
66 DEGREES OR LESS	12.2	1.3	2.5	2.0	1.1	1.4	1.1	1.1	1.3	.5
67-69 DEGREES	18.4	2.0	3.3	2.4	1.2	2.7	2.0	1.1	2.7	.9
70 DEGREES	17.8	2.1	2.1	2.0	1.5	2.6	1.5	1.9	3.1	.9
71 DEGREES OR MORE	16.4	1.4	1.8	1.3	1.3	1.9	1.2	2.4	4.1	1.0
HEAT TURNED OFF	1.0	Q	Q	Q	Q	Q	Q	.2	.6	Q
UNKNOWN/NO ANSWER	.7	.2	Q	Q	Q	Q	Q	.2	Q	Q
DAYTIME TEMPERATURE WHEN NO ONE IS AT HOME										
HEAT TURNED ON	55.7	6.5	9.5	7.6	4.3	7.9	5.6	3.7	7.8	2.7
63 DEGREES OR LESS	18.0	2.2	3.4	2.7	1.3	2.6	1.6	1.2	2.4	.7
64-66 DEGREES	13.2	1.8	2.2	2.0	1.1	1.9	1.3	.6	1.5	.8
67-69 DEGREES	10.1	.9	1.9	1.6	.9	1.2	1.2	.6	1.3	.5
70 DEGREES OR MORE	14.4	1.7	1.9	1.4	1.0	2.3	1.4	1.4	2.6	.7
HEAT TURNED OFF	10.2	.4	.2	Q	.9	.8	.2	3.0	4.0	.6
UNKNOWN/NO ANSWER	.8	.2	Q	Q	Q	Q	Q	.2	Q	Q
NIGHTTIME (SLEEPING HOURS)										
HEAT TURNED ON	59.0	6.6	9.5	7.6	4.6	8.3	5.6	4.8	9.1	2.8
63 DEGREES OR LESS	15.9	1.5	3.0	2.3	1.0	2.2	1.5	1.3	2.4	.8
64-66 DEGREES	14.8	1.9	2.5	2.1	1.3	2.2	1.4	1.0	1.8	.7
67-69 DEGREES	13.0	1.4	2.0	1.9	1.1	1.7	1.3	.8	2.3	.5
70 DEGREES OR MORE	15.3	1.8	2.0	1.4	1.2	2.2	1.5	1.7	2.7	.8
HEAT TURNED OFF	6.9	.2	.2	Q	.6	.4	.2	1.9	2.7	.6
UNKNOWN/NO ANSWER	.7	.2	Q	Q	Q	Q	Q	.2	Q	Q

"-" = DATA NOT APPLICABLE.
"Q" = DATA WITHHELD BECAUSE OF A LARGE VARIANCE.
NOTE: BECAUSE OF ROUNDING, DATA MAY NOT SUM TO TOTALS. PERCENTAGES ARE CALCULATED ON UNROUNDED NUMBERS. SEE GLOSSARY FOR DEFINITION OF TERMS USED IN THIS REPORT.
SOURCE: ENERGY INFORMATION ADMINISTRATION, OFFICE OF ENERGY MARKETS AND END USE, ENERGY END USE DIVISION, FORM EIA-457, THE 1982 RESIDENTIAL ENERGY CONSUMPTION SURVEY.

Average Energy Prices

Table 17. U.S. Average Residential Energy Prices—April 1982 Through March 1983 (Dollars per Million Btu)

HOUSEHOLD CHARACTERISTICS	AVERAGE ENERGY PRICES				
	ALL FUELS	NATURAL GAS	ELECTRICITY	FUEL OIL OR KEROSENE	LIQUEFIED PETROLEUM GAS
TOTAL HOUSEHOLDS	10.18	5.67	19.98	8.42	9.42
CENSUS REGION AND DIVISION					
NORTHEAST	11.25	7.28	27.46	8.43	11.52
NEW ENGLAND	11.61	8.46	24.99	8.47	11.50
MIDDLE ATLANTIC	11.14	7.04	28.28	8.41	11.53
NORTH CENTRAL	8.69	5.21	19.55	8.28	8.44
EAST NORTH CENTRAL	8.73	5.27	19.91	8.31	8.93
WEST NORTH CENTRAL	8.62	5.04	18.80	8.08	7.86
SOUTH	11.60	5.62	18.73	8.51	9.82
SOUTH ATLANTIC	12.60	6.48	19.44	8.52	10.51
EAST SOUTH CENTRAL	10.90	5.32	15.44	8.42	9.29
WEST SOUTH CENTRAL	10.71	5.06	20.26	8.69	8.92
WEST	8.73	4.85	16.91	8.58	9.68
MOUNTAIN	8.96	4.79	18.33	8.26	8.63
PACIFIC	8.63	4.88	16.33	8.71	11.49
AREA TYPE					
METROPOLITAN	10.14	5.79	20.65	8.41	9.97
CENTRAL CITY	9.64	5.75	20.67	8.45	11.42
OUTSIDE CENTRAL CITY	10.57	5.82	20.63	8.38	9.82
NON-METROPOLITAN	10.33	5.13	18.13	8.48	9.14
ANNUAL HEATING DEGREE-DAYS (HDD) AND COOLING DEGREE-DAYS (CDD) --LONG-TERM AVERAGE					
<2,000 CDD AND >7,000 HDD	9.24	5.31	19.04	8.32	9.17
<2,000 CDD AND 5,500 TO 7,000 HDD	9.27	5.56	20.99	8.42	8.91
<2,000 CDD AND 4,000 TO 5,499 HDD	10.68	6.53	20.74	8.44	9.35
<2,000 CDD AND <4,000 HDD	9.73	4.95	18.38	8.53	9.43
>2,000 CDD AND <4,000 HDD	12.95	5.76	20.12	8.66	10.35
HOW UTILITIES ARE PAID					
ALL PAID BY HOUSEHOLD	10.15	5.55	19.52	8.44	9.44
SOME PAID, SOME IN RENT	9.66	6.12	25.81	8.40	10.18
ALL INCLUDED IN RENT	10.92	6.47	21.51	8.41	9.36
OTHER	11.10	6.53	23.64	8.29	8.81
HOUSING STRUCTURE BY OWNERSHIP					
SINGLE-FAMILY DETACHED	9.98	5.42	19.37	8.41	9.36
OWN	10.07	5.46	19.36	8.40	9.18
RENT	9.43	5.22	19.43	8.51	10.09
SINGLE-FAMILY ATTACHED	10.21	6.49	22.18	8.43	9.80
OWN	10.16	6.64	24.66	8.43	9.25
RENT	10.39	5.99	18.23	8.66	10.50
BUILDING WITH 2 TO 4 UNITS	9.91	6.22	22.56	8.42	11.24
OWN	10.96	6.81	25.54	8.46	10.59
RENT	9.54	6.05	21.55	8.39	11.61
BUILDING WITH 5 OR MORE UNITS	11.27	6.33	21.74	8.41	8.66
OWN	11.90	6.36	24.54	8.41	Q
RENT	11.20	6.33	21.44	8.41	8.66
MOBILE HOME	11.99	4.86	18.93	8.73	9.47
OWN	12.25	4.85	18.74	8.80	9.62
RENT	11.03	4.90	19.93	8.40	9.13
NUMBER OF ROOMS					
1	12.97	7.75	23.25	8.41	12.77
2	10.78	6.48	21.80	8.51	10.33
3	11.10	6.09	21.50	8.42	10.26
4	10.04	5.59	19.60	8.45	9.85
5	10.15	5.55	20.11	8.43	9.29
6	10.11	5.64	19.86	8.44	9.37
7	10.16	5.66	19.57	8.46	9.28
8 OR MORE	9.97	5.69	19.80	8.33	8.86
NUMBER OF ROOMS THAT CAN BE AIR CONDITIONED					
ALL	11.00	5.58	19.32	8.46	9.15
SOME	10.24	6.01	22.05	8.38	8.97
NONE	9.36	5.57	19.89	8.44	9.73

SEE FOOTNOTES AT END OF TABLE

Average Energy Prices

Table 17. (Continued)

HOUSEHOLD CHARACTERISTICS	AVERAGE ENERGY PRICES				
	ALL FUELS	NATURAL GAS	ELECTRICITY	FUEL OIL OR KEROSENE	LIQUEFIED PETROLEUM GAS
MEASURED HEATED SQUARE FOOTAGE OF RESIDENCE					
LESS THAN 600 SQUARE FEET.....	11.15	6.37	22.76	8.42	11.26
600 TO 999 SQUARE FEET.....	10.29	5.66	20.01	8.46	9.66
1,000 TO 1,599 SQUARE FEET....	10.29	5.56	19.75	8.49	9.28
1,600 TO 1,999 SQUARE FEET....	10.19	5.68	19.14	8.40	9.46
2,000 TO 2,399 SQUARE FEET....	9.92	5.62	19.62	8.31	9.04
2,400 TO 2,999 SQUARE FEET....	9.89	5.65	20.38	8.39	8.25
3,000 OR MORE SQUARE FEET.....	9.58	5.67	20.59	8.36	9.21
YEAR HOUSE BUILT					
1939 OR EARLIER.....	9.34	5.87	21.76	8.40	9.50
1940 TO 1949.....	9.75	5.78	20.25	8.44	9.67
1950 TO 1959.....	9.66	5.58	21.12	8.44	9.52
1960 TO 1964.....	10.38	5.59	20.43	8.38	9.61
1965 TO 1969.....	10.60	5.63	19.10	8.56	9.96
1970 TO 1974.....	11.21	5.44	19.06	8.52	9.02
1975 TO 1979.....	11.76	5.37	18.43	8.42	9.13
1980 OR LATER.....	12.87	5.53	18.06	8.44	8.88
OWN/RENT					
OWN.....	10.21	5.60	19.76	8.42	9.26
RENT.....	10.10	5.82	20.57	8.43	9.93
1981 FAMILY INCOME					
LESS THAN $5,000.....	9.72	5.97	20.36	8.46	9.73
$5,000 TO $9,999.....	9.84	5.53	20.38	8.40	9.56
$10,000 TO $14,999.....	10.24	5.59	19.85	8.42	9.32
$15,000 TO $19,999.....	10.16	5.78	19.75	8.47	10.06
$20,000 TO $24,999.....	10.18	5.68	20.13	8.43	9.29
$25,000 TO $34,999.....	10.39	5.68	19.33	8.36	9.00
$35,000 OR MORE.....	10.40	5.60	20.37	8.44	9.19
BELOW 100% OF POVERTY	9.76	5.68	20.35	8.46	9.58
BELOW 125% OF POVERTY.....	9.87	5.72	20.35	8.46	9.48
RECEIVE ASSISTANCE FOR HEATING IN WINTER					
YES.....	9.57	5.68	20.18	8.47	9.85
NO.....	10.21	5.67	19.97	8.42	9.39
WEATHERIZATION ASSISTANCE FROM FEDERAL, STATE OR LOCAL GOVERNMENT					
YES.....	9.71	5.60	18.39	8.34	9.56
NO.....	10.18	5.67	19.99	8.42	9.42
ENERGY AUDIT BY ELECTRIC OR GAS COMPANY IN PAST 12 MONTHS					
YES.....	10.57	5.79	18.01	8.51	9.06
NO.....	10.17	5.66	20.06	8.42	9.43
HOUSEHOLD OWNS OR HAS REGULAR USE OF A VEHICLE					
YES.....	10.25	5.58	19.67	8.42	9.34
NO.....	9.68	6.19	23.75	8.43	10.62

SEE FOOTNOTES AT END OF TABLE

Table 17. (Continued)

HOUSEHOLD CHARACTERISTICS	AVERAGE ENERGY PRICES				
	ALL FUELS	NATURAL GAS	ELECTRICITY	FUEL OIL OR KEROSENE	LIQUEFIED PETROLEUM GAS
ORIGIN OF HOUSEHOLDER					
WHITE	10.26	5.63	19.76	8.42	9.32
BLACK	9.64	5.86	21.72	8.45	9.68
OTHER	10.53	5.67	20.89	8.62	10.97
HISPANIC DESCENT					
YES	10.16	5.81	21.80	8.41	10.84
NO	10.18	5.66	19.90	8.42	9.39
AGE OF HOUSEHOLDER					
UNDER 25 YEARS	9.88	5.47	19.48	8.47	9.88
25 TO 34 YEARS	10.56	5.70	19.53	8.43	9.38
35 TO 44 YEARS	10.48	5.74	19.75	8.41	9.41
45 TO 59 YEARS	10.07	5.58	20.27	8.40	9.21
60 YEARS AND OVER	9.84	5.73	20.47	8.43	9.56
HOUSEHOLD SIZE					
1 PERSON	9.77	5.78	20.76	8.43	9.84
2 PERSONS	10.04	5.61	19.67	8.39	9.32
3 PERSONS	10.11	5.62	19.58	8.47	9.41
4 PERSONS	10.67	5.79	20.11	8.39	9.39
5 PERSONS	10.60	5.48	20.04	8.47	8.98
6 OR MORE PERSONS	10.09	5.63	20.18	8.54	9.55
SECONDARY HEATING					
YES	10.44	5.57	19.15	8.46	9.30
NO	10.00	5.72	20.67	8.40	9.53
FUEL COMBINATIONS					
NATURAL GAS USED MAIN HEAT	8.55	5.57	21.14	8.53	15.91
NATURAL GAS FOR HOT WATER AND HAVE AIR CONDITIONING	9.03	5.61	21.63	8.60	15.91
NATURAL GAS FOR HOT WATER AND NO AIR CONDITIONING	7.57	5.40	21.68	8.64	Q
ELECTRICITY FOR HOT WATER AND HAVE AIR CONDITIONING	10.16	6.18	18.23	8.61	Q
ELECTRICITY FOR HOT WATER AND NO AIR CONDITIONING	8.31	5.90	16.62	8.70	Q
OTHER	Q	Q	Q	Q	Q
ELECTRICITY USED MAIN HEAT	15.82	5.64	17.06	8.61	9.75
ELECTRICITY FOR HOT WATER AND HAVE AIR CONDITIONING	17.08	4.90	17.32	8.53	11.90
ELECTRICITY FOR HOT WATER AND NO AIR CONDITIONING	14.32	6.97	14.55	8.47	11.86
OTHER	12.55	5.63	20.71	9.20	9.11
FUEL OIL USED MAIN HEAT	11.41	9.25	23.97	8.40	12.88
FUEL OIL FOR HOT WATER AND HAVE AIR CONDITIONING	11.68	10.54	30.28	8.42	15.63
FUEL OIL FOR HOT WATER AND NO AIR CONDITIONING	11.05	10.79	31.13	8.42	13.56
ELECTRICITY FOR HOT WATER AND HAVE AIR CONDITIONING	12.51	10.57	19.80	8.36	13.34
ELECTRICITY FOR HOT WATER AND NO AIR CONDITIONING	11.52	37.33	19.07	8.44	12.44
OTHER	10.64	8.16	26.16	8.35	12.68
WOOD USED MAIN HEAT	14.67	6.10	18.30	8.55	10.04
LPG USED MAIN HEAT	12.48	Q	20.25	9.36	8.89
KEROSENE USED MAIN HEAT	12.74	6.90	20.94	8.71	13.00
COAL USED MAIN HEAT	17.40	8.63	19.48	8.43	13.64
NO HEATING FUEL	21.64	5.31	38.69	8.40	16.78
OTHER FUEL	Q	Q	Q	Q	Q

"-" = DATA NOT APPLICABLE.
"Q" = DATA WITHHELD BECAUSE OF A LARGE VARIANCE.
NOTE: BECAUSE OF ROUNDING, DATA MAY NOT SUM TO TOTALS. PERCENTAGES ARE CALCULATED ON UNROUNDED NUMBERS. SEE GLOSSARY FOR DEFINITION OF TERMS USED IN THIS REPORT.
SOURCE: ENERGY INFORMATION ADMINISTRATION, OFFICE OF ENERGY MARKETS AND END USE, ENERGY END USE DIVISION, FORM EIA-457, THE 1982 RESIDENTIAL ENERGY CONSUMPTION SURVEY.

Wood Consumption

Table 18. U.S. Residential Wood Consumption—April 1982 Through March 1983

HOUSEHOLD CHARACTERISTICS	NUMBER OF HOUSEHOLDS BURNING WOOD		TOTAL AMOUNT CONSUMED		TOTAL AMOUNT CONSUMED (QUADRILLION BTU)	MEAN AMOUNT CONSUMED PER HOUSEHOLD		MEDIAN AMOUNT CONSUMED PER HOUSEHOLD	
	(MILLION)	(PERCENT)	(MILLION CORDS)	(PERCENT)		(CORDS)	(MILLION BTU)	(CORDS)	(MILLION BTU)
TOTAL HOUSEHOLDS	21.1	100.0	43.9	100.0	0.88	2.1	41.6	1.0	20.5
CENSUS REGION AND DIVISION									
NORTHEAST	3.9	18.7	11.3	25.6	.23	2.9	57.1	1.4	28.8
NEW ENGLAND	1.4	6.7	3.4	7.8	.07	2.4	48.7	1.5	30.8
MIDDLE ATLANTIC	2.5	12.0	7.8	17.8	.16	3.1	61.7	1.1	20.9
NORTH CENTRAL	4.8	22.8	10.9	24.8	.22	2.3	45.1	1.3	26.0
EAST NORTH CENTRAL	3.2	15.1	7.8	17.8	.16	2.5	49.2	1.0	20.7
WEST NORTH CENTRAL	1.6	7.8	3.1	7.0	.06	1.9	37.3	1.3	26.9
SOUTH	7.6	36.1	15.1	34.4	.30	2.0	39.7	1.3	26.3
SOUTH ATLANTIC	4.1	19.7	8.0	18.2	.16	1.9	38.5	1.3	26.9
EAST SOUTH CENTRAL	1.7	8.2	4.9	11.2	.10	2.8	56.6	2.1	41.7
WEST SOUTH CENTRAL	1.7	8.2	2.2	5.1	.04	1.3	25.6	.6	12.3
WEST	4.7	22.4	6.7	15.2	.13	1.4	28.2	.6	12.1
MOUNTAIN	1.3	6.1	2.6	5.9	.05	2.0	40.5	1.0	20.6
PACIFIC	3.4	16.3	4.1	9.3	.08	1.2	23.6	.5	10.3
AREA TYPE									
METROPOLITAN	14.2	67.2	19.6	44.6	.39	1.4	27.6	.6	12.4
CENTRAL CITY	4.1	19.3	3.5	8.1	.07	.9	17.3	.5	10.1
OUTSIDE CENTRAL CITY	10.1	47.9	16.0	36.5	.32	1.6	31.7	.9	18.1
NON-METROPOLITAN	6.9	32.8	24.3	55.4	.49	3.5	70.2	2.3	46.5
ANNUAL HEATING DEGREE-DAYS (HDD) AND COOLING DEGREE-DAYS (CDD) --LONG-TERM AVERAGE									
<2,000 CDD AND >7,000 HDD	2.7	12.9	12.2	27.8	.24	4.5	89.3	3.6	72.6
<2,000 CDD AND 5,500 TO 7,000 HDD	5.1	24.3	9.2	20.9	.18	1.8	35.8	.9	18.7
<2,000 CDD AND 4,000 TO 5,499 HDD	6.0	28.5	10.2	23.3	.20	1.7	34.1	1.0	20.5
<2,000 CDD AND <4,000 HDD	5.2	24.7	9.5	21.7	.19	1.8	36.4	.7	14.3
>2,000 CDD AND <4,000 HDD	2.0	9.6	2.8	6.3	.06	1.4	27.4	1.0	20.2
HOW UTILITIES ARE PAID									
ALL PAID BY HOUSEHOLD	20.3	96.3	42.7	97.3	.85	2.1	42.0	1.0	20.6
SOME PAID, SOME IN RENT	.3	1.5	.2	.4	Q	.6	11.6	.1	2.1
ALL INCLUDED IN RENT	Q	Q	Q	Q	Q	Q	Q	Q	Q
OTHER	.3	1.6	.7	1.5	.01	2.0	39.5	.5	10.5

SEE FOOTNOTES AT END OF TABLE

Wood Consumption

Table 18. (Continued)

HOUSEHOLD CHARACTERISTICS	NUMBER OF HOUSEHOLDS BURNING WOOD		TOTAL AMOUNT CONSUMED		TOTAL AMOUNT CONSUMED (QUADRILLION BTU)	MEAN AMOUNT CONSUMED PER HOUSEHOLD		MEDIAN AMOUNT CONSUMED PER HOUSEHOLD	
	(MILLION)	(PERCENT)	(MILLION CORDS)	(PERCENT)		(CORDS)	(MILLION BTU)	(CORDS)	(MILLION BTU)
HOUSING STRUCTURE BY OWNERSHIP									
SINGLE-FAMILY DETACHED	19.1	90.7	40.8	92.9	0.82	2.1	42.6	1.0	20.7
OWN	17.3	82.0	35.0	79.8	.70	2.0	40.5	1.0	20.6
RENT	1.8	8.7	5.7	13.1	.11	3.1	62.4	1.7	34.7
SINGLE-FAMILY ATTACHED	.5	2.3	.7	1.7	.01	1.5	29.8	.5	10.5
OWN	.4	2.0	.7	1.6	.01	1.7	34.3	1.4	28.3
RENT	Q	Q	Q	Q	Q	Q	Q	Q	Q
BUILDING WITH 2 TO 4 UNITS	.6	3.0	.8	1.9	.02	1.3	25.6	.3	6.2
OWN	.3	1.5	.4	.9	.01	1.2	24.0	.3	6.1
RENT	.3	1.5	.4	1.0	.01	1.4	27.2	.5	10.4
BUILDING WITH 5 OR MORE UNITS	.3	1.5	.1	.2	Q	.3	5.5	.1	2.1
OWN	.2	.7	Q	.1	Q	.2	3.1	.1	2.1
RENT	.2	.8	.1	.1	Q	.4	7.8	.1	2.1
MOBILE HOME	.5	2.4	1.5	3.3	.03	2.8	56.6	2.6	51.7
OWN	.5	2.2	1.4	3.2	.03	3.1	61.2	3.0	60.5
RENT	Q	Q	Q	Q	Q	Q	Q	Q	Q
NUMBER OF ROOMS									
1 - 3	.6	2.9	1.4	3.2	.03	2.4	47.1	2.0	40.7
4	2.0	9.3	4.1	9.3	.08	2.1	41.5	1.7	35.1
5	4.1	19.3	10.4	23.8	.21	2.6	51.3	1.1	20.8
6	5.9	28.0	12.0	27.3	.24	2.0	40.5	1.0	20.6
7	4.0	19.1	7.3	16.7	.15	1.8	36.3	.9	18.6
8 OR MORE	4.5	21.4	8.6	19.6	.17	1.9	38.2	.9	18.4
NUMBER OF ROOMS THAT CAN BE AIR CONDITIONED									
ALL	8.1	38.3	10.9	24.8	.22	1.3	26.9	.7	14.2
SOME	3.6	17.0	6.7	15.2	.13	1.9	37.1	1.0	20.1
NONE	9.4	44.6	26.3	60.0	.53	2.8	55.9	1.6	32.9
MEASURED HEATED SQUARE FOOTAGE OF RESIDENCE									
LESS THAN 600 SQUARE FEET	.4	2.0	1.2	2.8	.02	3.0	60.1	1.8	36.3
600 TO 999 SQUARE FEET	2.1	9.8	5.7	13.0	.11	2.7	54.8	2.0	40.1
1,000 TO 1,599 SQUARE FEET	6.1	28.8	12.7	29.0	.25	2.1	41.9	1.0	20.6
1,600 TO 1,999 SQUARE FEET	4.0	18.8	8.7	19.9	.17	2.2	44.1	1.1	20.9
2,000 TO 2,399 SQUARE FEET	3.2	14.9	5.6	12.8	.11	1.8	35.6	.6	12.2
2,400 TO 2,999 SQUARE FEET	2.8	13.3	5.2	11.9	.10	1.9	37.1	.9	18.9
3,000 OR MORE SQUARE FEET	2.6	12.3	4.6	10.6	.09	1.8	35.8	.8	16.2
YEAR HOUSE BUILT									
1939 OR EARLIER	4.5	21.2	14.6	33.3	0.29	3.3	65.3	1.7	35.7
1940 TO 1949	1.6	7.6	2.8	6.3	.06	1.7	34.8	.9	18.1
1950 TO 1959	3.1	14.9	5.4	12.4	.11	1.7	34.6	.9	18.6
1960 TO 1964	2.1	10.2	3.6	8.1	.07	1.7	33.3	1.0	20.5
1965 TO 1969	2.2	10.4	4.2	9.5	.08	1.9	38.0	1.1	22.4
1970 TO 1974	3.3	15.4	6.1	13.8	.12	1.9	37.1	1.0	20.8
1975 TO 1979	3.5	16.5	5.8	13.3	.12	1.7	33.4	.7	14.5
1980 OR LATER	.8	3.8	1.4	3.2	.03	1.8	35.9	1.1	20.9
OWN/RENT									
OWN	18.7	88.4	37.6	85.6	.75	2.0	40.3	1.0	20.5
RENT	2.5	11.6	6.3	14.4	.13	2.6	51.5	.7	14.1
1981 FAMILY INCOME									
LESS THAN $5,000	1.0	4.8	3.2	7.3	.06	3.2	63.7	1.8	38.0
$5,000 TO $9,999	1.6	7.4	6.3	14.3	.13	4.0	80.7	2.2	45.7
$10,000 TO $14,999	2.3	11.1	6.5	14.8	.13	2.8	55.5	2.1	41.2
$15,000 TO $19,999	2.5	11.6	6.3	14.4	.13	2.6	51.3	1.9	38.3
$20,000 TO $24,999	2.8	13.1	5.6	12.8	.11	2.0	40.7	.9	18.9
$25,000 TO $34,999	5.0	23.8	7.7	17.6	.15	1.5	30.6	.9	18.1
$35,000 OR MORE	5.9	28.2	8.3	18.8	.17	1.4	27.8	.6	12.2
BELOW 100% OF POVERTY	1.6	7.7	6.0	13.7	.12	3.7	74.7	3.0	60.5
BELOW 125% OF POVERTY	2.5	12.0	9.1	20.8	.18	3.6	71.8	2.4	47.6
RECEIVE ASSISTANCE FOR HEATING IN WINTER									
YES	.6	2.8	2.5	5.7	.05	4.2	84.9	3.0	60.4
NO	20.5	97.2	41.4	94.3	.83	2.0	40.3	1.0	20.3

SEE FOOTNOTES AT END OF TABLE

Wood Consumption

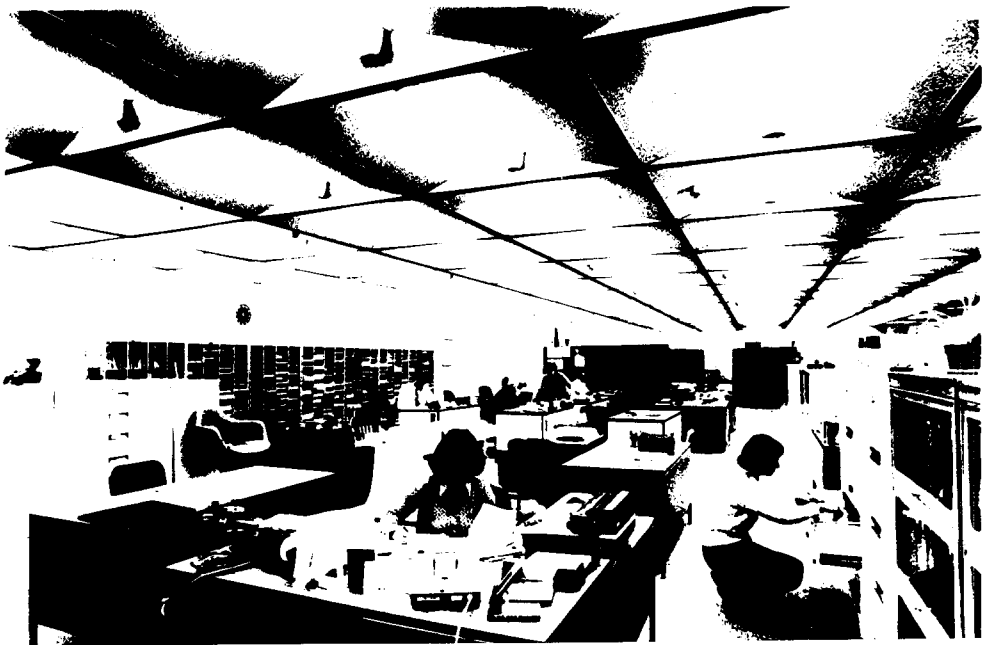
Table 18. (Continued)

HOUSEHOLD CHARACTERISTICS	NUMBER OF HOUSEHOLDS BURNING WOOD		TOTAL AMOUNT CONSUMED		TOTAL AMOUNT CONSUMED (QUADRILLION BTU)	MEAN AMOUNT CONSUMED PER HOUSEHOLD		MEDIAN AMOUNT CONSUMED PER HOUSEHOLD	
	(MILLION)	(PERCENT)	(MILLION CORDS)	(PERCENT)		(CORDS)	(MILLION BTU)	(CORDS)	(MILLION BTU)
WEATHERIZATION ASSISTANCE FROM FEDERAL, STATE OR LOCAL GOVERNMENT									
YES	0.3	1.4	1.1	2.5	0.02	3.6	73.0	1.7	35.5
NO	20.8	98.6	42.8	97.5	.86	2.1	41.1	1.0	20.4
ENERGY AUDIT BY ELECTRIC OR GAS COMPANY IN PAST 12 MONTHS									
YES	.8	4.0	1.3	3.0	.03	1.5	30.8	.8	16.3
NO	20.3	96.0	42.6	97.0	.85	2.1	42.0	1.0	20.6
HOUSEHOLD OWNS OR HAS REGULAR USE OF A VEHICLE									
YES	20.4	96.6	42.0	95.6	.84	2.1	41.2	1.0	20.4
NO	.7	3.4	1.9	4.4	.04	2.7	54.0	1.7	35.6
ORIGIN OF HOUSEHOLDER									
WHITE	19.9	94.1	40.5	92.3	.81	2.0	40.8	1.0	20.4
BLACK	.9	4.4	2.8	6.3	.06	2.9	59.0	1.6	30.9
OTHER	.3	1.5	.6	1.4	.01	2.0	40.9	.3	6.2
HISPANIC DESCENT									
YES	.7	3.2	1.0	2.2	.02	1.4	28.7	.6	12.5
NO	20.4	96.8	42.9	97.8	.86	2.1	42.0	1.0	20.5
AGE OF HOUSEHOLDER									
UNDER 25 YEARS	.6	2.8	1.3	3.0	.03	2.2	44.5	.5	10.2
25 TO 34 YEARS	5.3	25.1	9.4	21.5	.19	1.8	35.6	.9	18.5
35 TO 44 YEARS	5.2	24.6	11.0	25.1	.22	2.1	42.5	1.3	26.4
45 TO 59 YEARS	5.5	26.0	12.4	28.3	.25	2.3	45.3	1.1	22.3
60 YEARS AND OVER	4.5	21.5	9.7	22.1	.19	2.1	42.6	1.0	20.0
HOUSEHOLD SIZE									
1 PERSON	2.0	9.4	3.5	8.0	.07	1.8	35.4	.6	12.3
2 PERSONS	6.8	32.4	13.4	30.4	.27	2.0	39.1	.9	18.2
3 PERSONS	3.6	16.9	6.6	14.9	.13	1.8	36.7	1.0	20.5
4 PERSONS	5.1	24.3	10.8	24.6	.22	2.1	42.0	1.3	26.4
5 PERSONS	2.3	10.9	6.3	14.4	.13	2.7	54.8	2.0	40.3
6 OR MORE PERSONS	1.3	6.1	3.4	7.7	.07	2.6	52.5	1.3	26.0
SECONDARY HEATING									
YES	19.1	90.5	34.9	79.4	0.70	1.8	36.5	0.9	18.8
NO	2.0	9.5	9.0	20.6	.18	4.5	90.3	4.0	80.2
MAIN HEATING FUEL									
NATURAL GAS	8.7	41.3	8.4	19.2	.17	1.0	19.4	.5	10.3
FUEL OIL OR KEROSENE	2.6	12.5	3.9	9.0	.08	1.5	29.9	.9	18.5
ELECTRICITY	2.9	13.7	3.4	7.8	.07	1.2	23.6	.6	12.2
WOOD	5.5	26.3	25.6	58.3	.51	4.6	92.3	3.6	73.3
FIREPLACE	.4	1.8	1.1	2.6	.02	3.0	60.3	2.1	41.7
AIRTIGHT STOVE	4.1	19.2	18.3	41.7	.37	4.5	90.3	3.7	73.3
NONAIRTIGHT STOVE	.7	3.3	3.2	7.3	.06	4.7	93.2	2.6	51.4
FURNACE/OTHER	.4	2.1	3.0	6.8	.06	6.8	136.8	5.1	102.7
LPG	.7	3.1	1.5	3.3	.03	2.2	44.6	1.9	38.4
OTHER	.7	3.2	1.0	2.4	.02	1.6	31.2	1.3	26.0
AMOUNT OF WOOD BURNED									
LESS THAN 0.5 CORD	6.3	30.0	1.3	3.1	.03	.2	4.2	.3	6.0
0.5 TO 1.4 CORDS	5.5	26.2	4.4	10.1	.09	.8	16.0	.7	14.5
1.5 TO 2.4 CORDS	3.0	14.4	5.6	12.8	.11	1.8	37.0	1.9	38.0
2.5 TO 3.4 CORDS	2.0	9.3	5.7	13.0	.11	2.9	57.8	3.0	60.2
3.5 TO 4.4 CORDS	1.4	6.5	5.4	12.3	.11	3.9	78.1	4.0	80.9
4.5 CORDS OR MORE	2.8	13.4	21.4	48.8	.43	7.6	151.2	5.8	117.5

"-" = DATA NOT APPLICABLE.
"Q" = DATA WITHHELD BECAUSE OF A LARGE VARIANCE.
NOTE: BECAUSE OF ROUNDING, DATA MAY NOT SUM TO TOTALS. PERCENTAGES ARE CALCULATED ON UNROUNDED NUMBERS. SEE GLOSSARY FOR DEFINITION OF TERMS USED IN THIS REPORT.
SOURCE: ENERGY INFORMATION ADMINISTRATION, OFFICE OF ENERGY MARKETS AND END USE, ENERGY END USE DIVISION, FORM EIA-457, THE 1982 RESIDENTIAL ENERGY CONSUMPTION SURVEY.

Appendix A

How the Survey Was Conducted



Appendix A

Introduction

The Residential Energy Consumption Surveys (RECS) have been designed by the Energy Information Administration (EIA) to provide information concerning energy consumption within the residential sector. Information concerning the housing unit is collected through personal interviews with a representative national sample of households. Data concerning actual energy consumption are obtained from fuel records maintained by the household's fuel suppliers. An inventory of motor vehicles used by the household residents is also obtained at the time of the personal interview.[1]

Data Collection

The fieldwork for this study was conducted by a contractor, Response Analysis Corporation of Princeton, New Jersey. The original sample consisted of 5',903 units, of which some 95 either were not used for dwelling purposes or were not habitable. Of the 5,808 habitable housing units, 536 were ineligible for this study due to a current vacancy or seasonal occupancy (the units were not the primary residence for the occupants). Personal interviews were conducted at 4,475 of the 5,272 eligible units, for a response rate of 84.9 percent. Subsequently, mail questionnaires were sent to 703 of the 797 households that had not participated in personal interviews. Completed questionnaires were returned by 249 of these households, or 35.4 percent of those mailed. Of the total eligible households, responses were received from 89.6 percent (or 4,724 households).

Interviewer contacts at sample households were begun in late September 1982 and continued through January 1983; more than 90 percent of the personal interviews were completed in October and November. Most of the 249 completed mail questionnaires were received in January and February 1983, with a few additional questionnaires received in March. In keeping with past practice in this series of surveys, November was regarded as the rough midpoint for data collection activity. Thus, November 1982 was the date for determining the independent estimates of the size of the universe of households used in the ratio estimation of survey results.

The Interview

The average personal interview which included measurements of the housing unit lasted 52 minutes, with 83 percent of the interviews lasting between 30 and 70 minutes. For a subsample of households in which measurements were not made (827 households) the average interview lasted 44 minutes. The interview with the householder (or his or her spouse) covered structural features of the house related to energy, such as insulation, doors, and windows; the heating and cooling systems, with the fuels used in these systems; use of wood; energy conservation improvements and the reasons for making the improvements; household appliances; household vehicles; receipt of government assistance for the cost of heating; and demographic data on household members. The questionnaire is reproduced in Appendix D.

[1] Fuel consumption for household vehicles is collected through the Household Transportation Study, which uses subsamples from the residential surveys. Data collected for the period June 1979 through September 1981 are reported in Residential Energy Consumption Survey: Consumption Patterns of Household Vehicles, June 1979 to December 1980, DOE/EIA-0319 (Washington, D.C., April 1982) and Residential Energy Consumption Survey: Consumption Patterns of Household Vehicles, Supplement: January 1981 to September 1981, DOE/EIA-328 (Washington, D.C., February 1983). Data were collected for 1983 using households from this survey.

Appendix A (Continued)

At the end of the interview, respondents were asked to sign a waiver authorizing the contractor to obtain records of energy consumption from the housing unit's energy supplier(s). At this time, the interviewer also measured the dimensions of certain housing units, using a retractable 50-foot metal tape measure, and recorded the dimensions on a rough-drawn diagram of the floor plan. (See Appendix B for further details on the measurement of housing units.)

The Interviewers

A total of 290 interviewers completed one or more personal interviews for this study. The type of training received by interviewers for this study depended primarily on the experience of the interviewer on the 1980 or 1981 RECS. As shown in Table A1, 167 interviewers (58 percent) had completed interviews on a prior RECS. The remainder were conducting their first RECS, but had interviewing experience either with other survey research organizations, or with the U.S. Bureau of the Census.

Table A1. Experience and Training of 1982 RECS Interviewers

Table A1. Experience and Training of 1982 RECS Interviewers

Experience on Prior RECS	Training for This RECS[a]	Number of Interviewers
Yes[b]	Home study	167
Yes[c]	Regional training meeting	2
No	Regional training meeting	120
No	Other training	1
		290

[a]All interviewers completed a practice interview and quiz.
[b]Attended regional training meeting and completed interviews on a prior RECS.
[c]Completed interviews on RECS, but did not attend a regional training meeting in a prior year.
Source: Energy Information Administration, 1982 Residential Energy Consumption Survey.

Two-day regional training meetings were held in 14 locations around the country in September 1982. These meetings were attended by 122 interviewers, including almost all those who had not interviewed on a prior RECS. Each session was led by a trainer who had attended a 2-day workshop in Princeton, New Jersey. The 2-day training session for interviewers covered general interviewing techniques, background of the Residential Energy Consumption Surveys, the household questionnaire, ways to measure the respondents' homes, the sampling tasks, and administrative requirements.

All interviewers were required to complete a practice interview and quiz on the questionnaire and sampling procedures. These materials were reviewed by the contractor's central office staff. The basic training document for both the regional meetings and home study was a 78-page manual, Instructions for Interviewers, Residential Energy Consumption Survey, Fall-Winter, 1982-1983.

Appendix A (Continued)

Interviewers were paid on an hourly basis for their work on RECS, including time for home study, attendance at training sessions, review of completed interviews, actual interviewing time, and travel time to and from training sessions and sample clusters. Interviewers were also reimbursed at standard mileage rates for use of personal vehicles and other travel expenses. Interviewers working in locations believed to present a hazard to their safety were compensated for use of an escort. Each interviewer conducted an average of 15 interviews. Twenty-one interviewers each completed fewer than 6 interviews; the average for this group of 21 interviewers was 3.5 completed interviews. The most interviews completed by one interviewer was 42. Twenty percent of the personal interviews were verified by telephone or mail to ensure that interviews were conducted as intended.

Sample Design

The universe for this sample design includes all housing units occupied as the primary residence in the 50 States and the District of Columbia. The sample of households used as the basis for the 1981 estimates was selected by using a probability sampling design developed especially for the Residential Energy Consumption Survey. The sample design was used for the first time for the 1980 survey. The design required a sample with a minimum level of precision within each of the 10 Federal regions and 9 Census divisions. This requirement meant disproportionate sampling in each of the 17 intersections created by the overlap between the Federal regions and the Census divisions.

The 3,141 counties and independent cities in the 50 States and the District of Columbia were divided into 1,782 Primary Sampling Units (PSU's) on the basis of Standard Metropolitan Statistical Areas (SMSA's)[2], county and independent city boundary lines, and population characteristics. The PSU's were grouped into 131 strata having roughly similar population totals within each of the 17 intersections. Each stratum contained PSU's similar in several characteristics, including, among others, the dominant space-heating fuel and, in some strata, weather conditions. Some PSU's comprising all or part of large metropolitan areas were large enough in population to be a stratum by themselves; 31 of the PSU's are of this type and are called Self-Representing (SR) because the sample from each PSU represented only that PSU. In the other 100 strata, one PSU was selected from among two or more PSU's in the stratum. Each of the 100 PSU's selected from these strata is called Non-Self-Representing (NSR) because each PSU also represents the nonselected PSU's in its stratum.

A number of intermediate probability sampling stages preceded the final selection of RECS households. These stages included the selection of Minor Civil Divisions (MCD's), such as cities, towns, townships, and other Census divisions within each PSU. Within the MCD's, Census tracts or Enumeration Districts (ED's) were selected. A segment of 25 or more housing units was selected within a tract or ED. Segments were formed from field counts in easily identified geographic units. Detailed field listings were created for each segment by a person who visited the area and identified each housing unit by street address or apartment number or other observable feature. A cluster of 25 housing units was selected from the sample segment. The ultimate cluster to be contacted for interviews (averaging about four housing units) was systematically selected from the cluster, and these housing units constituted the assignments given to the interviewers. The number of ultimate clusters totaled 1,515.

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[2] SMSA's are now called MSA's (Metropolitan Statistical Areas), as announced in the press release of March 18, 1983, from the Administrator for Information and Regulatory Affairs, Office of Management and Budget.

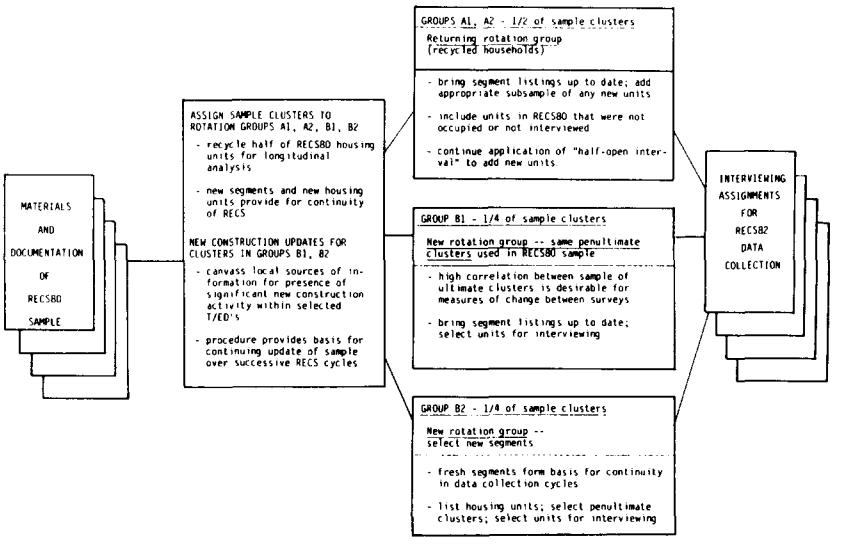
Appendix A (Continued)

The 131 PSU's were selected in early 1980. The population sizes of PSU's were 1978 population estimates from the U.S. Bureau of the Census. Other data used in stratification, such as the dominant home heating fuel, came from the 1970 Census. Classifications of MSA's used for definition and stratification of PSU's were also based on the 1970 Census. (Metropolitan area classifications used in the tabulation of results for this RECS, are based on June 1983 definitions of the Office of Management and Budget.) For selection within PSU's, 1980 projected household counts for subareas of the PSU were used. The projections were based on data for MCD's provided by the National Planning Data Corporation. Within selected MCD's, the procedure for deriving estimated numbers of households in tracts and enumeration districts was based on data from a combination of sources, including Reuben H. Donnelley household address counts, 1970 Census data, and contacts with local sources of information such as a zoning board or agency issuing building permits.

Longitudinal Sample Design

This is the first survey in the RECS series to include a plan for rotation of sample units from an earlier RECS. The primary objective of this rotation scheme was to observed the changes that occurred in the same housing unit over a 2-year period. To accomplish this objective in an efficient way and to set the stage for continuity in the RECS series, systematic random procedures were used to divide the 1,515 clusters in the basic sample into four subsamples, designated as A1, A2, B1, B2. In the 1982 RECS, Groups A1 and A2 constitute a awkward rotation group in which procedures were designed interview a sample of the same housing units that had been in the sample 2 years earlier (in 1980). Groups B1 and B2 constitute, in the 1982 RECS, a new rotation group in which housing units were included in the RECS sample for the first time. (See Figure A1).

Figure A1. Sampling Operation for 1982 RECS



Appendix A (Continued)

Procedures for updating the sample for new construction and for other changes in the housing unit stock were incorporated in sampling operations so that each rotation group, as well as the total RECS sample, is a probability sample of the population covered by the survey.

Rotation Groups A1 and A2. The general plan for the sample clusters (757 of the total of 1,515) was to interview the same housing units that had been contacted 2 years earlier, including housing units that had been vacant as well as noninterviews (refusals, not-at-home, etc.) and completed units.

Prior to contacting households for RECS 1982 interviews, interviewers made visits to sample segments to check 1980 housing unit listings for missed units and to update listings for new construction, demolition, and conversion of structures from one use to another. Newly constructed or converted units, and those missed in the 1980 listings, were sampled at the RECS 1982 sampling rate.

Rotation Groups B1 and B2. The first step in these rotation groups (758 of the total of 1,515 clusters) was a new construction update procedure based on a canvass, primarily by telephone, of local sources of information (building permit issuing agencies, zoning boards, tax offices, etc.). The objective was to determine whether significant new construction--defined as groups of 25 or more housing units--had occurred in the 1980-1982 period, within the Census Tracts and Enumeration Districts that were included in the RECS sample.

In the canvass, significant new construction was found in Census Tracts and Enumeration Districts in 123 of the 758 clusters in these rotation groups. New field counts were made and new segments were selected based on the new measures of size.

In Census Tracts and Enumeration Districts in which significant new construction (clusters of 25 or more new housing units) was not found, procedures diverged in rotation groups B1 and B2.

In rotation group B1, 1980 RECS housing unit listings were checked and updated (for missed units, new construction, etc.) prior to the start of field contacts for interviews. This step in rotation group B1 was identical to the listing checks carried out for rotation groups A1 and A2. However, housing units for the 1982 RECS sample were selected from among those not selected in the earlier RECS.

In rotation group B2, a new segment was selected for the 1982 RECS.

Survey Estimates

Survey estimates were developed to project sample results to the universe. The universe includes all households in the 50 States and the District of Columbia. Households on military installations are included. The definition of household is the same as that used by the U.S. Bureau of the Census. At the time of the survey, November 1982, the universe was estimated to contain 83,788,000 households, based on Current Population Survey (CPS) estimates of the population.

Weights were calculated for each sample household. The household weight reflected the probability of selection for that household and additional adjustments to correct for potential biases arising from the failure to contact all sample housing units and the failure to list all housing units in the sample area. Contacts were not successful with 10.4 percent of the eligible units.

Appendix A (Continued)

The adjustment for these noninterviews was designed to spread the effects of noninterviews over the interviewed sample of households in the final cluster. The noninterview weight is equal to the number of households in the ultimate cluster (interviews plus noninterviews) divided by the number of interviews. When the weight computed in this way was greater than 2.0, however, that part of the noninterview adjustment that exceeded 2.0 was spread over the remaining ultimate clusters in the PSU.

The failure to list all housing units in the field-listing task is a common problem in surveys of this type. The result is an undercount of housing units in the sample area and, hence, an underestimate of the number of households in the universe. The undercount in RECS surveys is in the range of 7 to 9 percent. This problem is treated in two ways in the RECS. One treatment occurs during the interviewing process and the second in the estimation process. During the interviewing stage, unlisted housing units or households are discovered by querying the household where interviews are conducted to determine if other households are present in the unit. In addition, the interviewer is instructed to conduct an interview at all housing units contained in the geographical area between the interviewed household and the next listed address. This tactic reduces the number of missed households but does not completely eliminate the noncoverage problem.

The noncoverage problem is also treated by using ratio estimation to adjust selected estimates of households to official population values. Ratio adjustment took place in two stages for the 1982 RECS. The first-stage adjustment was computed from information for PSU's in NSR strata only. A separate factor was created for each of 20 cells (four regions classified by five home heating fuel categories). The implementation of this factor reduced somewhat the amount of variance due to the sampling of PSU's. The first-stage adjustment for cell "c" is given by:

$$R_{1c} = N_c / M_c$$

where N_c is the total number of households (1980 Census population) in cell c for all PSU's in RECS NSR strata, and

M_c is an estimate of N_c generated by applying RECS PSU sampling weights to 1980 Census household totals for cell c in RECS NSR sample PSU's.

The second-stage factor adjusted data from the survey after nonresponse adjustment and first-stage ratio estimation to independently derived estimates of the number of households in 12 categories shown in Table A2. The second-stage adjustment for category k was given by

$$R_{2k} = H_k / G_k$$

where H_k is an independent estimate of the total, and

G_k is the RECS estimate prior to the second-stage ratio adjustment of the total number of households in category k.

The numerator is based on a linear interpolation of values for each of the 12 cells between Current Population Survey (CPS) estimates for March 1982 and March 1983. The second-stage factor reduced both the between-PSU variance and the within-PSU variance.

Appendix A (Continued)

A second wave was initiated in an effort to contact households that were not available during the first wave and to attempt to convince selected first-wave refusals to reconsider. A new set of letters preceded the renewed effort and, in most cases, the sampled housing units were assigned to a different interviewer. Again, up to seven or more attempts were made to contact the prospective respondents. At the end of this wave, an additional 22 addresses were found to be ineligible. As a result of the second wave, an additional 394 interviews were completed, leaving 842 nonrespondents.

A third wave was initiated in an effort to reach nonrespondents in a number of locations that had low completion rates. One address was found to be ineligible and an additional 44 personal interviews were completed in the third wave.

In a final attempt to reduce nonresponse, an abbreviated version of the questionnaire (adapted for self-administration) was mailed to most of the remaining nonrespondents. A $2 incentive was included in the mailing. As a result of this effort, 249 additional households responded.

After three waves of personal interview attempts and the mailed questionnaire, 548 households or 10.4 percent of all eligible housing units had not responded. These results are displayed in Table A3.

These efforts were successful in accomplishing the following:

- Approximately 85 percent of the households were contacted and agreed to be interviewed personally. An additional 4.7 percent of the sample households completed and returned mailed questionnaires.

- Of the 4,724 responses, 85.5 percent were obtained during the first wave of contacts; 8.3 percent were obtained during the second wave; and 0.9 percent resulted from third-wave contacts. Some 5.3 percent were responses to the mailed questionnaire.

- Of all households that participated in the personal interviews, 40.1 percent required only one visit and 68.7 percent were completed with no more than two callbacks.

- A total of 202 personal interviews were completed in the second and third waves with respondents who had previously refused to participate, representing 4.5 percent of all completed personal interviews. In addition, of the 249 mailed questionnaires that were completed and returned, 177 were from households that previously refused to participate.

Appendix A (Continued)

An intermediate step was introduced in the 1982 RECS to adjust RECS estimates approximately to current CPS estimates for numbers of households of each of the following types:

One-person households, male householder
One-person households, female householder
All other households

The purpose of this intermediate step was to reduce possible bias in the RECS sample due to undercoverage of one-person households, particularly those with male householders. The use of this adjustment creates a discontinuity in the estimated number of one-person households compared with earlier RECS surveys. For example, the 1981 survey produced an estimate of 18.5 percent one-person households versus 23.0 percent in 1982. This change reflects primarily the effect of the ratio adjustment applied for the first time in the 1982 survey.

The procedures related to the second stage ratio estimate were carried out in three steps: the second-stage ratio estimate was performed, the intermediate adjustment for number of persons in household was carried out, and the second-stage ratio estimate was iterated to produce the final estimates approximately equal to the control totals shown in Table A2.

Table A2. Population Estimates Used as Controls in Ratio Estimates

Census Region	MSA--Central City	MSA--Outside Central City	Non-MSA	Total
Northeast	6,005,000	8,163,000	3,783,000	17,951,000
North Central ..	5,889,000	8,089,000	7,327,000	21,305,000
South	7,422,000	8,706,000	11,927,000	28,055,000
West	5,447,000	7,509,000	3,521,000	16,477,000
Total	24,763,000	32,467,000	26,558,000	83,788,000

Source: Estimates derived from March 1982 and March 1983 Current Population Surveys.

Minimizing Nonresponse

In an effort to maximize the validity of the survey data, a multiwave, multicontact approach was employed. Before the initial contacts, a letter was sent to each household from the Administrator of the EIA, briefly describing the purposes and stressing the importance of the survey. Beginning in September 1982, interviewers made up to seven or more callbacks at different times of the day throughout the week in an effort to minimize the number of uncontacted households. The interviewers also queried neighbors regarding the most opportune times to contact the prospective respondent. By the end of the first wave, 95 addresses were found to be nonresidential and an additional 513 were found to be ineligible. Some 4,037 personal interviews were completed, leaving 1,258 nonrespondents in this wave.

Appendix A (Continued)

Table A3. Interviews Completed by Stage

	Personal Interviews			Status After Third Wave	Mail	Final Status
	First Wave	Second Wave	Third Wave			
Total Listed Units.....	5,903	1,258	842	5,903	797	5,903
Nonhousing Units						
Business, Other	32	0	0	32	-	32
Not Habitable	20	0	0	20	-	20
Nonhousing Unit	43	0	0	43	-	43
Subtotal	95			95		95
Housing Units	5,808	1,258	842	5,808	797	5,808
Ineligible Units						
Vacant	383	20	1	404		404
Seasonal Vacant	130	2	0	132	-	132
Subtotal	513	22	1	536		536
Eligible Units	5,295	1,236	841	5,272	797	5,272
Not Completed--Personal						
No One Home	365	168	38	101		101
Eligible Respondent Not Home	46	17	7	19	-	19
Refused	724	445	31	605	-	605
Illness	24	12	0	12	-	12
Language Barrier	7	1	0	3	-	3
Wrong Respondent or Unit	15	0	0	7	-	7
Not Contacted[b]	52	187	721	29	-	29
Other	25	12	0	21	-	21
Subtotal	1,258	842	797	797		797
Not Completed--Mail						
Unusable Address	-	-	-	-	22	22
Post Master Return ..	-	-	-	-	41	41
Returned Blank	-	-	-	-	109	109
Returned Unusable ...	-	-	-	-	15	15
Not Returned	-	-	-	-	289	289
Other Not Mailed	-	-	-	-	72	72
Subtotal					548	548
Total Interviews Completed	4,037	394	44	4,475	249	4,724

[a] A household that refused an interview during any one of the three waves was classified as a "refusal" for the final status even though no one was at home in the second or third wave.

[b] Includes households that moved after initial contact.

"-" = Data not applicable.

Source: Energy Information Administration, 1982 Residential Energy Consumption Survey.

Appendix A (Continued)

Response Rates and Household Characteristics

This section of the report will compare various response and nonresponse rates across Census region, location type, and structure type. These rates are reported in Table A4.

Several patterns are clear from Table A4. First, personal interviews enjoyed the most success in the South (86.5 percent), in non-MSA areas (89.7 percent), and among residents of mobile homes (87.4 percent). Conversely, the interviewers had their lowest success rates in the Northeast (81.7 percent), MSA central cities (80.8 percent), and in buildings with five or more residential units (76.7 percent). It is important to keep in mind when looking at the categories that make up these groupings that there is no guarantee that the characteristics are independent. Rather, it is highly likely that they overlap, that is to say, the Northeast has a high concentration of central cities and large apartment buildings.

The total response-rate patterns with regard to highest and lowest rates are generally not affected by the addition of the responses to the mailed questionnaire; however, the overall range from highest to lowest decreases by several percentage points. The highest refusal rates correspond to the lowest success rates for the personal interviews. The lowest refusal-rate categories match the highest personal interview success groups. Overall response rates are approximately two percentage points higher for new rotation groups (households not contacted for an earlier RECS) than for returning rotation groups.

Table A4. Response Rates by Region, Location, Type of Structure, and Rotation Groups (Percentage of Eligible Housing Units)

Characteristic	Response Rates			Personal Interview Non-response Rates	
	Personal Interview	Mail Questionnaire	Total Response	Refuse	Unable to Contact
Total	84.9	4.7	89.6	11.4	3.6
Census Region					
Northeast	81.7	5.2	86.9	13.1	5.2
North Central	84.4	5.4	89.9	12.5	3.0
South	86.5	3.2	89.7	9.7	3.8
West	85.9	5.4	91.3	11.2	2.9
Location Type					
MSA--Central City	80.8	6.1	86.8	13.6	5.6
MSA--Outside Central City	85.0	4.6	89.6	12.5	2.5
Non-MSA	89.7	3.2	93.0	7.5	2.8
Structure Type					
Single-Family House	86.2	4.4	90.6	11.6	2.3
Mobile Home	87.4	2.0	89.5	8.9	3.6
Buildings with Two to Four Units	85.0	4.2	89.2	10.2	4.8
Buildings with Five or More Units	76.7	7.9	84.5	13.0	10.3
Rotation Group					
Returning Rotation Group	83.9	4.8	88.7	12.7	3.4
New Rotation Group	85.9	4.6	90.5	10.3	3.9

Source: Energy Information Administration, 1982 Residential Energy Consumption Survey.

Adjustments for Item Nonresponse

Item nonresponse occurs when respondents do not know the answer or refuse to answer a question or when an interviewer does not ask a question or does not record an answer. Imputations were made for nonresponse to most items that were to be used for making national estimates and items that had less than 10-percent nonresponse. Items for which national estimates are made but for which imputations were not made include questions on the presence, type, and amount of attic and floor insulation; the presence of wall insulation. For these items, the number of missing cases was considered large enough that the imputations would have introduced too much additional error.

The most frequently used imputation procedure was hot-deck. This procedure requires sorting the file of households by variables related to the missing item. A household is then selected that has the same value of the related variables, and this "donor" household supplies the value for the variable that is missing in the "donee" household.

Appendix A (Continued)

Less frequently used imputation methods included random selection from the distribution of the known values of a variable, regression estimates, and use of modal values. Regression procedures were used to impute the total square footage of the housing unit when actual measurements were missing. The random selection procedure was used only to assign dates (month and/or year) when those responses were missing. Discussion of the regression procedure and other imputations involved in the square footage estimates is found in Appendix B. A few variables were imputed by assigning modal values; this was done when the distribution of available data showed a highly skewed distribution.

The RECS personal interview questionnaire contained 443 items of information. These items were treated as follows with respect to imputations.

Imputation Method	Number
Not Imputed	155
Imputed	288
Hot-deck	229
Random	39
Modal	20
Total	443

Table A5 shows the most frequently imputed items, the number of cases requiring imputation, and the method used.

The 249 mailed questionnaires had considerable missing data since the mailed questionnaire was a small subset of questions from the household interview. For the mailed questionnaire, a modified hot-deck imputation method was used. A hot-deck matrix was created for both mailed-questionnaire and personal-interview households using Census region, type of housing unit structure, space heating fuel, hot water fuel, and presence and fuel of air conditioning. For each mailed questionnaire household, a donor personal interview household was chosen from the same cell of the hot-deck matrix whenever possible. For 95 percent of the mailed questionnaires, donors matched on all hot-deck variables.

Since each cell of the matrix usually contained several possible donors, a donor was chosen from the cell based on how closely it matched the mailed questionnaire household on a number of additional variables. These variables were: income, number of household members, number of household vehicles, age of householder, tenure, number of rooms, model year of newest vehicle, and household structure (married couple, other). Except for information on household vehicles, which was taken directly from the mailed questionnaire, the entire set of responses from the donor household was imputed to the mailed questionnaire households. This means that all responses for mailed questionnaire households are imputed except weather data, fuel consumption data acquired from the household's fuel suppliers, the geographic location of the mailed questionnaire household, information on household vehicles, and those items in the hot-deck imputation process for which an exact match was obtained.

Appendix A (Continued)

Table A5. 1982 Residential Energy Consumption Survey Items Most Frequently Imputed

Item	Cases Imputed	Percentage of Total Sample[a] (4,724)	Method of Imputing
1981 Family Income	604	13	Hot-deck
Year House Was Built	318	7	Hot-deck
Availability of Natural Gas	305	7	Hot-deck
Householder Completed Highest Grade	262	6	Hot-deck
Square Footage of Housing Unit	192	4	(b)
Most-Used Oven Is Microwave	145	3	Hot-deck
Condominium or Cooperative	138	3	Hot-deck
Warm Air Forced Through Ducts	116	3	Hot-deck
Basement or Crawl Space Heated	100	2	Hot-deck
Central Water-Heating System for the Building	95	2	Hot-deck
Central Heating System for The Building	77	2	Hot-deck
Number of Window or Ceiling Fans	71	2	Hot-deck
Monthly Rent of Dwelling	65	1	Hot-deck
Heating Stove is Air Tight	61	1	Hot-deck
Other Reason No Heat Last Winter	60	1	Hot-deck
Heating System Broken Last Winter	59	1	Hot-deck
No Fuel Available Last Winter	59	1	Hot-deck
Age of Householder	57	1	Hot-deck
No Heat from Landlord Last Winter	57	1	Hot-deck
Unable to Pay for Fuel Last Winter	55	1	Hot-deck
Age of Second Household Member	55	1	Hot-deck
Thermostat Present to Adjust Temperature	49	1	Hot-deck
Fuel of Most-Used Refrigerator	49	1	Modal
Type of Foundation Under Home	48	1	Hot-deck
Government Provided Other Energy Devices	47	1	Hot-deck
Second Oven Is Microwave	47	1	Hot-deck
Month Caulking Added	45	1	Random
Fuel of Most-Used Freezer	42	1	Modal

[a]Mailed questionnaires are not included in the percentage. To account for these, add 5 percentage points to the percentage list.

[b]See Appendix B for details on the square footage imputations.

Source: Energy Information Administration, 1982 Residential Energy Consumption Survey.

Appendix A (Continued)

Rental Agent Survey

Telephone interviews were carried out with rental agents and landlords of RECS households living in multiunit dwellings who did not pay directly to utility companies or fuel suppliers for one or more household fuels. The primary purpose of the rental agent survey was to verify information from household respondents on fuels used and main heating equipment.

The telephone interviews with rental agents or their deputies were conducted in September 1983.

Altogether, 168 rental agents were interviewed. These interviews covered 308 households in 206 buildings. The 308 households were 57.0 percent of the total of 540 households living in multiunit buildings who had one or more fuels included in their rent.

Editing Completed Questionnaires

Interviewers mailed completed questionnaires to the contractor, where they were carefully reviewed. The first step in the review process was to verify the accuracy of the basic identifying information. Next, the questionnaires were manually reviewed by two editors to ensure completeness and the logical consistency of selected patterns of responses and to prepare the questionnaires for translation into machine-readable form. Keypunching of important items was fully verified. Overall, 25 percent of the keypunching work was fully verified. Finally, the data were machine edited to further ensure completeness, logical consistency, and the legitimacy of coded values. The computer editing utilized a proprietary software package called EDITOR II.

The contractor attempted to resolve inconsistencies or ambiguities in the data internally, by reference to other parts of the questionnaire. When these efforts failed to resolve an important problem, particularly those involving heating fuels or heating equipment and/or relationships between questionnaire responses and data on fuel consumption, the contractor made telephone contact with a member of the household in question. Telephone contacts of this type were completed with approximately 10 percent of households during the course of data editing for this survey.

Comparisons were made between rental agent and household respondent reports on main heating fuel, main heating equipment, supplemental heating fuel, water-heating fuel, and air-conditioning fuel. Each discrepancy was individually examined. Changes were made in the household record whenever it was judged that the rental agent was more knowledgeable than the household respondent on specific fuels and/or equipment.

Editors followed the guideline that the rental agent was the more knowledgeable person when the landlord paid for the fuel and the fuel was used as the main home heating, water-heating, or air-conditioning fuel. The rental agent's view generally prevailed also in the case in which the rental agent paid for the main heating fuel and the rental agent's description of the main heating equipment differed from that of the household respondent.

Since a supplemental heating fuel was more likely to be under the household's control, even in a multiunit dwelling, the respondent's definition of supplemental heating fuel was generally accepted.

Appendix A (Continued)

The changes in the household records that resulted from these inquiries are given in Table A6.

Table A6. Changes Made in Household Records Based on Information From Rental Agents

Type of Changes Made in Household Records	Fuel Paid by Rental Agent	Number with Any Changes Made	Percentage with Changes Made
All Households in Rental Agent Survey	308	80	26
Main Heating Fuel	255	31	12
Main Heating Equipment	(a)	40	16
Supplementary Heating Fuel	(a)	5	2
Water-Heating Fuel	272	36	13
Air-Conditioning Fuel	44	2	5

[a]Responses of rental agents and household respondents were compared for the 255 households for which the rental agent paid for the main heating fuel.

Source: Energy Information Administration, 1982 Residential Energy Consumption Survey.

Fuel Supplier Survey

The overall objective of the fuel supplier survey was to provide data on which to estimate the annual fuel consumption and expenditures of sample households. Four utility fuels were covered in the annualization--electricity, natural gas, fuel oil, and LPG.[3] For each of the fuels, the goal was to obtain complete consumption records for the year April 1, 1982, through March 31, 1983.

Toward the end of the household interview, each household reported for each use of the fuel whether or not the fuel was paid for by the household, included in rent, or paid another way. For those households that paid directly, the respondent was asked for the names, addresses, and telephone numbers of the fuel companies supplying the household; these respondents were also asked to sign a waiver, authorizing Response Analysis to collect consumption data from the suppliers.

Altogether, the fuel supplier survey included initial contact attempts with 1,003 companies. The number of companies in the survey supplying each fuel and the total number of households supplied are shown in Table A7.

[3]Households using LPG only for outdoor cooking grills were not included in the LPG data collection; LPG used by these households is excluded from consumption and expenditures estimates. Data on usage of wood fuel were reported by the household, since it was not practical to collect these data from suppliers as is done with the major home fuels. Unless otherwise noted, consumption of wood is not included in the tables for this report.

Appendix A (Continued)

Table A7. Companies in Fuel Supplier Survey and Number of Households Supplied

Fuel Supplier	Number of Companies[a]	Number of Survey Households Supplied[b]
Electricity	275	4,055
Natural Gas	147	2,264
Fuel Oil or Kerosene	443	576
LPG	199	355

[a]The total number of companies in the survey was 1,003. These included 43 that supplied both electricity and natural gas; 2 that supplied natural gas and LPG; and 16 that supplied fuel oil and LPG.

[b]These figures represent the number of households that signed an authorization form and that paid directly to the utility company for all uses of the fuel. The fuel oil/kerosene figure excludes 21 households whose suppliers were unknown and 65 households who provided estimates of quantities of kerosene, based primarily on cash-and-carry purchases. The LPG figure excludes 6 households whose suppliers were unknown.

Source: Energy Information Administration, 1982 Residential Energy Consumption Survey.

Data Collection Procedures

Data collection procedures for electricity and natural gas companies included at least the following steps:

- an initial letter from the Administrator of the Energy Information Administration, addressed to the president or other official in the company outlining the general nature of the request for participation. This letter also announced that a telephone contact would be made to determine the name of the person to whose attention the survey materials should be sent. Enclosures in the letter included a printed statement "About the Residential Energy Consumption Survey," specimen copies of reporting and authorization forms, and a postage-paid postcard with a checklist of available publications and data tapes;
- the telephone contact referred to in the initial letter;
- the mailing of survey materials to the person named as contact person;
- a follow-up telephone contact a few days later to answer questions or discuss survey procedures as necessary;
- completed forms or copies of records returned by mail; and
- a letter from the EIA thanking the company for its effort.

Appendix A (Continued)

The personal contacts established at an early point largely precluded mailings of materials to an inappropriate person and the delays that might develop from such mailings.

Procedures for fuel oil or kerosene and LPG dealers were the same as for electric and natural gas companies up through and including the mailing of survey materials to the company person named as the contact. These companies, however, most often had only one or two households for which information was to be supplied, and data collection was generally completed by telephone. An earlier pretest of the procedure had indicated a somewhat greater likelihood that companies would respond by telephone than as a result of a request to complete and return the forms by mail.[4] Companies that chose to return the forms by mail, however, were not discouraged from doing so. After the company returned the information, additional contact with companies and households was sometimes required to identify the correct record in the company files.

Energy Consumption Records

The fuel supplier survey was conducted for households that paid their own fuel bills directly to the supplier and authorized access to their records. These limitations meant that imputations of fuel consumption were required for households without consumption records (their fuel bills were included in the rent) and for households that did not permit access to their records.

Households lacking consumption records because they do not pay fuel bills directly to fuel suppliers occur most frequently among users of natural gas and fuel oil or kerosene (see Table A8). These households are 17.7 percent of users of natural gas and 18.0 percent of users of fuel oil or kerosene.

The proportion of households that did not sign authorization forms (access to records denied) was in the range of 5 to 7 percent for the four fuels. Most households that signed authorization forms did so at the time of the personal interview or at the time of completing the mailed questionnaire. To maximize the number of households with records, however, a follow-up request was mailed to those who did not sign a form at the time of the personal interview. About 18 percent of this group returned signed forms in response to the mail request and therefore were included in the fuel supplier survey.

[4] The test is described in Residential Energy Consumption Survey: Consumption and Expenditures--April 1980 Through March 1981, Part 1: National Data, DOE/EIA-0321/1 (Washington, D.C., September 1982, Appendix A, 103).

Table A8. Energy Consumption Records and Missing Data for Survey Households Using Electricity, Natural Gas, Fuel Oil or Kerosene, or LPG (Percentage of Households Using the Fuel)

Survey Households	Electricity	Natural Gas	Fuel Oil or Kerosene	LPG
Total Households Using the Fuel	100.0	100.0	100.0	100.0
(Sample Number)	(4,721)	(2,951)	(863)	(413)
Usable Records Received from Fuel Supplier[a]	83.4	74.3	48.3	67.3
Quantity Estimated by Household[b]	*	*	7.5	*
Unusable Records Received from Fuel Supplier	1.2	0.9	6.2	8.5
Household Pays Directly to Supplier--No Record Available for the Household	7.8	7.1	20.0	18.2
Household Not Identified in Company Records	1.3	1.5	11.5	9.7
Company Refused to Participate	*	*	0.8	0.5
Company Unknown or Not Located	*	*	2.4	1.5
Authorization Form Not Signed	6.5	5.6	5.3	6.5
Fuel Used Included in Rent or Paid in Other Way[c]	7.6	17.7	18.0	6.0

[a]Data were unusable for electricity and natural gas if the records covered less than 5 months and for fuel oil or kerosene and LPG if the record covered less than 1 year.

[b]Households in this group are those using kerosene as a supplemental heating fuel and purchasing kerosene primarily on a cash-and-carry basis. Estimated purchases of kerosene were supplied by telephone by these households after the end of the 1982-1983 heating season.

[c]Includes households with mixed payment methods: one or more uses of a specified fuel paid directly to a supplier, and other uses included in rent or paid in other way.

"*" represents or rounds to zero.

Source: Energy Information Administration, 1982 Residential Energy Consumption Survey.

Table A8 shows that factors affecting nonresponse are somewhat different for fuel oil or kerosene and LPG than they are for electricity and natural gas. For example, the most frequent reason for nonresponse from fuel oil or kerosene and LPG dealers was their inability to identify survey households in their company records. Some dealers provide these fuels to households on a cash-and-carry basis and simply do not keep records of individual purchases. A second reason related to fuel oil or kerosene and LPG was the inability to locate the fuel oil or kerosene or LPG dealer. Some companies were no longer in business; others could not be contacted during the survey period even after repeated attempts over a period of several months; and some cash-and-carry customers could not identify their suppliers.

Refusal of companies to participate in the survey was not a significant factor.

Appendix A (Continued)

Some additional factors related to the usability of fuel records are discussed in the section on imputations and adjustments for missing data.

Data Collection Dates

The first set of advance letters was mailed to utility companies during the first two weeks of April 1983. The cut-off date for receipt of usable information was August 31, 1983.

Fuel Consumption Imputations

Not all the fuel records that were collected in the fuel suppliers' survey could be used. For example, some covered too few months of usage and for others it was uncertain how the records were incomplete. The extent of these unusable records is shown in Table A8. The problem of unusable records is small for the metered fuels. For electricity and natural gas, 1 percent of the records covered fewer than 146 days and therefore were considered unusable. For fuel oil, kerosene, and LPG, however, the problem of unusable records is more serious inasmuch as 6 percent of fuel oil or kerosene records and 9 percent of LPG records were unusable. One reason for this is that partial year records of electricity and natural gas usage are considered usable, whereas a partial year record for the storage fuels (fuel oil, kerosene, LPG) is not used.[5]

A variety of information from household respondents as well as from uppliers is reviewed and used as a basis for declaring a fuel oil, kerosene, or LPG record complete or incomplete. Questionnaire information from respondents includes number of suppliers and an estimate of the annual number of deliveries. Suppliers provided dates of onset and termination of service to the household. In addition, follow-up contacts were made by telephone to some households to obtain estimates of cash-and-carry purchases of kerosene directly from household respondents.

Households with unusable records, as described earlier, and households with no records had their fuel consumption imputed using regression modeling techniques. The regression consumption models were developed using RECS sample households for which approximately a full year of data was available and acceptable. Separate regression models were developed for the four fuels: electricity, natural gas, fuel oil or kerosene, and LPG.

The strategy for modeling consumption was not the same for all fuels. There were five models of electricity consumption--one for each of the major types of housing structure. For utility gas, all structure types were modeled simultaneously with an allowance for differentiation of structure types within the model by inclusion of dummy variables (for each type of structure). For each of fuel oil/kerosene and LPG, there were three consumption models: for single-family detached homes, for mobile homes, and for all other structure types combined. The regression models make full use of the data including such variables as measured square footage of the housing unit, uses of fuels, heating and cooling degree-days, household size, and appliances.

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[5] The number of households with partial year records, as a proportion of total households using the fuel, is 7.4 percent for electricity and 5.9 percent for natural gas.

Appendix A (Continued)

For households using kerosene as a supplemental heating fuel, where the main heating fuel was neither fuel oil nor kerosene, and where full year data were not available from the supplier, respondent estimates furnished through a followup telephone survey were used as kerosene consumption quantity. These cases include primarily cash-and-carry kerosene customers. If followup respondent estimates were not available, regression estimates were calculated in the usual way and then adjusted in such a way that overall average imputations matched the average followup respondent estimates. Some electricity and utility gas models also contain a price variable calculated from the survey data. Some electricity models also include an income variable. The fuel oil and LPG models contain a variable on fuel wood burned. Fuel expenditures were imputed by applying a cost factor to the imputed consumption. The cost factor for electricity and utility gas was derived from the fuel consumption records of households in the same neighborhood or geographic area as the household for which data were missing; the cost factor for fuel oil and LPG was based on regression fits for cost versus quantity for all fuel users.

The consumption data were standardized to a 365-day period. For fuel oil, kerosene, and LPG, no adjustment was necessary since the annual consumption data were the accumulation of all delivery records between April 1, 1982, and March 31, 1983. For electricity and natural gas, an adjustment was made for those records covering 330 days or more. For those covering fewer than 330 days and those cases requiring regression imputations, the imputed quantity was for a 365-day period.
For a small proportion of households, 12-month fuel consumption quantities were scaled down in accordance with respondent-supplied information as to the proportion of the fuel used for nonhousehold purposes such as for drying grain or operating a commercial welding shop. This adjustment was made to the consumption and expenditures for 3 percent of the households using electricity, 3 percent using LPG, 1 percent using natural gas, and 1 percent using fuel oil or kerosene.

A final adjustment was made to all imputed fuel quantities. To maintain the variance structure of the unimputed fuel consumption data, rather than impute a single value for all households that may be equivalent on the independent variables in the regression model, an error term was added to the predicted fuel consumption. This allowed estimates for sampling error to be calculated without separating imputed from unimputed data.

Table A9 shows the availability of consumption records by the type of housing structure. Usable records were most often obtained for single-family units, more often for electricity (90.8 percent of the units) and natural gas (90.2 percent) than for fuel oil or kerosene (70.2 percent) or LPG (71.9 percent). The problems inherent in collecting data for the storage fuels were described earlier: multiple suppliers, "cash-and-carry" customers, purchase data being supplied instead of usage data, and economic instability of the supplying companies.

The consumption and expenditures data for large apartment buildings, especially the natural gas and fuel oil, are mostly imputed data. Usable records were obtained for only 19.7 percent of the apartments in large buildings that used natural gas and for only 3.3 percent of those using fuel oil or kerosene. Liquefied petroleum gas is infrequently used in large apartment buildings. Electricity data for these apartments were obtained in 57.4 percent of the cases.

Appendix A (Continued)

Table A9. Energy Consumption Records and Missing Data for Survey Households, by Fuels Used, and by Type of Housing Structure (Percent)

Type of Fuel Used	Total Households Using the Fuel	Mobile Home	Single-Family	Two to Four Units	Five or More Units
Electricity	100.0	100.0	100.0	100.0	100.0
(Sample Number)	(4,721)	(221)	(3,357)	(552)	(591)
Usable Record	83.4	79.7	90.8	67.9	57.4
Unusable Record[a]	1.2	2.7	0.5	3.1	2.5
Records Not Available	7.8	10.4	7.1	9.1	9.6
Fuel Used Is Included in Rent or Paid in Other Ways[b]	7.6	7.2	1.6	19.9	30.5
Natural Gas	100.0	100.0	100.0	100.0	100.0
(Sample Number)	(2,951)	(74)	(2,054)	(427)	(396)
Usable Record	74.3	75.6	90.2	48.2	19.7
Unusable Record[a]	0.9	1.4	0.7	1.9	1.0
Records Not Available	7.1	8.1	7.4	5.4	6.8
Fuel Used Is Included in Rent or Paid in Other Ways[b]	17.7	14.9	1.7	44.5	72.5
Fuel Oil or Kerosene	100.0	100.0	100.0	100.0	100.0
(Sample Number)	(863)	(45)	(45)	(112)	(91)
Usable Record	55.8	46.7	70.2	23.2	3.3
Unusable Record[a]	6.2	4.4	7.0	7.1	*
Records Not Available	20.0	48.9	22.0	13.4	1.1
Fuel Used Is Included in Rent or Paid in Other Ways[b]	18.0	*	0.8	56.3	95.6
LPG	100.0	100.0	100.0	100.0	100.0
(Sample Number)	(413)	(81)	(316)	(15)	(1)
Usable Record	67.3	55.6	71.9	(6)	*
Unusable Record[a]	8.5	7.4	8.5	(2)	*
Records Not Available	18.2	28.4	16.1	(1)	*
Fuel Used Is Included in Rent or Paid in Other Ways[b]	6.0	8.6	3.5	(6)	(1)

[a]Data were unusable for electricity and natural gas if the records covered fewer than 5 months and for fuel oil, kerosene, and LPG if the record covered less than 1 year.

[b]Includes households with mixed payment methods: one or more uses of a specified fuel paid directly to a supplier, and other uses included in rent or paid in another way.

"*" represents or rounds to zero.

Source: Energy Information Administration, 1982 Residential Energy Consumption Survey.

The reason consumption and expenditures data are so often imputed for multiunit structures is that energy use is not directly metered for individual apartments. A master meter registers the usage for a number of units in the building. Under these circumstances, there is no way of measuring the consumption of individual apartments, and imputations based on metered units may be biased since the imputations assume similar energy use for metered and nonmetered apartments.

Appendix A (Continued)

Other segments of the data for which the lack of usable records may lead to an imputation bias include natural gas and fuel oil or kerosene for apartments in smaller buildings (two to four units per building) and fuel oil or kerosene and LPG used in mobile homes. Usable records in these segments were obtained for between 23.2 percent and 55.6 percent of the households.

Supplemental Data Collection

Portions of the 1982 RECS data set and analyses are based on three supplemental data collections carried out mainly by telephone between mid 1983 and early 1984. The primary purposes of two of these followup activities were to obtain estimates of use of wood and kerosene as home heating fuels during the 1982-1983 heating season. The third supplemental activity was designed primarily to collect additional information of interest to the Social Security Administration on government assistance to low-income households during the 1982-1983 heating season and assistance to pay cooling costs for the 12-month period ending in September 1983.

Followup Survey on Fuelwood Consumption

The survey of fuelwood consumption during the 1982-1983 heating season was carried out for a sample of households who had reported using wood as a main or supplemental home heating fuel in the 1982 RECS household interview.

The RECS household survey included a series of questions on use of fuelwood. In the main RECS survey, however, estimates of quantity of wood used by the household referred to the 12 months preceding the interview in the fall of 1982. The primary purpose of the supplemental fuelwood data collection was to obtain estimates for the 1982-1983 heating season, basically matching the time period for consumption information obtained directly from utility companies and fuel dealers for other fuels. An additional feature of the supplemental data collection was an advance mailing to households of rough sketches of various quantities of fuel to assist household members in estimating quantities of wood used during the period of interest.

Followup contacts were attempted in May 1983 with a systematic random sample of households with whom personal interviews were completed in the 1982 RECS. The sample included approximately three-fourths of households (261 of 354) who had reported using wood as their main home heating fuel and approximately three-eighths (382 of 997) households who had reported using wood as a supplemental home heating fuel. Contacts were primarily by telephone. Households without telephones were asked to respond to a brief mailed questionnaire. Contacts were completed and estimates of fuelwood consumption during the 1982-1983 heating season were obtained from 514 of the 643 households in the sample for the followup activity (a response rate of 79.9 percent). The remainder of the households had moved prior to the supplemental data collection, could not be contacted, or could not provide estimates of fuelwood consumption for the period of interest.

The overall relationship of fuelwood consumption estimates in the followup survey, to those in the original RECS data collection for the period 12 months earlier, closely paralleled the ratio of heating degree days in 1982-1983 to heating degree days in 1981-1982. This ratio was used to derive estimates for households not included in or not responding to the followup survey.

Appendix A (Continued)

Followup Survey on Kerosene Consumption

A very large majority of households using kerosene as a supplemental home heating fuel made cash-and-carry purchases of kerosene in small quantities, usually less than 10 gallons at a time. Records of such purchases are generally not maintained by fuel suppliers. Thus, the normal procedure of obtaining delivery or sales records from fuel suppliers can be followed only for a small fraction of these households. In earlier RECS, kerosene consumption estimates were imputed for almost all households using kerosene as a supplemental heating fuel.

Use of kerosene as a supplemental home heating fuel increased dramatically in the period from 1980 to 1982. Followup telephone calls were made to households in the 1982 RECS sample to obtain estimates of kerosene used during the 1982-1983 heating season directly from a knowledgeable person in the household.

Followup contacts were attempted in September 1983 for 96 households. This group included all households in the 1982 RECS who reported that they purchased kerosene as a supplemental home heating fuel and for which records were not obtained from fuel suppliers. Of these 96 households, 65 (67.7 percent) were reached by telephone and were able to provide estimates of the amount of kerosene purchased during the 1982-1983 heating season. The remaining 31 households either could not be reached by telephone or could not provide an estimate of the amount of kerosene used.

If followup respondent estimates were not obtained, regression estimates were calculated and then adjusted in such a way that overall average imputations matched the average estimate of followup respondents.

Followup Data Collection for Social Security Administration

This supplemental data collection was carried out entirely by telephone in January 1984. Telephone contacts for this purpose were combined when possible with a portion of the data collection for the 1983 Transportation Study.

The population of interest for this supplemental data collection was defined as all households in the 1982 RECS who had reported annual family income of under $30,000 for 1981. Of the total of 3,548 households included in this group, followup interviews were completed with 2,461, or 69.4 percent. Nonrespondents include those who could not be reached by telephone for this special purpose as well as households who had refused to participate in earlier Transportation Study contacts.

Bias in Estimates of Fuel Usage in Apartments

Concern with the large amount of imputed fuel data for apartment units led to a special effort in 1981 to obtain consumption records for apartment buildings. This effort used the permission of the apartment building's agent to obtain actual fuel records for the building. These records were used to estimate fuel consumption for each apartment in the building, including the sample units that were the main concern of the collection effort. The building's fuel use was allocated to individual apartments proportionate to the number of units, and rooms per

Appendix A (Continued)

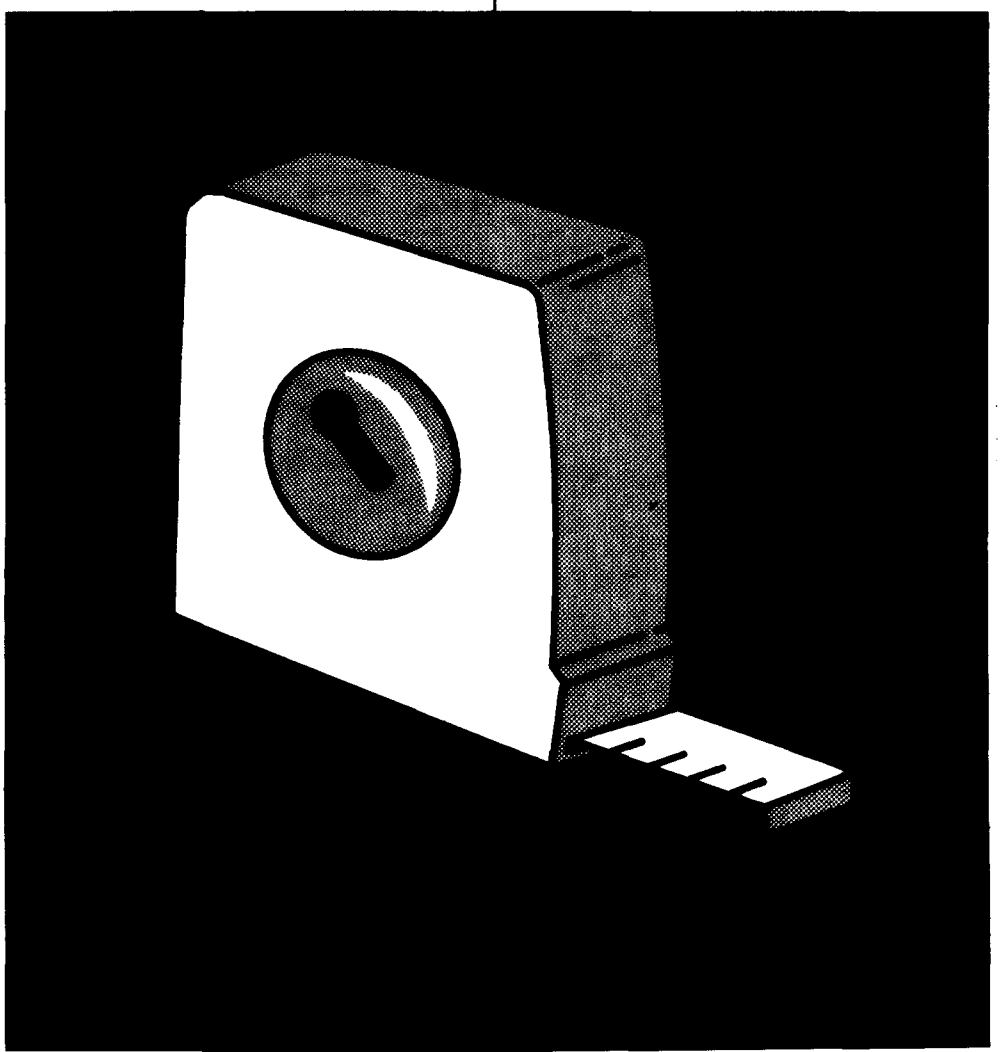
unit, in the building. A comparison of these estimates, derived from actual records, with the imputed values assigned by the regression modeling indicates the following bias in some imputed values:

Households Using	Imputed Values Are	Corrective Multipliers Are
Electricity with air conditioning	Too low by 50 percent	1.84
Electricity without air conditioning	Too high by 10 percent	None
Natural gas for space heating	About right	None
Natural gas, but not for space heating	Too low by 50 percent	2.04

The number of records for fuel oil and LPG were insufficient for making estimates of the bias in their imputed values. The imputations for fuel use in apartments were corrected to counteract the imputation bias. The corrective multipliers are given in the preceding tabulation.

Appendix B

Estimates of the Size of U.S. Housing Units in Square Feet



Appendix B

Introduction

Interviewers for the 1982 Residential Energy Consumption Survey were given 50-foot tape measures to measure the dimensions of housing units. The instructions were to measure the "area enclosed from the weather." This included garages attached to the house, attics either heated or finished, and basements enclosed from the weather (see Square Feet in Glossary for further definition). Interviewers also recorded the dimensions of areas that were heated and unheated. This further breakdown into heated and unheated areas provides a closer approximation to the area of the housing unit that places the demand on the heating system and, therefore, is the figure that may prove to be more useful in analyzing residential energy consumption. All measurements were rounded to the nearest foot by the interviewer or in the editing process. Interviewers were given an option of measuring the home from the inside, taking into account the thickness of inside walls, or from the outside.

Interviewers were instructed to measure all housing units in new rotation groups B1 and B2. Housing units in the returning rotation groups A1 and A2 which did not have complete measurements taken in the 1980 RECS were also to be measured. Additionally, a subsample of 1/4 of the returning rotation groups which were completely measured in the 1980 RECS was selected to be measured again in the 1982 RECS. This subsample will serve as the basis for methodological analyses of differences between 1980 RECS and 1982 RECS measurements.

Interviewers were instructed to skip the measurement step for the remaining 3/4 of the returning rotation groups with complete measurements in the 1980 RECS, provided that the housing unit was occupied by the same family as in the 1980 RECS, and that no changes had been made in the structure or in heated square feet. For these 827 households, measurements taken during the 1980 RECS are used in the 1982 RECS data file.

Interviewers attempted to measure the size of 3,648 housing units. In 95 percent of the cases, usable measurements were acquired. In 5 percent, the measurements either were not usable or were not made. Although most cases contained the basic information, some imputations were required to produce a final set of three figures for each housing unit:

HOMEAREA = total square footage of area enclosed from the weather

HEATED = total square footage of heated area

UNHEATED = HOMEAREA - HEATED = total square footage of unheated area.

Table B1 indicates the number of cases with missing data. The imputations required standardizing all measurements to outside measurements when the measurement was made from inside the home, characterizing a measurement as inside or outside when this was unknown, apportioning the total space between heated and unheated when this proportion was unknown or partially known, and estimating the total square footage when the measurements were not made or not usable.

Appendix B (Continued)

Scaling Up Outside Measurements

As shown in Table B1, 2,277 homes had complete dimensions for the total area, the heated area, and the unheated area. The only adjustment required was to scale up the measurement for the 1,058 homes that were measured on the inside. The inside measurements were standardized to outside dimensions. The scaling value was determined for each housing unit as a quadratic function of HOMEAREA for the housing unit.

$$SCALE = .888 + 1.99E\text{-}04 \times HOMEAREA - 3.59E\text{-}08 \times (HOMEAREA)^2 \quad (B1)$$

This formula indicates that the larger the HOMEAREA, the larger the scaling-up value. These scale values, which increased the inside measurements, ranged from 5.05 to 16.23 percent, depending on the size of HOMEAREA. For any case in which HOMEAREA was less than 1,000, SCALE was set to 1.05; for HOMEAREA greater than 2,765, SCALE was set to 1.16.

The equation was developed in the following manner: Regression prediction equations were developed independently for homes measured from the inside and homes measured from the outside. Both equations were used to generate estimates of floorspace for homes measured from the inside in the range of 1,000 to 3,000 square feet. The relationship between the ratio of predicted "outside" to "inside" floorspace and the actual inside floorspace for these homes was fitted in a quadratic equation. The predicted scale factors from the quadratic equation were then applied to cases measured from the outside to estimate "inside" floorspace. A second quadratic fit of "outside" to "inside" floorspace was executed, this time using all households measured from the outside or inside with predicted or measured inside area in the range of 1,000 to 3,000 square feet. The last two steps were repeated until the quadratic fit of "outside" to "inside" converged to a stable solution.

Appendix B (Continued)

Table B1. Completeness of Data on Square Footage of Housing Units

Amount of Information Collected	Number of Households	Percent
Complete Set of Dimensions	2,277	62
Outside measurement of home	1,219	33
Inside measurement of home	1,058	29
Partial Information		
Information available on heated and unheated areas. Unknown whether dimensions are for inside or outside of home	996	27
Total area known, but information on heated and unheated areas is missing. Also may be unknown whether dimensions are for inside or outside of home	92	3
Basement dimensions missing	63	2
Complete set of dimensions for all floors except basement. Basement total area known, but information on heated and unheated areas for basement is missing	28	1
All dimensions missing or unusable	192	5
Total	3,648	100

Note: The floor area for the 249 households responding by mail was imputed through a hot-deck procedure. The mail questionnaires are not included in this table. Also excluded from the table are 827 households for which measurements were taken from the 1980 RECS data file.

Source: Energy Information Administration, 1982 Residential Energy Consumption Survey.

Appendix B (Continued)

Treatment of Housing Units With Some Missing Data

The 996 cases lacking information as to whether the measurements were inside or outside, or in which the measurements may have been a combination of inside and outside, were treated as though measurements were outside. This was because average predictions based upon regression models using homes measured outside matched average totals for this group very closely, while predictions based upon regression models using homes measured inside were seriously biased on the low side.

The 92 cases lacking information on the ratio of heated to unheated space borrowed that ratio from housing units with complete data, on a PSU by PSU basis. For most of these cases, information was also lacking as to whether the measurements were inside or outside, and measurements were again assumed to be outside.

For the 63 cases with missing basement dimensions, the basement area was imputed by using a simple regression based on the area of the first floor. The heated and unheated areas were determined or imputed and then added to known totals for the remaining floors. The total area was then scaled up to outside dimensions, if necessary.

There were 28 cases in which the ratio of heated to unheated space for the basement was unknown. This ratio was imputed by using an appropriate empirical distribution of heated to unheated ratios. Two such distributions were used: one for homes with basements only, and one for homes with a basement plus crawl space and/or slab.

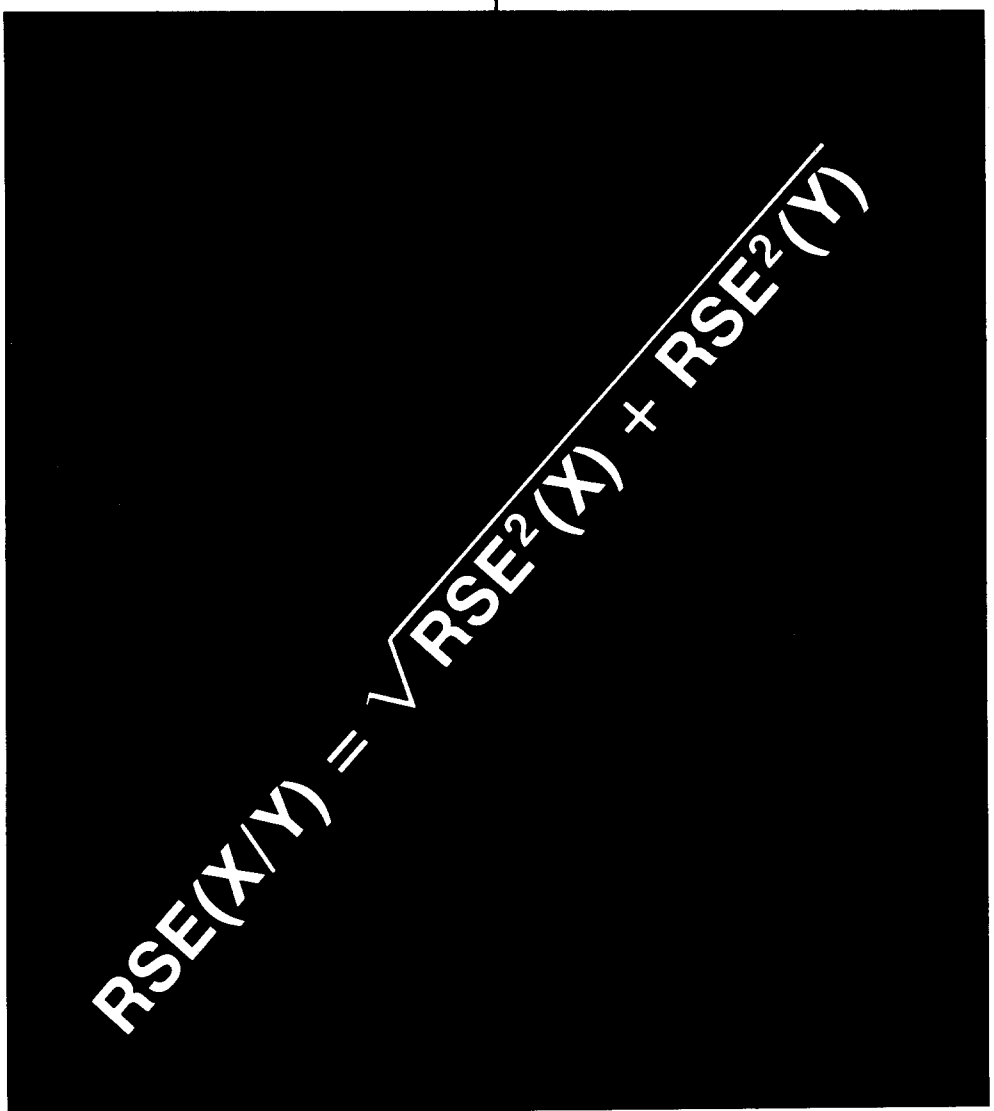
Regression Model

A regression equation was used for the 192 cases with no usable data. After HOMEAREA had been imputed by using the regression model, the ratio of heated to unheated space was imputed using the same procedures described above for housing units for which that ratio was missing.

All estimates were than scaled up. This was necessary since the regression equations estimated inside dimensions. The prediction equations for outside dimensions were not used in the imputations because regression models based on cases with inside measurements yielded substantially better fits.

Appendix C

Limitations of the Data



Appendix C

Introduction

Data from the 1982 Residential Energy Consumption Survey (RECS) are subject to many sources of sampling error, nonsampling error, and bias. Sampling error is a measure of the variability in the data because a sample of households was surveyed rather than the entire population. Because the survey used probability sampling techniques, sampling errors of the survey estimates can be estimated and used as a guide in making inferences from the sample estimates to the total population.

Nonsampling error and bias are measures of variability due to the conduct of the survey. They can include population undercoverage during sampling, response bias and variance, interviewer error, coding and/or keypunching error, and nonresponse bias. The wording and format of survey questionnaires, the procedures used to select and train interviewers, and the quality control built into the data collection, receipt, and processing operations were all designed to minimize these sources of error (for discussion of these procedures, see Appendix A, "How the Survey Was Conducted"). In addition, response adjustments and ratio estimations were incorporated into the survey estimator to help reduce both sampling and nonsampling error. These procedures also are discussed in Appendix A.

Nonsampling Error

Completeness of Data

Data are not collected for the following two types of housing units:

- Vacant housing units. These units may have minimal heating for protection from the weather and lighting for security. They also may not be vacant all year long. The Annual Housing Survey (AHS) estimated that there were 5.0 million vacant, year-round housing units in 1981.

- Second homes for the owner's use. The AHS estimates there were 1.5 million homes "held for occasional use" in 1981.

These two types of units are not included primarily because of the difficulty in acquiring data and limitations in the availability of funds. The RECS data are collected by interviewing someone who knows the housing unit and who may sign an authorization form for release of fuel records from the fuel supplier. That type of person is not usually available for vacant or second homes.

In addition, the consumption and expenditures data for the household's primary residence do not include the following fuels:

- Gasoline and other fuels used in household vehicles. The RECS collects gasoline data from a subset of respondents and is reported separately.

- Wood use for heating. Consumption data on woodfuel are presented in Table 18 but are not included in other tables that combine data for the four major fuels.

- LPG used in outdoor gas grills, for camping, or for other recreational activities occurring away from the home.

- Coal, coke, corncobs, charcoal, alcohol, purchased steam, and solar energy used for household purposes.

Appendix C (Continued)

The effect of these omissions is to underestimate the amount of energy consumed in the residential sector.

Upward adjustments were not made to account for these omissions. The effect of these omissions on average consumption and expenditures per household is difficult to assess and will require further methodological research. The most serious omission because of its size is for wood fuel consumption. The size of the underestimation for the omission of wood can be estimated from data collected in the survey and is estimated to equal 10 million Btu for 1982, about the same level as for 1980 and 1981. If added to the average household energy use, the average would increase from 103 million to 113 million Btu. This estimate of wood fuel use is subject to the errors affecting data on wood fuel consumption (see Wood Burned in the Glossary).

One source of overcounting arises because some household bills contain nonhousehold uses such as for operating a welding shop or drying grain. Double counting could also occur when an owner's billing record also contains consumption for a rental unit. The RECS respondents estimated the amount of this nonhousehold use that is included on their bill. Using these estimates, downward adjustments were made for individual households to subtract their nonhousehold uses from their consumption and expenditures data.

The reader should also be aware that the data for fuel oil, kerosene, and LPG are for fuel delivered to the household between April 1, 1982, and March 31, 1983, not for fuel consumed. For this reason and because attempts to acquire actual fuel bills for these fuels are more often unsuccessful, these data should be viewed as less reliable than the electricity and natural gas data. Readers should also be aware that natural gas and fuel oil data for apartment buildings of five or more units are based largely on imputed estimates and, therefore, may contain an unknown amount of error from the imputation procedures.

Quality of Specific Data Items

Heating Degree-Days. The heating degree days represent a unique source of information inasmuch as the Residential Energy Consumption Survey contains weather data matched to individual households. This unique matching makes it possible to present weather data for households classified by the kinds of information collected in the RECS survey. For example, households heating with fuel oil or kerosene experienced 5,379 heating degree days (HDD) in 1982 (April 1982 through March 1983) whereas natural gas heated homes experienced 4,596 HDD.

The matching between households and weather is done by using maps to locate the NOAA division for each sample household. Once the NOAA division is identified, a simple average is computed for all weather stations within the NOAA division which report temperatures. (See NOAA Division in Glossary).

This average is assigned to all the RECS households located within the NOAA division. Temperatures can vary from one part of the division to another as, for example, between the city and nearby country side. It is yet to be determined whether assigning temperatures from the nearest weather station would provide more useful information.

This procedure produces the averages in Table C1 attributed to RECS. The NOAA data in Table C1 are derived from NOAA publications entitled

Appendix C (Continued)

State, Regional, and National Monthly and Seasonal Heating Degree Days Weighted by Population (1980 Census).

At the national level, the RECS estimates are consistently 1 to 5 percent higher than those for NOAA. The NOAA estimates are within two standard errors of the RECS estimates, but the fact that the RECS estimates are consistently higher raises concerns about what may be causing the difference.

Beyond the sampling error of RECS estimates, the differences must be either in the population weights or in the heating degree-day numbers for the NOAA division. The average HDD for the NOAA divison is calculated in the same way--both the RECS and NOAA calculate a simple average of temperatures for reporting stations in the NOAA division. A more detailed inspection may reveal differences in methods and in data used that are not apparent in published descriptions of how this is done. For example, NOAA averages over stations that report both temperature and precipitation, whereas RECS averages are for all stations reporting temperature whether or not they report precipitation.

An initial inspection of weights shows that RECS weights are larger for the South and West and are getting larger as the population shifts from colder to warmer areas. This difference in weights, however, only exacerbates the problem, for the larger weight RECS gives to households in warmer areas would drive the RECS estimates lower, not higher.

Table C1. Comparison of Annual Heating Degree-Days Population Weighted by the National Oceanic and Atmospheric Administration (NOAA) and by the Residential Energy Consumption Survey (RECS)

	Year[a]				
	1978	1979	1980	1981	1982
United States					
NOAA	5,008	4,721	4,745	4,831	4,439
RECS	5,038	4,935	4,854	4,933	4,546
Percent Difference	+0.6	+4.5	+2.3	+2.1	+2.4
North Central					
NOAA	7,064	6,673	6,423	6,857	5,956
RECS	6,762	6,576	6,616	7,014	6,109
Percent Difference	-4.3	-1.5	+3.0	+2.3	+2.6
Northeast					
NOAA	6,244	5,952	6,307	6,307	5,636
RECS	6,175	6,265	6,404	6,416	5,739
Percent Difference	-1.1	+5.3	+1.5	+1.7	+1.8
South					
NOAA	3,037	2,986	3,112	2,920	2,793
RECS	2,967	2,982	3,292	3,093	3,032
Percent Difference	-2.3	-0.1	+5.8	+5.9	+8.6
West					
NOAA	4,218	3,647	3,485	3,695	3,865
RECS	4,728	4,368	3,448	3,715	3,805
Percent Difference	+12.1	+19.8	-1.1	+0.5	-1.6

[a]From April of year indicated through March of succeeding year.

Appendix C (Continued)

Square Feet of Floor Space. The longitudinal design of the 1982 RECS made it possible to measure a subsample of the housing units twice. This subsample contained 355 housing units; the first measurement was made in 1980 and the second one in 1982. The two measurements can be compared as a test of the reliability of the measuring procedure. Not all units in the subsample yielded measurements that are usable in the analysis of the reliability of the measuring procedure. In four of the cases, the interviewer did not go back to the original 1980 RECS housing unit. For nine additional cases, either changes had been made in the size of the housing unit, changes were in progress, or it could not be determined that no changes were made. Housing units where the measurements for the 1982 RECS are either incomplete or missing also cannot be used in the reliability analysis. Table C2 presents the results of the reliability analysis using housing units with good square footage data for both the 1980 and 1982 RECS.

Table C2. Comparison of Housing Units Measured in 1980 and 1982 by Housing Types

	Total	Single-Family Detached	Mobile Home	Multi-unit Building	Building Type Responses Differ in 1980 and 1982
Number of Cases	300	208	14	70	8
Average Square Feet Per Housing Unit					
1980	1,797	2,116	803	1,082	1,503
1982	1,821	2,142	721	1,147	1,282
Median Percent Difference in Square Footage	11.7	11.8	7.2	12.2	11.3
Average Heated Square Footage Per Housing Unit					
1980	1,536	1,780	798	966	1,469
1982	1,521	1,751	711	1,039	1,194
Median Percent Difference in Heated Square Footage	15.6	16.9	7.2	14.4	13.4

Source: Energy Information Administration, 1980 and 1982 Residential Energy Consumption Surveys.

Appendix C (Continued)

In Table C2, the housing units are grouped into types. The units are grouped according to both the 1980 and 1982 responses. The types used are single-family detached homes, mobile homes, and units in buildings with more than one unit. Single-family attached units are in the group with multi-unit buildings. If the 1980 and 1982 designations are the same, the units are categorized by that group type. If the two designations are different, then the unit is put into a separate category.

The percent change shown in Table C2 is the absolute value of the difference as a percentage of the average of the two measurements. The median is tabled instead of the mean because a few large values for percent change will have a misleadingly large effect on the mean of the percent change.

The measuring technique was refined slightly between 1980 and 1982. The average measured square footage of all 300 cases increased only marginally, indicating that on the average the refinement had a small effect. On the other hand, the median percent difference in square footage is 11.7 percent. In addition, for 10 units in the subsample, the percent change exceeds 70 percent. This indicates that the measuring technique could be improved.

Estimates are also made for that portion of the total floor space that is heated. The variability of these measurements is greater than for the total area of the unit. This may be because any vagueness about the total area was multiplied by the added task of identifying the heated areas. In addition, some variability may reflect actual changes in heated areas. For example, the time of the interview may determine if an occasionally heated area is reported to the interviewer as being heated. Note that the median percent change has increased from 11.7 percent to 15.6 percent.

One of the persistent problems in clarifying the measuring task has been identifying basements for households in multi-family units. A significant portion of buildings with 2 to 4 units have basements, but the basements are often for the use of all families in the building and cannot, therefore, be included as private living space for any one apartment.

Expenditures as a Percentage of Income. The 1982 RECS is the second RECS for which expenditures for energy are shown as a percentage of the family's income. Several problems have stood in the way of reporting this statistic. First, RECS collects income data in categories, so that a family's income is known only by a range. The problem of not have a precise value was resolved in most cases by using the category midpoint when dividing the expenditures by the income, that is, $3,500 was used for each household in the category $3,000 to $3,999. The following values were assigned when the midpoint of the interval was not used:

	Value Assigned	
Income Category	Family Size Is One	Family Size Is More than One
$20,000 - 24,999	$22,293	
$25,000 - 29,999	$27,294	
$30,000 - 34,999	$32,231	
$35,000 - 49,999	$41,117	
$50,000 and over	$68,087	
$75,000 and over		$98,725

Appendix C (Continued)

The second problem is that energy expenditures are based on the period April 1982 through March 1983, while income is based on calendar year 1981. The difference in time periods has the effect of increasing the size of the percentage, since an income from an earlier period is likely to be smaller, having been subject to less inflation. It is not known how much the percentage would change for various income categories by using "aged" income data.

Indoor Temperatures. The data on indoor temperatures are believed to be generally accurate for the purpose of ordering households along a temperature gradient. The following limitations, however, are causes for further study of the role these data play in residential energy consumption. The questionnaire asked respondents for indoor temperatures during sleeping hours and during the day when the home was occupied and when it was unoccupied; the questionnaire did not ask for temperatures on a specific day. The implication was that typical temperatures were being requested. The reported temperatures, especially for some respondents, are impressions of typical temperatures and may not represent the actual temperatures, or the averages of actual temperatures, in the home. The tendency to give impressions is more likely to occur for households that turn off their heat during the day or night. Indoor temperatures for these households may not be known or may not follow a typical pattern since the outdoor weather conditions and the thermal characteristics of the housing unit will determine the indoor temperature.

Other factors likely to make these reports unreliable indicators of the actual temperatures include the following: respondents may not check temperatures or thermostat settings on a regular basis or may not have thermostats that are marked with degree settings; temperatures may differ from thermostat settings (a home can become warmer than the thermostat setting); thermostats may need to be recalibrated; and, finally, disagreement may exist among household members as to the typical temperature. The unreliability of these data for some respondents was highlighted in 1982 when a small number of households were called back to inquire about nighttime temperatures that exceeded daytime temperatures. Many of these households changed their reports by 5 to 10 degrees or more.

Sampling Errors

The form of the sampling error that is presented here is the relative standard error (RSE). The RSE is also known as the coefficient of variation. For a given survey statistic, Y, the relative standard error, RSE (Y), is given by

$$RSE\ (Y) = (S_Y\ /Y) \times 100\%.$$

Thus the standard error of Y is given by

$$S_Y = RSE\ (Y) \times Y/100.$$

Appendix C (Continued)

This section provides generalized procedures and examples for use in calculating relative standard errors for several types of statistics from the 1982 RECS survey.[1] The generalized procedures involve the use of tables that relate the RSE of a statistic to the number of households over which the statistic applies. These tables are based on regression equations developed using RSE's computed by a half-sample replication procedure. They were developed for the 1982 RECS data and will change for subsequent surveys. The end of this section provides a discussion of the half-sample replication technique and the generalized sampling error equations developed and used in this section. Generalized procedures are provided for household counts, percentages based upon counts, aggregate totals, and averages.

Determination of Relative Sampling Errors for Household Counts

Procedures are presented here for determining relative sampling errors (RSE) for statistics that are counts of households. The counts can be obtained from this report, other reports of the 1982 RECS, or the public-use data tape for the 1982 RECS. For some household counts, the RSE is zero. Household counts with a zero RSE are called control totals. A simplified method for determining RSE's for household counts that are not control totals is presented, followed by a more complete, longer method. The simplified method can be used for any household count, but it will produce overestimates of sampling errors in some cases.

Control Totals. The numbers of households that live in each of the four Census regions were used as design parameters for the 1982 RECS. These household counts are listed in Table C5. The counts will have zero RSE's or sampling error in the RECS. They are based on results of the Current Population Survey (CPS) compiled by the U.S. Bureau of the Census. The CPS surveys are subject to their own sampling variances. Any errors in these numbers can be considered to be biases of the 1982 RECS. In this report, these household counts or sums of these counts are referred to as control totals.

Simplified Method. For a household count that is not a control total, read or extrapolate its RSE value from Table C3. (The RSE's listed in Table C3 can be obtained by using the first equation listed in Table C11.) The value should be adjusted by multiplying by the appropriate value or values for 10^B from Table C4.

If the characteristic of the statistic being considered is not listed in Table C4, use $10^B = 1$, or use a value for a characteristic that has similar clustering tendencies. If two characteristics define the statistic, multiply by both values of 10^B from Table C4. If more than two characteristics define the variable, choose no more than two and select the two that are the least correlated. A more complete discussion of the clustering factors is given later in this appendix. (See "Discussion of Generalized Variance Equations.")

[1] The source of data for the calculation of relative standard errors is the 1982 Residential Energy Consumption Survey.

Appendix C (Continued)

Table C3. Relative Standard Errors for Survey Estimates of the Number (Count) of Households

Million Households	One Relative Standard Error (Percent)	Million Households	One Relative Standard Error (Percent)
0.1	46.5	1.0	17.5
0.2	35.1	1.5	14.6
0.3	29.7	2.0	12.8
0.4	26.3	3.0	10.5
0.5	23.8	4.0	9.2
0.6	22.0	5.0	8.2
0.7	20.6	10.0	5.8
0.8	19.4	20.0	4.1
0.9	18.4	40.0	2.8

Source: Energy Information Administration, 1982 Residential Energy Consumption Survey.

Table C4. Clustering Factors for Calculation of Relative Standard Errors for Survey Estimates of the Number (Count) of Households

Cell Definition	Value of 10^B
Heating and Cooling Degree-Days	1.86
MSA (1980)	1.24
Housing Structure	1.20
Natural Gas is Water or Space Heating Fuel	1.16
Electricity is Water or Space Heating Fuel	1.13
Year House Built	1.08
Origin (Race)	1.07
Wood is Main Space Heating Fuel	1.07
How Utilities are Paid	1.06
LPG is Water or Space Heating Fuel	1.05
Hispanic Descent	1.03
Main Heating Equipment	1.02
Wood is Burned	1.02
Fuel Oil is Water or Space Heating Fuel	0.99
Own/Rent	0.98
Poor--125 Percent	0.97
Secondary Heating Equipment	0.97
Number of Doors	0.97
Types of Appliances Used	0.97
Have Air Conditioning Equipment	0.96
Add Weatherstripping	0.95
Add Caulking	0.94
Number of Windows	0.94
Have Energy Audit	0.93
Number of Storm Windows	0.91
Number of Heated Square Feet	0.90
Sex of Householder	0.90
Age of Householder	0.87
Family Income	0.87
Number of Household Members	0.86

Source: Energy Information Administration, 1982 Residential Energy Consumption Survey.

Appendix C (Continued)

Longer Method. The second method for calculating sampling errors for household counts uses the control totals listed in Table C5.

Step 1: Find the statistic's appropriate control from Table C5. The control total is the number of households in the Census region for which the sampling error is being determined. The control may be the sum of several control totals provided. If the correct control is not obvious, use the larger of several, which may be correct. If the household count is a control total, set the RSE equal to zero; otherwise, proceed to Step 2.

Step 2: If the household count is less than one-half of its control total, use method one described earlier. If not, compute a control complement for the household count and proceed to Step 3. Control complement = (control total - household count).

Step 3: Use the control complement as the new household count. Then read or extrapolate its RSE_B value from Table C3. Multiply this value by the appropriate 10^B value or values from Table C4. Denote this as CCRSE.

Step 4: Multiply the CCRSE value from Step 3 by the control complement and divide by the household count. This yields: RSE = CCRSE x (control complement) / (household count).

Table C5. Relative Standard Error Control Totals (Million Households)

Type of Aggregate	Control Totals	Upper Bound for Direct Application of Formula or Table
National	83.8	41.9
Census Region		
Northeast	18.0	9.0
North Central	21.3	10.7
South	28.1	14.1
West	16.5	8.3

Note: The MSA control parameters do not appear in this table. The reason for this is that the control parameters were based on 1970 definitions of MSA's, but this report contains tabulations based on 1983 definitions of MSA's.

Source: Estimates derived from the March 1982 and 1983 Current Population Surveys.

Appendix C (Continued)

Consider the computation of sampling error for the estimate, 15.5 million households heat with natural gas in the North Central region.

Step 1: From Table C5, the control total is 21.3 million, the number of households that live in the North Central region.

Step 2: The number 15.5 million is more than one-half of 21.3. Its control complement then is (21.3 - 15.5 = 5.8).

Step 3: Extrapolating from Table C3, the RSE for 5.8 is 7.8 percent. Multiply 7.8 by the values for 10^8 from Table C4 for household counts over categories restricted to households whose main space-heating fuel is natural gas. (7.8 x 1.16 = 9.05 percent.)

Step 4: Multiply CCRSE by the control complement divided by the household count.
(RSE = 9.05 x 5.8/15.5 = 3.4 percent.)

The standard error corresponding to this relative standard error applies to both the control complement and the original household count.

Determination of Relative Standard Errors for Percentages Based Upon Household Counts

Let X be an estimate of the number of households that have characteristics C_1 and C_2. Let Z be an estimate of the number of households that have characteristic C_1 but do not have characteristic C_2. Set Y = X + Z. Then Y is an estimate of the number of households that have characteristic C_1. Set p = 100 X/Y. Then p is an estimate of the percentage of households that have characteristic C_2 among all households that have characteristic C_1. The RSE of p can be approximated using

$$RSE(p) = \sqrt{RSE^2(X) - RSE^2(Y)}.$$

This approximation works best when RSE(X) and RSE(Y) are estimated using a generalized variance equation. The approximation may differ greatly from the correct value if RSE(X) and RSE(Y) are half-sample estimates. This equation may also produce inaccurate approximations when it is applied to percentages that are not based on household counts or are based on ratios of household counts that cannot be characterized by the format.

Determination of Relative Standard Errors for Fuel Consumption, Expenditures, and Related Statistics

The RSE's of statistics that give the aggregate total or average per household fuel consumption or expenditures can be approximated by using Tables C6 through C10. The RSE's listed in Tables C6 through C10 can be obtained using the equations listed in Table C11. See Residential Energy Consumption Survey: Housing Characteristics 1982 (DOE/EIA-0314(82) for RSE's for square footage, annual heating degree-days, indoor daytime temperatures, number of doors or windows, and inches of insulation.

The tables give the RSE of a statistic as a function of the number of households involved in calculating the statistic. For total consumption or expenditures, the number of households is the number over which the total applies. For consumption or expenditures by fuel, the number of households is the number that use the fuel in question and whose consumption or expenditures are used in calculating the statistic for which one desires an RSE. For example, consider the Northeast Census region. The weights for the observations used in the RECS were adjusted so that the number of households in the Northeast Census region equals

Appendix C (Continued)

18.0 million. This is the number used when computing the RSE for the total residential energy consumption in the Northeast. For electricity consumption, again use 18.0 million. But for natural gas consumption, the number of households equals 11.6 million. This is the number of households that live in the Northeast and use natural gas. The counts of households are provided for the "all major fuels" category in Table 1 in the report. But for specific fuels such as natural gas, the reader should turn to the table that covers that fuel for the appropriate household counts to be used in computing an RSE.

There are 1.0 million households that heat with LPG in the North Central region. Reading from Table C6, column 6 yields an RSE of 25.5 for total LPG consumption for households in the North Central that heat with LPG.

Table C6. Relative Standard Errors for Aggregate Statistics of Total Consumption or Expenditures for All Major Fuels, Electricity, Natural Gas, Fuel Oil or Kerosene, LPG, and Consumption of Wood

	One Relative Standard Error (Percent)					
Million Households	All Major Fuels	Electricity	Natural Gas	Fuel Oil or Kerosene	LPG	Wood
0.2	44.0	44.1	40.4	44.6	43.7	41.7
0.3	36.3	36.7	34.0	36.6	38.2	36.9
0.4	31.6	32.3	30.1	31.8	34.7	33.8
0.5	28.4	29.2	27.4	28.5	32.2	31.6
0.6	26.0	26.9	25.4	26.1	30.3	29.9
0.7	24.2	25.1	23.8	24.2	28.8	28.6
0.8	22.7	23.7	22.4	22.7	27.5	27.4
0.9	21.4	22.5	21.4	21.4	26.4	26.5
1.0	20.4	21.4	20.4	20.3	25.5	25.6
1.5	16.8	17.9	17.2	16.7	22.3	22.7
2.0	14.6	15.7	15.2	14.5	20.3	20.8
3.0	12.0	13.1	12.8	11.9	17.7	18.4
4.0	10.5	11.5	11.3	10.3	16.1	16.9
5.0	9.4	10.4	10.3	9.3	14.9	15.8
10.0	6.8	7.6	7.7	6.6	11.8	12.8
20.0	4.9	5.6	5.7	4.7	(a)	10.4
40.0	3.5	4.1	4.3	(a)	(a)	8.4
83.8	2.4	2.9	3.1	(a)	(a)	(a)

[a]Exceeds maximum number of households for this statistic.

Source: Energy Information Administration, 1982 Residential Energy Consumption Survey.

Appendix C (Continued)

Table C7. Relative Standard Errors for Statistics of Average (Mean) Consumption and Expenditures per Household for All Major Fuels, Electricity, Natural Gas, Fuel Oil or Kerosene, LPG, and Consumption of Wood

	One Relative Standard Error (Percent)					
Million Households	All Major Fuels	Electricity	Natural Gas	Fuel Oil or Kerosene	LPG	Wood
0.2	15.1	17.6	18.7	27.4	24.3	22.1
0.3	12.9	15.2	15.7	21.6	20.1	20.2
0.4	11.5	13.7	13.9	18.2	17.6	18.9
0.5	10.6	12.7	12.6	16.0	15.8	17.9
0.6	9.9	11.9	11.7	14.3	14.5	17.2
0.7	9.3	11.2	10.9	13.1	13.5	16.6
0.8	8.8	10.7	10.3	12.1	12.7	16.1
0.9	8.4	10.3	9.8	11.3	12.0	15.7
1.0	8.1	9.9	9.4	10.6	11.4	15.3
1.5	6.9	8.6	7.9	8.3	9.4	14.0
2.0	6.2	7.7	6.9	7.0	8.3	13.1
3.0	5.3	6.7	5.8	5.5	6.8	11.9
4.0	4.7	6.0	5.1	4.7	6.0	11.1
5.0	4.3	5.6	4.7	4.1	5.4	10.6
10.0	3.3	4.3	3.5	2.7	3.9	9.0
20.0	2.5	3.4	2.6	1.8	(a)	7.7
40.0	1.9	2.6	1.9	(a)	(a)	6.6
83.8	1.5	2.0	1.4	(a)	(a)	(a)

[a]Exceeds maximum number of households for this statistic.

Source: Energy Information Administration, 1982 Residential Energy Consumption Survey.

Appendix C (Continued)

Table C8. Relative Standard Errors for Median Cords of Wood Consumed (Table 18) and Median Percent of Income Spent on Energy (Table 6)

Million Households	One Relative Standard Error (Percent)	
	Median Cords of Wood Consumed Per Household	Median Percent of Income Spent on Energy
0.2	46.4	30.3
0.3	42.0	25.6
0.4	39.1	22.7
0.5	37.0	20.6
0.6	35.4	19.1
0.7	34.1	17.9
0.8	33.0	16.9
0.9	32.1	16.1
1.0	31.3	15.4
1.5	28.3	13.0
2.0	26.4	11.5
3.0	23.9	9.7
4.0	22.3	8.6
5.0	21.1	7.8
10.0	17.8	5.9
20.0	15.0	4.4
40.0	12.7	3.3
83.8	(a)	2.4

[a]Exceeds maximum number of households for this statistic.

Source: Energy Information Administration, 1982 Residential Energy Consumption Survey.

Appendix C (Continued)

Table C9. Relative Standard Errors for Statistics of Energy Prices for All Major Fuels, Electricity, Natural Gas, Fuel Oil or Kerosene, and LPG

	One Relative Standard Error (Percent)				
Million Households	All Major Fuels	Electricity	Natural Gas	Fuel Oil or Kerosene	LPG
0.2	7.3	7.0	8.2	1.4	37.1
0.3	6.5	6.3	7.1	1.2	32.5
0.4	6.0	5.9	6.4	1.0	29.7
0.5	5.6	5.5	5.9	0.9	27.6
0.6	5.3	5.3	5.5	0.9	26.0
0.7	5.1	5.1	5.2	0.8	24.8
0.8	4.9	4.9	4.9	0.8	23.7
0.9	4.7	4.8	4.7	0.7	22.8
1.0	4.6	4.6	4.6	0.7	22.1
1.5	4.1	4.2	3.9	0.6	19.4
2.0	3.8	3.9	3.5	0.5	17.7
3.0	3.3	3.5	3.0	0.4	15.5
4.0	3.1	3.3	2.7	0.4	14.1
5.0	2.9	3.1	2.5	0.4	13.2
10.0	2.4	2.6	2.0	0.3	10.5
20.0	1.9	2.2	1.5	0.2	(a)
40.0	1.6	1.8	1.2	(a)	(a)
83.8	1.3	1.5	0.9	(a)	(a)

[a]Exceeds maximum number of households for this statistic.

Source: Energy Information Administration, 1982 Residential Energy Consumption Survey.

Appendix C (Continued)

Table C10. Relative Standard Errors for Percentages of Aggregate Consumption and Expenditures for Electricity, Natural Gas, Fuel Oil or Kerosene, and LPG (Tables 2, 3, and 4)

Million Households	One Relative Standard Error (Percent)			
	Electricity	Natural Gas	Fuel Oil or Kerosene	LPG
0.2	13.4	13.4	19.1	19.2
0.3	11.8	11.1	15.0	16.4
0.4	10.8	9.6	12.6	14.6
0.5	10.0	8.7	11.1	13.4
0.6	9.4	7.9	9.9	12.4
0.7	9.0	7.4	9.1	11.7
0.8	8.6	6.9	8.4	11.1
0.9	8.3	6.5	7.8	10.6
1.0	8.0	6.2	7.3	10.2
1.5	7.0	5.1	5.8	8.7
2.0	6.4	4.5	4.9	7.7
3.0	5.6	3.7	3.8	6.6
4.0	5.1	3.2	3.2	5.9
5.0	4.8	2.9	2.8	5.4
10.0	3.8	2.1	1.9	4.1
20.0	3.1	1.5	1.2	(a)
40.0	2.5	1.1	(a)	(a)
83.8	1.9	0.7	(a)	(a)

[a]Exceeds maximum number of households for this statistic.

Source: Energy Information Administration, 1982 Residential Energy Consumption Survey.

Appendix C (Continued)

Table C11. Relative Standard Error Equations for Statistics From the 1982 Residential Energy Consumption Survey

Type of Statistic			Generalized Variance Equation
Household Counts	log(RSE)	=	1.244 - 0.450*log(NHSLD) -0.027 *[(log(NHSLD))^2]
Total Consumption or Expenditures			
All Major Fuels	log(RSE)	=	1.309 - .479*log(NHSLD)
Electricity	log(RSE)	=	1.331 - .448*log(NHSLD)
Natural Gas	log(RSE)	=	1.310 - .424*log(NHSLD)
Fuel Oil or Kerosene	log(RSE)	=	1.308 - .489*log(NHSLD)
Liquefied Petroleum Gas	log(RSE)	=	1.407 - .334*log(NHSLD)
Wood Consumption	log(RSE)	=	1.409 - .302*log(NHSLD)
Average (Mean) Consumption or Expenditures			
All Major Fuels	log(RSE)	=	.908 - .386*log(NHSLD)
Electricity	log(RSE)	=	.995 - .357*log(NHSLD)
Natural Gas	log(RSE)	=	.971 - .431*log(NHSLD)
Fuel Oil or Kerosene	log(RSE)	=	1.025 - .591*log(NHSLD)
Liquefied Petroleum Gas	log(RSE)	=	1.058 - .470*log(NHSLD)
Wood Consumed	log(RSE)	=	1.185 - .229*log(NHSLD)
Average (Median)			
Wood Consumed	log(RSE)	=	1.495 - .245*log(NHSLD)
Percent of Income Spent on Energy	log(RSE)	=	1.188 - .420*log(NHSLD)
Energy Prices			
All Major Fuels	log(RSE)	=	.661 - .288*log(NHSLD)
Electricity	log(RSE)	=	.667 - .253*log(NHSLD)
Natural Gas	log(RSE)	=	.659 - .367*log(NHSLD)
Fuel Oil or Kerosene	log(RSE)	=	-.152 - .426*log(NHSLD)
Liquefied Petroleum Gas	log(RSE)	=	1.344 - .322*log(NHSLD)
Proportionate			
Electricity	log(RSE)	=	.904 - .321*log(NHSLD)
Natural Gas	log(RSE)	=	.794 - .478*log(NHSLD)
Fuel Oil or Kerosene	log(RSE)	=	.865 - .594*log(NHSLD)
Liquefied Petroleum Gas	log(RSE)	=	1.007 - .396*log(NHSLD)

Note: NHSLD is the number of households in millions. Logarithms are calculated to the base 10.

Source: Energy Information Administration, 1982 Residential Energy Consumption Survey.

Appendix C (Continued)

Discussion of the Generalized Variance Equations

The generalized variance equations shown in Table C11 were obtained using a least squares regression. The RSE's used as input data in the regression procedure were obtained using a half-sample variance estimating procedure. The details of this procedure follow this discussion. The generalized variance equations were developed to provide users of the 1982 RECS data with a procedure for obtaining RSE's.

The generalized variance equations listed in this report apply only to data for the 1982 RECS. Procedures for calculating estimates of sampling error for other RECS surveys can be found in publications of data from those surveys.

In calculating sampling errors for household count statistics, the appropriate control total depends upon the geographic division to which the household count is restricted. Table C5 lists control totals for the country as a whole and the four Census regions. Control totals can also be sums of the control totals listed in Table C5. For example, if one is considering the number of households in the country whose main heating fuel is fuel oil, then from Table C5, the control total is the estimated number of households in the country (83.8 million). If one wants the number of households that heat with fuel oil in New England, the appropriate control total is the number of households in the Northeast (18.0 million), from Table C5. The New England Census division is contained in the Northeast Census region, but Census division was not used as a control total. If the appropriate control total is not obvious, use the larger of the ones that may be appropriate. This will be a conservative choice.

A household count statistic is an estimate of the number of households that belong to a certain subset of all households in the country. The subset is defined by restrictions on certain characteristics. The value of 10^B from Table C4, the cell definition factor, depends partly on the amount of clustering of the characteristics used in defining the cell. In particular, the value of 10^B depends on the strength of the tendency of households with similar characteristics to live in groups within each replicate pair. (See "Half-Sample Estimation Procedures for Sampling Errors" for a discussion of replication.) If the characteristic is highly clustered, the value of 10^B is greater than one. If the characteristic is widely spread out, the value of 10^B is less than one. For example, one possible characteristic is heating and cooling degree-days. People who live close to each other experience the same weather conditions; consequently, the value of 10^B for heating and cooling degree-days is greater than one. On the other hand, there is some clustering of households headed by people of the same age group, but this tendency is less pronounced than for most other characteristics. As a result, the value of 10^B for age of household head is less than one. As a final example, consider the Census region in which households are contained. Everyone in the same pair of replicate groups lives in the same Census region. Therefore, there is no way of defining a cluster based on Census region within a pair of replicate groups. As a result, the value of 10^B for Census regions is 1.0.

Half-Sample Estimation Procedures for Sampling Errors

The complex multistage, multiframe design of the survey makes it almost impossible to construct an exact algebraic variance estimator. The method used to produce variances for the RECS is balanced half-sample

Appendix C (Continued)

replication (see References 1 and 2). The generalized variance equations described were based on sampling errors produced by this half-sample technique. To apply the half-sample technique to this survey, the 131 Primary Sampling Units (PSU's) were grouped into 81 strata. Thirty-one of the strata were treated as self-representing; either they consisted of large metropolitan areas that came into the sample with certainty or they were PSU's in a stratum that could not be paired with another stratum that had similar characteristics. In these strata, segments were divided into two replication groups. Each of the remaining 50 strata consisted of two sample PSU's belonging to the same Census division. The two replication groups in these strata consisted of one PSU each.

To save time and effort, a fully balanced half-sample design was not used. Instead, the half-samples were balanced only among strata in the same Census region. If a fully balanced design were used, it would require 88 half-samples. By balancing only within Census regions, a balanced design could be constructed using 32 half-samples.

The survey was constructed so that the results in each Census region can stand alone. No PSU lines cross Census region boundaries. The non self-representing PSU's were paired within Census regions. All controlled selection was done within each Census region. The ratio estimation was also done within each Census region. Consequently, the national totals can be considered to be the sum of four independent totals for the four Census regions. Therefore, the variance of a national total is the sum of the variances for its four corresponding regional totals. This fact was used as one justification for balancing the half-sample design only within Census regions.

The 32 half-sample design is defined by a 32 x 81 matrix of +1's and -1's. The 32 rows correspond to the 32 half-samples and the 81 columns correspond to the 81 pairs of replication groups. The +1's and -1's determine which of the groups in the pairs is used in each half-sample. All column totals are 0. Therefore, each of the groups is used in exactly 16 of the half-samples. The columns for sets of pairs that fall within the same Census region are orthogonal. This is not necessarily true for columns corresponding to pairs that fall into different Census regions.

The 32 x 81 design matrix was constructed using a 32 x 32 orthogonal matrix adapted from an article by Plackett and Burman (Reference 3). The rows of this 32 x 32 matrix were randomly sorted. The sorting preserves orthogonality. For each Census region, K columns were randomly selected from the sorted matrix. Therefore, K is the number of replication groups in a Census region. After the columns for a Census region have been selected, the rows are randomly sorted again.

Without the random sortings, any two of the columns would either be orthogonal or identical. For any column, at most three other columns could be identical to it. The three other columns would correspond to pairs in the three other Census regions. When two columns are identical, it means the groups corresponding to the +1's will always be in 16 half-samples together. (The groups corresponding to the -1's would follow a similar pattern.) Random sorting makes the possibility of two identical rows zero for all practical purposes.

Variance estimates for selected survey statistics were created by computing 32 half-sample estimates for each statistic. If a +1 falls in the i^{th} row and j^{th} column of the design matrix, the replication group corresponding to the +1 in the the j^{th} pair was used in the i^{th} half-sample. The sampling weights in each half-sample were

Appendix C (Continued)

ratio-adjusted upward so that the total number of households in each Census region classified by MSA status corresponded to the control total for that cell.

As a result of using control totals, the total number of households in each of the 12 cells (Census region classified by MSA status) is the same for all half-samples. The variance for these 12 totals, then, is zero. Any errors in these numbers are biases. In particular, they are affected by any undercount or overcount in the 1980 Census and Current Population Surveys.

The half-sample variance estimate for the survey estimate Y' of characteristic Y is given by

$$S_{Y'}^2 = \sum (Y_i' - Y')^2/32,$$

where Y_i' is the $i^{\underline{th}}$ half-sample estimate of Y, and Y' is the full sample estimate of Y. The half-sample procedure measures variability due to sampling error and random response variance.

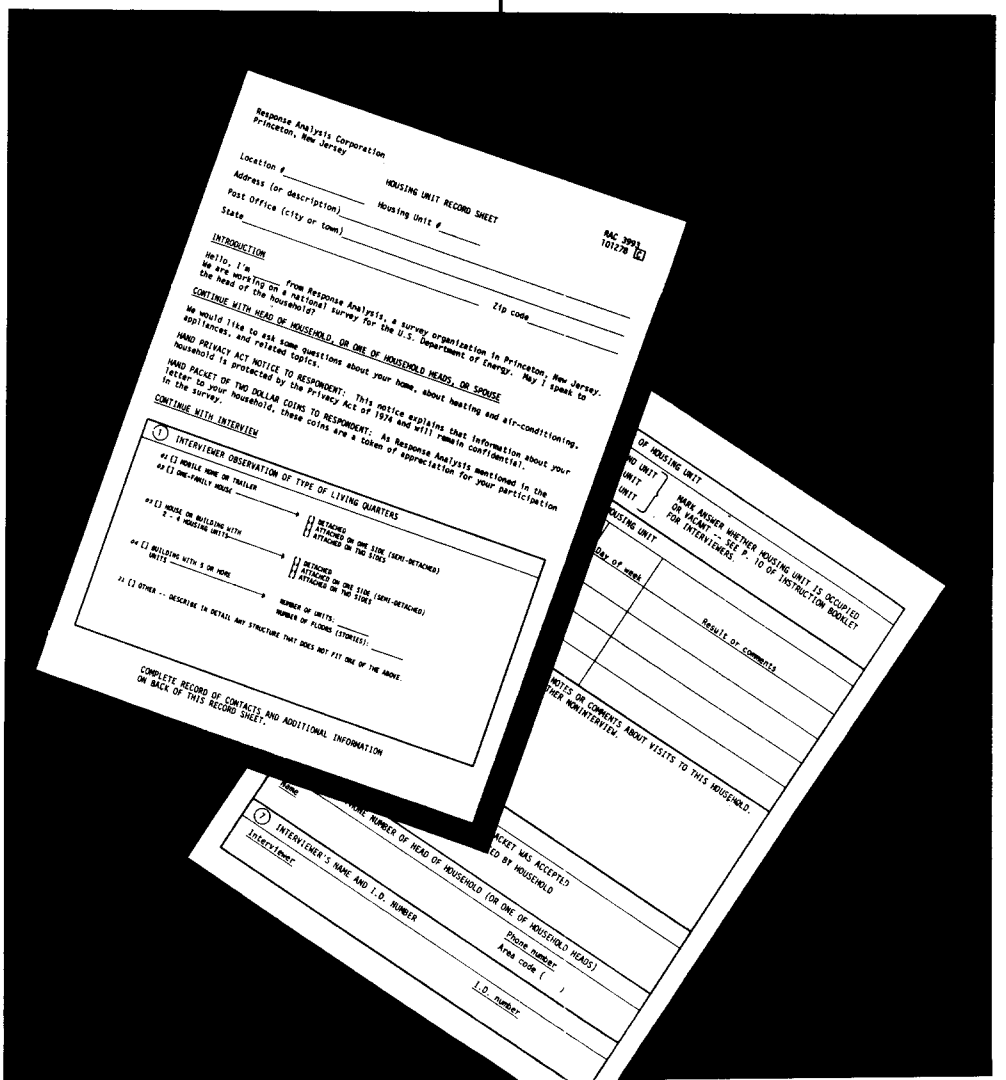
References

1. National Center for Health Statistics. "Replication: An Approach to the Analysis of Data from Complex Surveys." Vital and Health Statistics. U.S. Public Health Service Publication No. 1000--Series 2--No. 14. Washington, D.C.: U.S. Government Printing Office, April 1966.

2. National Center for Health Statistics. "Pseudoreplication: Further Evaluation and Application of the Balanced Half-Sample Technique." Vital and Health Statistics. U.S. Public Health Service Publication No. 1000--Series 2--No. 31. Washington, D.C.: U.S. Government Printing Office, January 1969.

3. Plackett, R. L., and Burman, J. P.: "The Design of Optimum Multifactorial Experiments." Biometrika 33 (1946): 305-325.

Appendix D
Survey Forms



Appendix D

Survey Forms

This Appendix contains copies of the survey forms used in the 1982 Residential Energy Consumption Survey.

EIA-457A Housing Unit Record Sheet (actual form was pink)

EIA-457B Household Questionnaire (actual form had a green cover)

EIA-457E Electricity Utility Form (actual form was yellow)

EIA-457F Natural Gas Utility Form (actual form was pink)

EIA-457G Fuel Oil Supplier Form (actual form was green)

EIA-457H Liquefied Petroleum Gas Supplier Form (actual form was blue)

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Response Analysis Corporation
Princeton, New Jersey
RAC 4334 091082

OMB No. 1905-0093
Expires May 31, 1983
EIA 457A
F-4005

HOUSING UNIT RECORD SHEET

Location # _____ Housing Unit # _____

Address (or description)

_____

Post Office (city or town) _____

State _____ Zip Code _____

Use questionnaire that does not have a red dot on the cover for this housing unit.

INTRODUCTION

Hello, I'm _____ from Response Analysis, a survey organization in Princeton, New Jersey. We are working on a national survey for the U.S. Department of Energy. May I speak to the head of household, that is, the person in whose name the home is owned or rented?

CONTINUE WITH HOUSEHOLDER, ONE OF HOUSEHOLDERS, OR SPOUSE/PARTNER.

We would like to ask some questions about your home, about heating and air-conditioning, household vehicles, and related topics.

HAND PRIVACY ACT NOTICE TO RESPONDENT. This notice explains that information about your household is protected by The Privacy Act of 1974 and will remain confidential.

CONTINUE WITH INTERVIEW

(1) INTERVIEWER OBSERVATION OF TYPE OF LIVING QUARTERS

MARK BOX BELOW:

11[] MOBILE HOME OR TRAILER

21[] ONE-FAMILY HOUSE--DETACHED
22[] ONE-FAMILY HOUSE--ATTACHED ON ONE SIDE (SEMI-DETACHED)
23[] ONE-FAMILY HOUSE--ATTACHED ON TWO SIDES

31[] HOUSE OR BUILDING WITH 2-4 HOUSING UNITS--DETACHED
32[] HOUSE OR BUILDING WITH 2-4 HOUSING UNITS--ATTACHED ON ONE SIDE (SEMI-DETACHED)
33[] HOUSE OR BUILDING WITH 2-4 HOUSING UNITS--ATTACHED ON TWO SIDES

41[] BUILDING WITH 5 OR MORE HOUSING UNITS

MARK ANSWERS:
NUMBER OF HOUSING UNITS: _____
NUMBER OF FLOORS (STORIES): _____

51[] OTHER--DESCRIBE IN DETAIL ANY STRUCTURE THAT DOES NOT FIT ONE OF ABOVE. (INCLUDE NUMBER OF UNITS AND FLOORS)

_____

_____

COMPLETE RECORD OF CONTACTS AND ADDITIONAL INFORMATION ON BACK OF THIS RECORD SHEET.

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(2) TYPE OF OCCUPANCY OF HOUSING UNIT

1 [] YEAR-ROUND UNIT
2 [] SEASONAL UNIT
3 [] MIGRATORY UNIT

MARK ANSWER WHETHER HOUSING UNIT IS OCCUPIED OR VACANT -- SEE P.13 OF INSTRUCTION BOOKLET FOR INTERVIEWERS.

(3) RECORD OF VISITS TO HOUSING UNIT

Visit number	Time of day (include AM or PM	Date	Day of Week	Result or Comments

(4) USE THIS SPACE FOR ADDITIONAL NOTES OR COMMENTS ABOUT VISITS TO THIS HOUSEHOLD. DESCRIBE FULLY IF REFUSAL OR OTHER NONINTERVIEW.

(5) NAME AND PHONE NUMBER OF HOUSEHOLDER (OR ONE OF HOUSEHOLDERS)

Name

Phone number

Area Code ( )

(6) INTERVIEWER'S NAME AND I.D. NUMBER

Interviewer

I.D. number

Appendix D (Continued)

OMB No. 1905-0093 • EIA 457B
Expires May 31, 1983

This survey is voluntary and authorized under the Federal Energy Administration Act of 1974 (Public Law 93-275) as amended. Information about specific households will be kept strictly confidential. The data will be summarized within large groupings for statistical purposes.

Residential Energy Consumption Survey

Fall-Winter • 1982-1983

Energy Information Administration

U.S. Department of Energy

Location #	111-116
Housing Unit #	117-118

Appendix D (Continued)

TIME INTERVIEW STARTED [ ] AM [ ] PM

1

1. In what year did your family move into this (house/apartment)?

01 [] BEFORE 1940
02 [] 1940-1949
03 [] 1950-1959
04 [] 1960-1964
05 [] 1965-1969
06 [] 1970-1974
07 [] 1975-1979
08 [] 1980
09 [] 1981
10 [] 1982
11 [] 1983 --ASK Q. 2

121-122

IF "1982" or "1983", ASK:

2. In which month did you move in? (SPECIFY MONTH AND ENTER LAST DIGIT OF YEAR.)

MONTH: [ ]

YEAR: 198[ ]

123-124

3. In what year was this (house/building) built? Just your estimate.

01 [] BEFORE 1940
02 [] 1940-1949
03 [] 1950-1959
04 [] 1960-1964
05 [] 1965-1969
06 [] 1970-1974
07 [] 1975-1976
08 [] 1977
09 [] 1978
10 [] 1979
11 [] 1980
12 [] 1981
13 [] 1982
14 [] 1983

125-126

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Appendix D (Continued)

4. Altogether (counting all areas that are used as year-round living space), how many rooms do you have in your living quarters? Do not count bathrooms, unheated porches, foyers, or hallways. (SEE INSTRUCTION BELOW.)

NUMBER OF ROOMS: [ ] 127-128

5. How many complete bathrooms and how many half-bathrooms do you have? (A complete bathroom is a room with a flush toilet, bathtub or shower, and a sink/washbasin with running water. A half-bath has at least a flush toilet or bathtub or shower, but does not have all the facilities for a complete bathroom.)

NUMBER OF COMPLETE BATHROOMS: [ ] 129
[] NONE

NUMBER OF HALF BATHROOMS: [ ] 130
[] NONE

INTERVIEWER INSTRUCTIONS:

Q. 4 -- Generally count any room as long as it is a comfortable place to rest, read, study, etc., year-round.

Do not count laundry rooms, unfinished attics or basements, open porches, or unfinished space used for storage.

Appendix D (Continued)

HAND RESPONDENT EXHIBIT 6/7

6. What is the main fuel used for heating your home? (SEE INSTRUCTION BELOW)

	Q. 6 MAIN FUEL (MARK ONLY ONE)	Q. 7 MARK ALL THAT APPLY	131-132
GAS FROM UNDERGROUND PIPES SERVING THE NEIGHBORHOOD	01 []	[]	133
LPG GAS (BOTTLED OR TANK GAS)	02 []	[]	134
FUEL OIL	03 []	[]	135
KEROSENE OR COAL OIL	04 []	[]	136
ELECTRICITY	05 []	[]	137
COAL OR COKE	06 []	[]	138
WOOD	07 []	[]	139
SOLAR COLLECTORS	08 []	[]	140
OTHER (SPECIFY): _____	21 []	[]	141
DON'T KNOW	96 []	[]	142
NO HEATING FUEL USED -- TAKE BACK EXHIBIT 6/7; SKIP TO Q. 27	00 []		
NO ADDITIONAL FUEL -- SKIP TO Q. 9		[]	143

7. What other fuels, if any, are used to heat your home -- including those that are used to provide heat just occasionally?

MARK ALL THAT APPLY
(IF NONE, MARK "NO ADDITIONAL FUEL")

IF ONE OR MORE ADDITIONAL FUELS MENTIONED IN Q. 7, ASK:

8. Does your main heating fuel -- (FUEL NAMED IN Q. 6) -- provide almost all of the heat for your home, about three-fourths, or closer to half of the heat for your home?

1 [] ALMOST ALL (MORE THAN 95%)
2 [] ABOUT THREE-FOURTHS (67-94%) 144
3 [] CLOSER TO HALF (66% OR LESS)

INTERVIEWER INSTRUCTIONS:

Q. 6 -- If two or more heating fuels are used, the main heating fuel is one that provides most of the heat for the home.

Q. 6-7 -- If household recently converted to a different fuel, or is in the process of conversion, mark answer for fuel(s) in use for winter of 1982-1983.

Appendix D (Continued)

TURN TO EXHIBIT 9/10

9. What is the main heating equipment used with your main heating fuel?

	Q.9 MAIN EQUIPMENT (MARK ONLY ONE)	Q. 10 MARK ALL THAT APPLY	145-146
HOT WATER PIPES RUNNING THROUGH A SLAB FLOOR (RADIANT HEATING)	01[]	[]	147
STEAM OR HOT WATER SYSTEM WITH RADIATORS OR CONVECTORS	02[]	[]	148
CENTRAL WARM-AIR FURNACE WITH DUCTS TO INDIVIDUAL ROOMS (DO NOT COUNT HEAT PUMP HERE)	03[]	[]	149
HEAT PUMP	04[]	[]	150
BUILT-IN ELECTRIC UNITS (PERMANENTLY INSTALLED IN WALL, CEILING, OR BASEBOARD)	05[]	[]	151
FLOOR, WALL, OR PIPELESS FURNACE	06[]	[]	152
ROOM HEATER BURNING GAS, OIL, KEROSENE (NOT PORTABLE)	07[]	[]	153
HEATING STOVE BURNING WOOD, COAL, COKE	08[]	[]	154
FIREPLACE(S)	09[]	[]	155
PORTABLE ELECTRIC HEATER(S)	10[]	[]	156
PORTABLE KEROSENE HEATER(S)	11[]	[]	157
COOKING STOVE, RANGE, OR OVEN (USED TO HEAT HOME, AS WELL AS FOR COOKING)	12[]	[]	158
OTHER (SPECIFY): _____	21[]	[]	159
DON'T KNOW	96[]	[]	160
NO ADDITIONAL EQUIPMENT		[]	161

10. What other types of equipment, if any, are used to heat your home -- including those that are used to provide heat just occasionally? MARK ALL THAT APPLY (IF NONE, MARK "NO ADDITIONAL EQUIPMENT")

IF "CENTRAL WARM-AIR FURNACE" MENTIONED IN Q. 9 OR Q. 10, ASK:

11. For the central warm-air furnace, is the warm air forced through the ducts by a fan?
1 [] YES
0 [] NO — 162
6 [] DON'T KNOW

IF "HEATING STOVE BURNING WOOD, COAL, COKE" MENTIONED IN Q. 9 OR Q. 10, ASK:

12. Is the heating stove airtight?
1 [] YES
0 [] NO — 163
6 [] DON'T KNOW

TAKE BACK EXHIBIT 9/10

IF 2 OR MORE HOUSING UNITS IN BUILDING, ASK Q. 13. OTHERWISE SKIP TO Q. 14

13. Is your home heated by a central system that also provides heat for one or more units in addition to your own, or is the main heating equipment for your living quarters only?
1 [] CENTRAL SYSTEM FOR ONE OR MORE ADDITIONAL UNITS — 164
2 [] MAIN HEATING EQUIPMENT FOR THESE LIVING QUARTERS ONLY
6 [] DON'T KNOW

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Appendix D (Continued)

14. Has any wood been burned in your home in the past 12 months?
1[] YES
0[] NO -- SKIP TO Q. 21
165

IF "YES," HAND RESPONDENT EXHIBIT 15, AND ASK:
166

15. This exhibit illustrates about one cord of wood. Did your household burn less than this amount, or about this amount or more?
1[] LESS THAN ONE CORD -- ASK Q. 16
2[] ONE CORD OR MORE -- SKIP TO Q. 17

IF "LESS THAN ONE CORD," TURN TO EXHIBIT 16, AND ASK:

16. Which of these is most nearly the amount of wood burned in your household in the past 12 months?
1[] A FEW LOGS OR SCRAPS OF WOOD
2[] 1/4 TO 1/3 OF A CORD
3[] 1/2 CORD (ABOUT ONE PICK-UP TRUCK OF WOOD)
4[] OVER 1/2 CORD BUT LESS THAN A FULL CORD
167

TAKE BACK EXHIBIT 16; ASK Q. 18

IF "ONE CORD OR MORE" ON Q. 15, TURN TO EXHIBIT 17, AND ASK:

17. This exhibit shows wood piles of different sizes. Just using these as general reference points, about how many cords of wood did you burn in your household in the past 12 months? (SEE INSTRUCTION BELOW.)
NUMBER OF CORDS: [ ]
168-170

TAKE BACK EXHIBIT 17; ASK Q. 18

18. Did you purchase any wood to burn in your home in the last 12 months?
1[] YES
0[] NO -- SKIP TO Q. 21
171

19. On your household's most recent purchase of wood, how was the wood measured: by the half-cord, cord, truckload, or some other measure? (IF "TRUCKLOAD," PROBE FOR SIZE OF TRUCK.)
1[] HALF-CORD
2[] CORD
3[] TRUCKLOAD (SPECIFY SIZE OF TRUCK): _____
5[] OTHER (SPECIFY): _____
172

20. About what was the price per (half-cord/cord/truckload/other measure) on your household's most recent purchase of wood? (SHOW NUMBER OF DOLLARS FOR UNIT OF MEASURE RECORDED IN ANSWER TO Q. 19.)
PRICE: $ _____.00
173-175

INTERVIEWER INSTRUCTIONS:

Q. 17 -- Exhibit 17 is intended only for general reference. Probe for respondent's best estimate of number of cords burned -- this, of course, will ordinarily be a number different from the specific quantities shown on the exhibit. Record answer to nearest cord, or cord plus fraction, as given by respondent (for example: 1, 1-1/2, 4, 10, 12, and so on).

Appendix D (Continued)

207-208:CC

21. At what temperature do you usually keep your home during the day in the wintertime <u>when someone is at home</u>? (SEE INSTRUCTION BELOW.)
[ ] DEGREES FAHRENHEIT 211-212
95 [] HEAT TURNED OFF

22. At what temperature do you usually keep your home during the day in the wintertime <u>when no one is at home</u>? (SEE INSTRUCTION BELOW.)
[ ] DEGREES FAHRENHEIT 213-214
95 [] HEAT TURNED OFF

23. At what temperature do you usually keep your home during <u>sleeping hours</u> in the wintertime? (SEE INSTRUCTION BELOW.)
[ ] DEGREES FAHRENHEIT 215-216
95 [] HEAT TURNED OFF

24. Do you have a thermostat that can be used to adjust the temperature in your home during the heating season?
1[] YES -- SKIP TO Q. 26
0[] NO 217

<u>IF "NO", HAND RESPONDENT EXHIBIT 25 AND ASK</u>:

25. Please look at this list and tell me the ways, if any, you use to adjust the temperature in your home during the heating season. MARK ALL THAT APPLY.

OPENING AND CLOSING WINDOWS OF DOORS	[]	218
OPENING AND CLOSING HOT AIR VENTS	[]	219
TURN HEATER ON OR OFF (UP OR DOWN)	[]	220
TURN RADIATORS OR CONVECTORS ON OR OFF	[]	221
ADJUST DRAFT OR AMOUNT OF FUEL FOR WOOD OR COAL FIRE	[]	222
USE COOKING STOVE, OVEN, OR RANGE TO HEAT HOME	[]	223
OTHER (SPECIFY): _____	[]	224
NO WAY TO ADJUST THE TEMPERATURE	[]	225

<u>HAND RESPONDENT EXHIBIT 26</u>

26. During the past winter (October 1981-April 1982) was your home without heat for one or more days for any of these reasons? (INTERVIEWER: READ AND MARK "YES," OR "NO," FOR EACH ITEM.)

Unable to pay for fuel or utilities	1[] YES	0[] NO	226
Landlord did not provide heat	1[] YES	0[] NO	227
Heating system broken or under repair	1[] YES	0[] NO	228
No fuel available	1[] YES	0[] NO	229
Other (Specify): _____	1[] YES	0[] NO	230

<u>TAKE BACK EXHIBIT 26</u>

INTERVIEWER INSTRUCTIONS:

Q. 21-23 -- If respondent keeps different sections of the house at different temperatures, we want to know the temperature in the part of the house where the people are. If, for example, the heat is turned off upstairs during the day because the family is downstairs, we want the downstairs temperature.

If respondent doesn't know temperature, but does know thermostat setting, record thermostat setting. Otherwise, probe for best estimate.

Appendix D (Continued)

HAND RESPONDENT EXHIBIT 27/29

27. Which fuel is used most for heating water (other than just for cooking purposes)?

01 [] GAS FROM UNDERGROUND PIPES SERVING THE NEIGHBORHOOD
02 [] LPG GAS (BOTTLED OR TANK GAS)
03 [] FUEL OIL
04 [] KEROSENE OR COAL OIL
05 [] ELECTRICITY
06 [] COAL OR COKE
07 [] WOOD
08 [] SOLAR COLLECTORS
21 [] OTHER (SPECIFY): _____
00 [] NO FUEL USED -- TAKE BACK EXHIBIT 27/29; SKIP TO Q. 32
96 [] DON'T KNOW

231-232

28. In addition to your main fuel, do you use any other fuel for heating water (other than just for cooking purposes)?

1 [] YES
2 [] NO -- TAKE BACK EXHIBIT 27/29; SKIP TO Q. 30

233

IF "YES," ASK:

29. What is the additional fuel?

01 [] GAS FROM UNDERGROUND PIPES SERVING THE NEIGHBORHOOD
02 [] LPG GAS (BOTTLED OR TANK GAS)
03 [] FUEL OIL
04 [] KEROSENE OR COAL OIL
05 [] ELECTRICITY
06 [] COAL OR COKE
07 [] WOOD
08 [] SOLAR COLLECTORS
21 [] OTHER (SPECIFY): _____
96 [] DON'T KNOW

234-235

TAKE BACK EXHIBIT 27/29

30. Do you have hot running water in your home?

1 [] YES
0 [] NO

236

IF 2 OR MORE HOUSING UNITS IN BUILDING, ASK Q. 31. OTHERWISE, SKIP TO Q. 32.

31. Is your hot water supplied by a central system that also provides hot water for one or more units in addition to your own, or is the water heater for your living quarters only?

1 [] CENTRAL SYSTEM FOR ONE OR MORE ADDITIONAL UNITS
2 [] FOR THESE LIVING QUARTERS ONLY
6 [] DON'T KNOW

237

Appendix D (Continued)

32. Do you have air-conditioning equipment, either a central system or individual window or wall units? (MARK ALL THAT APPLY.)

[] YES, CENTRAL SYSTEM *238*
[] YES, INDIVIDUAL (WINDOW/WALL) UNITS *239*
[] NO -- SKIP TO Q. 38

IF "INDIVIDUAL (WINDOW/WALL) UNITS" ON Q. 32, ASK:

33. How many individual window or wall units do you have?

NUMBER OF UNITS: [ ] *240-241*

IF "CENTRAL SYSTEM" ON Q. 32, ASK:

34. Does the central air-conditioning system use gas from underground pipes, LPG, or electricity?

1 [] GAS FROM UNDERGROUND PIPES SERVING THE NEIGHBORHOOD
2 [] LPG GAS (BOTTLED OR TANK GAS) *242*
3 [] ELECTRICITY
6 [] DON'T KNOW

IF 2 OR MORE HOUSING UNITS IN BUILDING, ASK Q. 35, OTHERWISE SKIP TO Q. 36

35. Is it a central air-conditioning system that also cools one or more units in addition to your own, or is the main air-conditioning equipment for your living quarters only?

1[] CENTRAL SYSTEM FOR ONE OR MORE ADDITIONAL UNITS *243*
2[] AIR-CONDITIONING IS FOR THESE LIVING QUARTERS ONLY
6[] DON'T KNOW

36. How many rooms in your (house/apartment) can be cooled by your air-conditioning? Do not count *bathrooms, hallways, foyers, or enclosed* porches.

NUMBER OF ROOMS: [ ] *244-245*
95 [] ENTIRE HOUSE OR APARTMENT

HAND RESPONDENT EXHIBIT 37

37. Which of the statements on this exhibit best describes the way you used your air conditioner(s) last summer? (MARK ONLY ONE.)

0 [] DID NOT USE AT ALL
1 [] TURNED ON ONLY A FEW DAYS OR NIGHTS WHEN REALLY NEEDED
2 [] TURNED ON QUITE A BIT
3 [] TURNED ON JUST ABOUT ALL SUMMER *246*
5 [] OTHER (SPECIFY): _____

TAKE BACK EXHIBIT 37

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Appendix D (Continued)

38. How many doors do you have in your home that go from a heated area to the outside or to an unheated area? (SEE INSTRUCTION BELOW.) NUMBER OF DOORS: [ ] 247-246

[] NONE -- SKIP TO Q. 44

HAND RESPONDENT EXHIBIT 39

39. Please look at this exhibit of different kinds of doors. How many of each of these types of doors do you have

Q. 39 NUMBER OF DOORS	Q. 40 NUMBER WITH STORM DOOR OR INSULATING GLASS	Q. 41 NUMBER STORM/ INSULATING DOORS PUT IN SINCE SEPT. 1, 1980	Q. 42	Q. 43 CIRCLE NUMBERS FOR REASONS SELECTED BY RESPONDENT
a. Sliding glass doors [] NONE 249	[] NONE 250	[] NONE 251	MONTH: _____ YEAR: 198_____ [] IN PROCESS 252-255	256-260 1 2 3 4 5 6 7 8 9 10 (SPECIFY): _____
b. Other doors to the outside [] NONE 261	[] NONE 262	[] NONE 263	MONTH: _____ YEAR: 198_____ [] IN PROCESS 264-267	268-272 1 2 3 4 5 6 7 8 9 10 (SPECIFY): _____

TAKE BACK EXHIBIT 39

FOR EACH TYPE OF DOOR FOR WHICH ANSWER IS "ONE OR MORE," ASK:

40. (Does/How many of) the door(s) have (a storm door/ storm doors) or insulating glass?

FOR EACH TYPE OF STORM DOOR OR DOOR WITH INSULATING GLASS, ASK:

41. How many of the (storm/insulated glass) doors were put in your home since September 1,1980?

IF ONE OR MORE, ASK:

42. In what month and year did you get (it/them)?

HAND RESPONDENT EXHIBIT 43/48

43. Which of these were most important in your decision to install (storm/ insulated glass) door(s)?

CIRCLE NUMBERS FOR ALL REASONS THAT APPLY

TAKE BACK EXHIBIT 43/48

INTERVIEWER INSTRUCTIONS:

Q. 38-39 -- Count each pair of sliding glass doors as one door. Include doors that go to an unheated porch or garage. Do not include doors to a heated hallway in an apartment building, doors that are permanently sealed shut, or doors to an unheated attic or basement.

REASONS FOR Q. 43

1 FOR COMFORT
2 TO SAVE HEATING AND/OR COOLING COSTS
3 TO TAKE THE COST AS A CREDIT ON INCOME TAX RETURN
4 TO TAKE ADVANTAGE OF GOVERNMENT MONEY OR LOW-COST GOVERNMENT LOANS FOR IMPROVEMENTS
5 DID THIS BECAUSE WE WERE DOING OTHER HOME IMPROVEMENTS AT SAME TIME
6 RECOMMENDED BY FRIEND OR RELATIVE
7 RECOMMENDED BY PROFESSIONAL ENERGY ADVISOR (ENERGY AUDITOR OR EXPERT)
8 HEARD OR READ ABOUT BENEFITS (ON RADIO OR TV, MAGAZINE OR NEWSPAPERS)
9 REPLACEMENT OF BROKEN OR DEFECTIVE ITEM
10 OTHER REASON (SPECIFY)

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Appendix D (Continued)

307-308:03

44. How many windows do you have in your home? Please include basement, attic, garage, and porch windows only if these areas are heated. (SEE INSTRUCTION BELOW.)

Q. 44 NUMBER OF WINDOWS	Q. 45 NUMBER WITH STORM WINDOWS OR INSULATING GLASS	Q. 46 NUMBER STORM WINDOWS PUT IN SINCE SEPT. 1, 1980	Q. 47	Q. 48 CIRCLE NUMBERS FOR REASONS SELECTED BY RESPONDENT
_____	_____	_____	MONTH: _____	321-325
			YEAR: 198 ____	1 2 3 4 5 6 7 8 9
[] NONE 311-312	[] NONE 313-314	[] NONE 315-316	[] IN PROCESS 317-320	10 (SPECIFY): _____

45. How many of the windows have storm windows or *insulating glass*? (SEE INSTRUCTION BELOW.)

IF ONE OR MORE WINDOWS WITH STORM WINDOWS OR INSULATING GLASS, ASK:

46. How many of the storm windows or windows with insulating glass were put in your home since September 1, 1980?

IF ONE OR MORE, ASK:

47. In what month and year were they put in?

HAND RESPONDENT EXHIBIT 43/48

48. Which of these were most important in your decision to install (storm windows/windows with insulating glass)? CIRCLE NUMBERS FOR ALL REASONS THAT APPLY.

TAKE BACK EXHIBIT 43/48

INTERVIEWER INSTRUCTIONS:

Q. 44 -- Each window that opens separately should be counted as one window. Also count windows that are fixed in place. Do not include windows (glass panels) in doors.

Q. 45 -- Windows made of double glass and other types of insulating glass count the same as storm windows.

REASONS FOR Q. 48
1 FOR COMFORT
2 TO SAVE HEATING AND/OR COOLING COSTS
3 TO TAKE THE COST AS A CREDIT ON INCOME TAX RETURN
4 TO TAKE ADVANTAGE OF GOVERNMENT MONEY OR LOW-COST GOVERNMENT LOANS FOR IMPROVEMENTS
5 DID THIS BECAUSE WE WERE DOING OTHER HOME IMPROVEMENTS AT SAME TIME
6 RECOMMENDED BY FRIEND OR RELATIVE
7 RECOMMENDED BY PROFESSIONAL ENERGY ADVISOR (ENERGY AUDITOR OR EXPERT)
8 HEARD OR READ ABOUT BENEFITS (ON RADIO OR TV, MAGAZINE OR NEWSPAPERS)
9 REPLACEMENT OF BROKEN OR DEFECTIVE ITEM
10 OTHER REASON (SPECIFY)

Appendix D (Continued)

IF ONE-FAMILY HOUSE OR MOBILE HOME, ASK Q. 49ff. IF 2 OR MORE UNITS IN BUILDING, SKIP TO Q. 75 ON PAGE 18

49. Do you have insulation in all, or some, or none of the outside walls of your home?

1 [] ALL
2 [] SOME
0 [] NONE
6 [] DON'T KNOW

326

50. Do you have roof or ceiling insulation?

1 [] YES
0 [] NO -- SKIP TO Q. 54
6 [] DON'T KNOW -- SKIP TO Q. 54

327

IF "YES," HAND RESPONDENT EXHIBIT 51 AND ASK:

51. About how much of the roof or ceiling area is insulated?

0 [] VERY LITTLE (LESS THAN 5%)
1 [] 1/4 (5 - 33%)
2 [] 1/2 (34 - 66%)
3 [] 3/4 (67 - 95%)
4 [] ALL (96 - 100%)

328

TURN TO EXHIBIT 52

52. This exhibit shows different kinds of insulation. Please tell me whether or not you have each one in your roof or ceiling area.

a. BATT/BLANKET	1 [] YES 0 [] NO 6 [] DON'T KNOW 329	____ INCHES [] DON'T KNOW 330-331
b. LOOSE PARTICLES/ LOOSE FILL	1 [] YES 0 [] NO 6 [] DON'T KNOW 332	____ INCHES [] DON'T KNOW 333-334
c. FIRM FOAM/ FIRM PLASTIC	1 [] YES 0 [] NO 6 [] DON'T KNOW 335	____ INCHES [] DON'T KNOW 336-337
d. SPRAYED-IN FOAM	1 [] YES 0 [] NO 6 [] DON'T KNOW 338	____ INCHES [] DON'T KNOW 339-340
e. OTHER (SPECIFY): _____ _____	1 [] YES 0 [] NO 6 [] DON'T KNOW 341	____ INCHES [] DON'T KNOW 342-343

FOR EACH "YES," ASK:

53. About how many inches of (INSULATION TYPE) do you have in your roof or ceiling area?

TAKE BACK EXHIBIT 52

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Appendix D (Continued)

CONTINUE IF ONE-FAMILY HOUSE OR MOBILE HOME. IF 2 OR MORE UNITS IN BUILDING, SKIP TO Q. 75

HAND RESPONDENT EXHIBIT 54

54. Please look at this list and tell me which items, if any, have been added or installed in your home since September 1, 1980.

Q. 54	Q. 55	Q. 56 CIRCLE NUMBERS FOR REASONS SELECTED BY RESPONDENT
a. Roof or ceiling insulation [] YES [] NO [] IN PROCESS 344	MONTH: _____ YEAR: 198 _____ [] IN PROCESS 345-348	349-353 1 2 3 4 5 6 7 8 9 10 (SPECIFY): _____
b. Insulation in the outside walls [] YES [] NO [] IN PROCESS 354	MONTH: _____ YEAR: 198 _____ [] IN PROCESS 355-358	359-363 1 2 3 4 5 6 7 8 9 10 (SPECIFY): _____
c. Insulation in the basement or crawl space below floor of house [] YES [] NO [] IN PROCESS 364	MONTH: _____ YEAR: 198 _____ [] IN PROCESS 365-368	369-373 1 2 3 4 5 6 7 8 9 10 (SPECIFY): _____

TAKE BACK EXHIBIT 54

FOR EACH "YES," OR "IN PROCESS" ANSWER, ASK:

55. In what month and year was the work completed? (SEE INSTRUCTION BELOW.)

HAND RESPONDENT EXHIBIT 56

56. Which of these were most important in your decision to add/install the insulation? CIRCLE NUMBERS FOR ALL REASONS THAT APPLY

TAKE BACK EXHIBIT 56

INTERVIEWER INSTRUCTIONS:

Q. 54 -- Mark "Yes," "No," or "In Process," for each item. Count as "In Process" any work started but not yet completed. Do not count changes made before this household moved in.

Q. 55 -- If household has done item more than once, write down the most recent date.

REASONS FOR Q. 56

1 FOR COMFORT
2 TO SAVE HEATING AND/OR COOLING COSTS
3 TO TAKE THE COST AS A CREDIT ON INCOME TAX RETURN
4 TO TAKE ADVANTAGE OF GOVERNMENT MONEY OR LOW-COST GOVERNMENT LOANS FOR IMPROVEMENTS
5 DID THIS BECAUSE WE WERE DOING OTHER HOME IMPROVEMENTS AT SAME TIME
6 RECOMMENDED BY FRIEND OR RELATIVE
7 RECOMMENDED BY PROFESSIONAL ENERGY ADVISOR (ENERGY AUDITOR OR EXPERT)
8 HEARD OR READ ABOUT BENEFITS (ON RADIO OR TV, MAGAZINE OR NEWSPAPERS)
9 REPLACEMENT OF BROKEN OR DEFECTIVE ITEM
10 OTHER REASON (SPECIFY)

Appendix D (Continued)

CONTINUE IF ONE-FAMILY HOUSE OR MOBILE HOME. IF 2 OR MORE UNITS IN BUILDING, SKIP TO Q. 75

HAND RESPONDENT EXHIBIT 57

57. Have any of these been added or installed in your home since September 1, 1980?

	Q. 57	Q. 58	Q. 59	Q. 60	Q. 61 CIRCLE NUMBERS FOR REASONS SELECTED BY RESPONDENT
a. A replacement or additional home heating system or furnace	1[] YES 0[] NO 2[] IN PROCESS 411	1[] REPLACEMENT 2[] ADDITIONAL 418	1[] SAME FUEL 2[] DIFFERENT FUEL 413	MONTH: _____ YEAR: 198_____ [] IN PROCESS 414-417	418-422 1 2 3 4 5 6 7 8 9 10 (SPECIFY): _____
b. A replacement or additional hot water heater, boiler, or tank	1[] YES 0[] NO 2[] IN PROCESS 423	1[] REPLACEMENT 2[] ADDITIONAL 424	1[] SAME FUEL 2[] DIFFERENT FUEL 425	MONTH: _____ YEAR: 198_____ [] IN PROCESS 426-429	430-434 1 2 3 4 5 6 7 8 9 10 (SPECIFY): _____
c. A replacement or additional central air-conditioning system	1[] YES 0[] NO 2[] IN PROCESS 435	1[] REPLACEMENT 2[] ADDITIONAL 436	1[] SAME FUEL 2[] DIFFERENT FUEL 437	MONTH: _____ YEAR: 198_____ [] IN PROCESS 438-441	442-446 1 2 3 4 5 6 7 8 9 10 (SPECIFY): _____

TAKE BACK EXHIBIT 57

FOR EACH "YES", OR "IN PROCESS", ON Q. 57, ASK:

58. Was this a replacement or an additional system?

59. Does it use the same fuel or different fuel than the one you had before?

60. In what month and year was the work completed?

HAND RESPONDENT EXHIBIT 61

61. Which of these were most important in your decision to replace/add the new system? CIRCLE NUMBERS FOR ALL REASONS THAT APPLY

TAKE BACK EXHIBIT 61

IF "YES," OR "IN PROCESS," ON Q. 57a, b, or c, ASK:

62. Has/have the replacement/additional system(s) included the use of active solar energy or wind energy devices?

1[] YES
0[] NO
447

IF "YES," ASK:

63. Please describe the new system.

448-449

REASONS FOR Q. 61
1 FOR COMFORT
2 TO SAVE HEATING AND/OR COOLING COSTS
3 TO TAKE THE COST AS A CREDIT ON INCOME TAX RETURN
4 TO TAKE ADVANTAGE OF GOVERNMENT MONEY OR LOW-COST GOVERNMENT LOANS FOR IMPROVEMENTS
5 DID THIS BECAUSE WE WERE DOING OTHER HOME IMPROVEMENTS AT SAME TIME
6 RECOMMENDED BY FRIEND OR RELATIVE
7 RECOMMENDED BY PROFESSIONAL ENERGY ADVISOR (ENERGY AUDITOR OR EXPERT)
8 HEARD OR READ ABOUT BENEFITS (ON RADIO OR TV, MAGAZINE OR NEWSPAPERS)
9 REPLACEMENT OF BROKEN OR DEFECTIVE ITEM
10 OTHER REASON (SPECIFY)

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Appendix D (Continued)

CONTINUE IF ONE-FAMILY HOUSE OR MOBILE HOME. IF 2 OR MORE UNITS IN BUILDING, SKIP TO Q. 75

HAND RESPONDENT EXHIBIT 64

64. Please look at this list and as I read each item tell me which, if any, have been added or installed in your home since September 1, 1980. (SEE INSTRUCTIONS AT BOTTOM OF FACING PAGE.)

	Q. 64	Q. 65	Q. 66 CIRCLE NUMBERS FOR REASONS SELECTED BY RESPONDENT
a. An automatic set-back or clock thermostat	1 [] YES 0 [] NO 2 [] IN PROCESS 450	MONTH: _____ YEAR: 198_____ [] IN PROCESS 451-454	455-459 1 2 3 4 5 6 7 8 9 10 (SPECIFY): _____
b. Flame retention head burner for furnace (fuel oil)	1 [] YES 0 [] NO 2 [] IN PROCESS 460	MONTH: _____ YEAR: 198_____ [] IN PROCESS 461-464	465-469 1 2 3 4 5 6 7 8 9 10 (SPECIFY): _____
c. Automatic flue door (vent damper)	1 [] YES 0 [] NO 2 [] IN PROCESS 470	MONTH: _____ YEAR: 198_____ [] IN PROCESS 471-474	475-479 1 2 3 4 5 6 7 8 9 10 (SPECIFY): _____
d. Electrical or mechanical furnace ignition system (spark ignition)	1 [] YES 507- 0 [] NO 508: 05 2 [] IN PROCESS 511	MONTH: _____ YEAR: 198_____ [] IN PROCESS 512-515	516 520 1 2 3 4 5 6 7 8 9 10 (SPECIFY): _____
e. Insulation around heating and/or cooling ducts	1 [] YES 0 [] NO 2 [] IN PROCESS 521	MONTH: _____ YEAR: 198_____ [] IN PROCESS 522-525	526-530 1 2 3 4 5 6 7 8 9 10 (SPECIFY): _____
f. Insulation around the hot water and/or cooling pipes	1 [] YES 0 [] NO 2 [] IN PROCESS 531	MONTH: _____ YEAR: 198_____ [] IN PROCESS 532-535	536-540 1 2 3 4 5 6 7 8 9 10 (SPECIFY): _____
g. Insulation around the hot water heater	1 [] YES 0 [] NO 2 [] IN PROCESS 541	MONTH: _____ YEAR: 198_____ [] IN PROCESS 542-545	546-550 1 2 3 4 5 6 7 8 9 10 (SPECIFY): _____

Q. 64-66 ARE CONTINUED ON FACING PAGE

FOR EACH "YES," ASK:

65. In what month and year was the work completed? (SEE INSTRUCTION AT BOTTOM OF FACING PAGE.)

TURN TO EXHIBIT 66

66. Which of these were most important in your decision to add or install (TYPE OF ITEM ADDED OR INSTALLED)? CIRCLE NUMBERS FOR ALL REASONS THAT APPLY

Appendix D (Continued)

CONTINUED FROM PAGE 14

	Q. 64	Q. 65	Q. 66 CIRCLE NUMBERS FOR REASONS SELECTED BY RESPONDENT
h. Closeable shutters, insulating drapes, reflective film	1 [] YES 0 [] NO 2 [] IN PROCESS 551	MONTH: _____ YEAR: 198____ [] IN PROCESS 552-555	556-560 1 2 3 4 5 6 7 8 9 10 (SPECIFY): _____
i. Plastic sheets (over windows or other openings)	1 [] YES 0 [] NO 2 [] IN PROCESS 561	MONTH: _____ YEAR: 198____ [] IN PROCESS 562-565	566-570 1 2 3 4 5 6 7 8 9 10 (SPECIFY): _____
j. Caulking	1 [] YES 0 [] NO 2 [] IN PROCESS 571	MONTH: _____ YEAR: 198____ [] IN PROCESS 572-575	576-580 1 2 3 4 5 6 7 8 9 10 (SPECIFY): _____
k. Weather stripping around any windows or doors to the outside	1 [] YES 607-608: 06 0 [] NO 2 [] IN PROCESS 611	MONTH: _____ YEAR: 198____ [] IN PROCESS 612-615	616-620 1 2 3 4 5 6 7 8 9 10 (SPECIFY): _____
l. Heat pump	1 [] YES 0 [] NO 2 [] IN PROCESS 621	MONTH: _____ YEAR: 198____ [] IN PROCESS 622-625	626-630 1 2 3 4 5 6 7 8 9 10 (SPECIFY): _____
m. Wood-burning stove	1 [] YES 0 [] NO 2 [] IN PROCESS 631	MONTH: _____ YEAR: 198____ [] IN PROCESS 632-635	636-640 1 2 3 4 5 6 7 8 9 10 (SPECIFY): _____

FOR EACH "YES," ASK:

65. In what month and year was the work completed (SEE INSTRUCTION BELOW.)

TURN TO EXHIBIT 66

66. Which of these were most important in your decision to add or install (TYPE OF ITEM ADDED OR INSTALLED)? CIRCLE NUMBERS FOR ALL REASONS THAT APPLY

TAKE BACK EXHIBIT 66

INTERVIEWER INSTRUCTIONS:

Q. 64 -- Mark "Yes," "No," or "In Process" for each item. Count as "In Process" any work started but not yet completed. Do not count any changes made before this household moved in.

Q. 65 -- If household has done item more than once, write down the most recent date.

REASONS FOR Q. 66

1 FOR COMFORT
2 TO SAVE HEATING AND/OR COOLING COSTS
3 TO TAKE THE COST AS A CREDIT ON INCOME TAX RETURN
4 TO TAKE ADVANTAGE OF GOVERNMENT MONEY OR LOW-COST GOVERNMENT LOANS FOR IMPROVEMENTS
5 DID THIS BECAUSE WE WERE DOING OTHER HOME IMPROVEMENTS AT SAME TIME
6 RECOMMENDED BY FRIEND OR RELATIVE
7 RECOMMENDED BY PROFESSIONAL ENERGY ADVISOR (ENERGY AUDITOR OR EXPERT)
8 HEARD OR READ ABOUT BENEFITS (ON RADIO OR TV, MAGAZINE OR NEWSPAPERS)
9 REPLACEMENT OF BROKEN OR DEFECTIVE ITEM
10 OTHER REASON (SPECIFY)

Appendix D (Continued)

CONTINUE IF ONE-FAMILY HOUSE OR MOBILE HOME. IF 2 OR MORE UNITS IN BUILDING, SKIP TO Q. 75

67. In the past 12 months, did a representative from your electric or gas company perform a detailed energy audit of your home?

1[] YES
0[] NO -- SKIP TO Q. 71 — 641

IF "YES," HAND RESPONDENT EXHIBIT 68 AND ASK:

68. This is a list of some possible reasons for requesting an energy audit. For each one, please tell me whether it was a very important reason for requesting an audit in your case, somewhat important, or not a reason at all.

	VERY IMPORTANT	SOMEWHAT IMPORTANT	NOT A REASON	
a. HIGH UTILITY OR FUEL BILLS	1[]	2[]	3[]	642
b. MY HOME WAS UNCOMFORTABLE	1[]	2[]	3[]	643
c. WE WERE PLANNING OTHER HOME IMPROVEMENTS	1[]	2[]	3[]	644
d. FRIENDS OR NEIGHBORS RECOMMENDED IT	1[]	2[]	3[]	645
e. THE AUDIT WAS A BARGAIN	1[]	2[]	3[]	646

69. Were there other reasons, not on the exhibit, that were important to you?

1[] YES
0[] NO -- TAKE BACK EXHIBIT 68; SKIP TO Q. 72 — 647

IF "YES," ON Q. 69, ASK:

70. What were they? — 648-649

TAKE BACK EXHIBIT 68, SKIP TO Q. 72

IF "NO" ON Q. 67, HAND RESPONDENT EXHIBIT 71 AND ASK:

71. Which of these was the main reason for not requesting an energy audit? (MARK ONE ANSWER ONLY) — 650-651

01[] OUR UTILITY DOES NOT OFFER ENERGY AUDITS
02[] WE HAVE ALREADY INSTALLED AS MANY ENERGY CONSERVATION ITEMS AS ARE REASONABLE
03[] DON'T NEED OUTSIDE ADVICE
04[] THE AUDIT COSTS TOO MUCH
05[] PLANNING ON MOVING SOON
06[] JUST MOVED IN
07[] WE RENT THIS RESIDENCE
08[] THE AUDIT WOULD NOT BE WORTH THE TIME AND EFFORT
09[] DIDN'T KNOW IT WAS AVAILABLE
21[] OTHER (SPECIFY): _____

TAKE BACK EXHIBIT 71

Appendix D (Continued)

CONTINUE IF ONE-FAMILY HOUSE OR MOBILE HOME. IF 2 OR MORE UNITS IN BUILDING, SKIP TO Q. 75

72. Do you have your own swimming pool? (SEE INSTRUCTION BELOW.)

1 [] YES
0 [] NO -- SKIP TO Q. 75

652

IF "YES," ASK:

73. Do you use a heater to heat the water?

1 [] YES
0 [] NO -- SKIP TO Q. 75

653

IF "YES," ASK:

HAND RESPONDENT EXHIBIT 74

74. What fuel is used for the heater?

01 [] GAS FROM UNDERGROUND PIPES SERVING THE NEIGHBORHOOD
02 [] LPG GAS (BOTTLED OR TANK GAS)
03 [] FUEL OIL
04 [] KEROSENE OR COAL OIL
05 [] ELECTRICITY
06 [] COAL OR COKE
07 [] WOOD
08 [] SOLAR COLLECTORS
21 [] OTHER (SPECIFY): _____

96 [] DON'T KNOW

654-655

TAKE BACK EXHIBIT 74

INTERVIEWER INSTRUCTIONS:

Q. 72 -- Do NOT count ponds, hot tubs, jacuzzis, or children's wading pools as swimming pools.

Appendix D (Continued)

ASK EVERYONE

75. Do you have a refrigerator in your home that you use regularly or occasionally?

1 [] YES
0 [] NO -- SKIP TO Q. 79 656

IF "YES," ASK:

76. Do you have one refrigerator or more than one that is presently in use? (How many altogether?)

1 [] ONE
2 [] TWO 657
3 [] THREE OR MORE

ASK ABOUT EACH REFRIGERATOR -- FIRST ASK ABOUT REFRIGERATOR USED MOST: (SEE INSTRUCTION BELOW.)

	REFRIGERATOR #1	REFRIGERATOR #2
77. Is it electric or gas?	1 [] ELECTRIC 2 [] GAS 658	1 [] ELECTRIC 2 [] GAS 660
HAND RESPONDENT EXHIBIT 78		
78. Which of these best describes your refrigerator? (MARK ONE)		
• Freezer section (or ice cube section) must be defrosted periodically	1 [] 659	1 [] 661
• Freezer section defrosts automatically after frost builds up (catch pan must be emptied)	2 []	2 []
• Full frost-free (frost does not build up)	3 []	3 []
• No working freezer section	4 []	4 []

TAKE BACK EXHIBIT 78

INTERVIEWER INSTRUCTIONS:

Q. 77-78 -- If respondent has more than two refrigerators, ask about two used most.

Appendix D (Continued)

79. Do you have a home freezer -- one that is a separate appliance from the refrigerator -- that is presently in use?

1 [] YES
0 [] NO -- SKIP TO Q. 83 662

IF "YES," ASK:

80. Do you have one freezer or more than one that is presently in use? (How many altogether?)

1 [] ONE
2 [] TWO 663
3 [] THREE OR MORE

ASK ABOUT EACH FREEZER -- ASK FIRST ABOUT FREEZER USED MOST: (SEE INSTRUCTION BELOW.)

	FREEZER #1	FREEZER #2
81. Is it electric or gas?	1 [] ELECTRIC 2 [] GAS 664	1 [] ELECTRIC 2 [] GAS 666
82. Is it a frost-free freezer or must it be defrosted?	1 [] FROST-FREE 2 [] MUST DEFROST 665	1 [] FROST-FREE 2 [] MUST DEFROST 667

INTERVIEWER INSTRUCTIONS:

Q. 81-82 -- If respondent has more than two freezers (that are appliances separate from refrigerators), ask about two used most.

HAND RESPONDENT EXHIBIT 83

83. Thinking of all the different kinds of cooking done here, including cooking in the oven, on a range, and with small appliances, which fuel is used most?

01 [] GAS FROM UNDERGROUND PIPES SERVING THE NEIGHBORHOOD
02 [] LPG GAS (BOTTLED OR TANK GAS)
03 [] FUEL OIL
04 [] KEROSENE OR COAL OIL 668-669
05 [] ELECTRICITY
06 [] COAL OR COKE
07 [] WOOD
21 [] OTHER (SPECIFY): ________
00 [] NO COOKING DONE -- SKIP TO Q. 88

TAKE BACK EXHIBIT 83

84. Does your household use an oven of any type, including microwave or convection ovens, for cooking at least occasionally?

1 [] YES 670
0 [] NO -- SKIP TO Q. 88

IF "YES," ASK:

85. Do you have one oven or more than one oven that you presently use? (How many altogether?) (SEE INSTRUCTION BELOW.)

1 [] ONE
2 [] TWO 671
3 [] THREE OR MORE

ASK ABOUT EACH OVEN -- ASK FIRST ABOUT OVEN USED MOST: (SEE INSTRUCTION BELOW.)

	OVEN #1	OVEN #2
86. Is your oven electric or gas?	1 [] ELECTRIC 2 [] GAS 672	1 [] ELECTRIC 2 [] GAS 674
IF "ELECTRIC," ASK: 87. Is it a microwave oven?	1 [] YES 0 [] NO 673	1 [] YES 0 [] NO 675

INTERVIEWER INSTRUCTIONS:

Q. 85 -- Do NOT count toaster ovens in count of ovens.

Q. 86 -- If respondent has more than two ovens, ask about two used most.

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Appendix D (Continued)

HAND RESPONDENT EXHIBIT 88 *707-708:07*

88. Please look at this list and, as I read each item, tell me which of these you use here in your (house/apartment)?

ELECTRIC RANGE (STOVE-TOP OR BURNERS)	1[] YES	0[] NO		711
GAS RANGE (STOVE-TOP OR BURNERS)	1[] YES	0[] NO		712
OUTDOOR GAS GRILL (USING GAS FROM UNDERGROUND PIPES)	1[] YES	0[] NO		713
OUTDOOR GAS GRILL (USING LPG--BOTTLED OR TANK GAS)	1[] YES	0[] NO		714
AUTOMATIC CLOTHES WASHER	1[] YES	0[] NO		715
WRINGER WASHING MACHINE (ELECTRIC)	1[] YES	0[] NO		716
ELECTRIC DISHWASHER	1[] YES	0[] NO		717
ELECTRIC CLOTHES DRYER	1[] YES	0[] NO		718
GAS CLOTHES DRYER	1[] YES	0[] NO		719
OUTDOOR GAS LIGHT	1[] YES	0[] NO		720
ELECTRIC DEHUMIDIFIER	1[] YES	0[] NO		721
ELECTRIC HUMIDIFIER	1[] YES	0[] NO		722
EVAPORATIVE COOLER (SWAMP COOLER)	1[] YES	0[] NO		723
"WHOLE HOUSE" COOLING FAN (IN ATTIC OR ENTRANCE TO ATTIC)	1[] YES	0[] NO		724
WINDOW OR CEILING FAN	[] YES	0[] NO	NUMBER: [ ]	725
BLACK AND WHITE TELEVISION SET	[] YES	0[] NO	NUMBER: [ ]	726
COLOR TELEVISION SET	[] YES	0[] NO	NUMBER: [ ]	727

IF "YES" FOR WINDOW OR CEILING FAN, ASK:

89. How many window or ceiling fans do you use here in your home?

IF "YES" FOR BLACK AND WHITE TV SET, ASK:

90. How many black and white television sets do you use here in your home?

IF "YES" FOR COLOR TV SET, ASK:

91. How many color television sets do you use here in your home?

TAKE BACK EXHIBIT 88

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Appendix D (Continued)

Now some questions about cars.

92. How many members of your household can drive a car? NUMBER OF DRIVERS: [ ] 728-729
[] NONE

HAND RESPONDENT EXHIBIT 93

93. *Do you or other members of your household own or have* the regular use of any cars, trucks, vans, or similar vehicles? (DO NOT INCLUDE MOTORCYCLES OR MOPEDS.) (SEE INSTRUCTION BELOW.)
1 [] YES
0 [] NO -- TAKE BACK EXHIBIT 93; SKIP TO Q. 102 730

IF "YES," ASK:

94. How many do you have? NUMBER OF VEHICLES: [ ] 731-732

ASK ABOUT EACH VEHICLE. 807-826;98

95. Which type(s) do you have? (SEE INSTRUCTION BELOW.)	VEHICLE NUMBER 1	2	3	4
STATION WAGON	01 [] 733-734	01 [] 756-757	01 [] 811-812	01 [] 834-835
AUTOMOBILE	02 []	02 []	02 []	02 []
JEEP OR SIMILAR VEHICLE	03 []	03 []	03 []	03 []
PASSENGER VAN OR MINIBUS	04 []	04 []	04 []	04 []
CARGO VAN	05 []	05 []	05 []	05 []
PICKUP TRUCK	06 []	06 []	06 []	06 []
OTHER TRUCK	07 []	07 []	07 []	07 []
MOTOR HOME	08 []	08 []	08 []	08 []
OTHER (SPECIFY):	21 []	21 []	21 []	21 []

TAKE BACK EXHIBIT 93

96. Please tell me the make and model year (of each one). (ENTER LAST TWO DIGITS OF MODEL YEAR.)				
MAKE	735-736	758-759	813-814	836-837
	737-738	760-761	815-816	838-839
MODEL YEAR	19 ___ 739-740	19 ___ 762-763	19 ___ 817-818	19 ___ 840-841
97. What is the model name (of each one)? (SEE INSTRUCTION BELOW.) MODEL NAME				

INTERVIEWER INSTRUCTIONS:

Q. 93 -- "Regular use" means keeping the vehicle at home.

Q. 95 -- If household has more than four vehicles, mark answers for the four vehicles used most.

Q. 97 -- For pick-up trucks and vans, be sure to get a specific model name (examples: Chevrolet Luv, Ford Courier, GMC G1500, or Datsun 620, etc.) If respondent does not know model name of truck, probe for size (1/2 ton, 3/4 ton, etc.)

Appendix D (Continued)

CONTINUE IF ONE OR MORE VEHICLES ON Q. 93. OTHERWISE SKIP TO Q. 102

ASK Q's. 98-101 FIRST ABOUT FIRST VEHICLE, THEN SECOND, THIRD, AND FOURTH.

USE COLUMNS FOR VEHICLE NUMBERS CORRESPONDING TO THOSE ON PRECEDING PAGE

These next questions are about your (first/second/third/fourth) vehicle.

		VEHICLE NUMBER 1	2	3	4
98. Did you get this vehicle within the past 12 months or did you have it before that?		741	764	819	842
	WITHIN PAST 12 MONTHS	1 []	1 []	1 []	1 []
	HAD IT MORE THAN 12 MONTHS -- SKIP TO Q. 101	2 []	2 []	2 []	2 []
IF "WITHIN PAST 12 MONTHS," ASK:					
99. In what month and year did you get it?		742-745	765-768	820-823	843-846
	MONTH	_____	_____	_____	_____
	YEAR	198_____	198_____	198_____	198_____
100. How many miles has it been driven since you have had it, just approximately?		746-750	769-773	824-828	847-851
	MILES	_____	_____	_____	_____
	DON'T KNOW	[]	[]	[]	[]
IF "HAD IT MORE THAN 12 MONTHS" ON Q. 98, ASK:					
101. How many miles was it driven during the past 12 months, just approximately?		751-755	774-778	829-833	852-856
	MILES	_____	_____	_____	_____
	DON'T KNOW	[]	[]	[]	[]

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Appendix D (Continued)

102. *Now I have some questions about the people who live here. Please tell me who they are, just in relation to (HOUSEHOLDER). I would also like to know their ages on their last birthdays. Please begin with (HOUSEHOLDER). (SEE INSTRUCTIONS BELOW).*

PERSON NUMBER	WHO IS RESPON-DENT?	RELATIONSHIP TO HOUSEHOLDER	SEX		AGE	Q. 107 - EMPLOYMENT (AGE 14+)			
			FEMALE	MALE		FULL TIME	PART TIME	NOT EMPLOYED	
1		HOUSEHOLDER	1[]	2[]		1[]	2[]	0[]	861-867
2			1[]	2[]		1[]	2[]	0[]	871-877
3			1[]	2[]		1[]	2[]	0[]	907-908:03 911-917
4			1[]	2[]		1[]	2[]	0[]	921-927
5			1[]	2[]		1[]	2[]	0[]	931-937
6			1[]	2[]		1[]	2[]	0[]	941-947
7			1[]	2[]		1[]	2[]	0[]	951-957
8			1[]	2[]		1[]	2[]	0[]	961-967
9			1[]	2[]		1[]	2[]	0[]	971-977
10			1[]	2[]		1[]	2[]	0[]	1007-1008:10 1011-1017
11			1[]	2[]		1[]	2[]	0[]	1021-1027
12			1[]	2[]		1[]	2[]	0[]	1031-1037

I have listed (READ RELATIONSHIPS FROM Q. 102 ABOVE). Have I missed . . . . .

103. Any babies or small children? [] YES (ADD TO LISTING) [] NO

104. Any lodgers, boarders, or persons in your employ who live here? [] YES (ADD TO LISTING) [] NO

105. Anyone who usually lives here but is away traveling or in the hospital? (SEE INSTRUCTION BELOW.) [] YES (ADD TO LISTING) [] NO

106. Anyone else staying here who does not have a regular residence elsewhere? [] YES (ADD TO LISTING) [] NO

FOR EACH PERSON AGED 14 YEARS OR OLDER, ASK:

107. Is he/she employed full-time (30 hours or more per week), part-time, or not employed?

FOR OFFICE USE ONLY:

1038-1039

INTERVIEWER INSTRUCTIONS:

In general, the householder is the person (or one of the persons) in whose name the home is owned or rented.

For questions on this and the following pages, where the term "HOUSEHOLDER" is inserted, use the appropriate designation -- *you, your husband, wife, partner* -- depending on who is the householder and whom you are interviewing.

Q. 102 -- Be sure to list relationships, not names. Include members of a second family that share the housing unit. Check box to indicate which household member is the respondent.

Q. 105 -- Persons who are normally members of the household but who are now living away from home (e.g., college students or members of the Armed Forces) should not be listed.

Appendix D (Continued)

108. Does another family share your home with you?

1[] YES (SEE INSTRUCTION BELOW.) *1040*
0[] NO

INTERVIEWER: MARK ANSWER. ASK, IF NECESSARY.

HOUSEHOLDER'S MARITAL STATUS

109. Which of the following best describes (HOUSEHOLDER): now married, widowed, divorced or separated, or never married? *1041*

1[] NOW MARRIED
2[] WIDOWED
3[] DIVORCED OR SEPARATED
4[] NEVER MARRIED

HAND RESPONDENT EXHIBIT 110

110. Which of the groups on this exhibit best describes (HOUSEHOLDER)?

1[] WHITE
2[] BLACK OR NEGRO
3[] AMERICAN INDIAN, ALASKAN NATIVE *1042*
4[] ASIAN, PACIFIC ISLANDER
5[] OTHER (SPECIFY): _____

TAKE BACK EXHIBIT 110

111. Is (HOUSEHOLDER) of Spanish or Hispanic origin or descent?

1[] YES
0[] NO *1043*

INTERVIEWER INSTRUCTIONS:

Q. 108 -- If answer is "YES," check whether the additional family (or unrelated individual) has a separate room or apartment that is defined by our rules as separate living quarters. Separate living quarters are those in which the occupants (1) live and eat separately from other persons in building, and (2) have direct access from outside the building or through a common hall.

Separate living quarters should be listed separately on your housing unit address list for this location. See sampling instructions as to whether an additional interview should be completed.

If the second family's space does meet the rules for separate living quarters, that space should be excluded from the information obtained in this interview. Go back over this interview to make corrections if necessary.

If the second family's space does not meet the definition of separate living quarters, be sure that the members of the second family are included in the list of household members in Q. 102.

Appendix D (Continued)

I have just a few questions for background statistical purposes.

112. What is the highest grade (or year) (HOUSEHOLDER) attended in school?

00[] NEVER ATTENDED SCHOOL -- SKIP TO Q. 114

01[]	FIRST	07[]	SEVENTH	
02[]	SECOND	08[]	EIGHTH	
03[]	THIRD	09[]	NINTH	
04[]	FOURTH	10[]	TENTH	1044-1045
05[]	FIFTH	11[]	ELEVENTH	
06[]	SIXTH	12[]	TWELFTH	

COLLEGE (ACADEMIC YEARS)

13[]	C1	16[]	C4	
14[]	C2	17[]	C5	
15[]	C3	18[]	C6 OR MORE	

113. Did (HOUSEHOLDER) finish that grade (or year)? 1[] YES 0[] No 1046

HAND RESPONDENT EXHIBIT 114

114. In 1981 did you or any member of your family living here receive any income or benefits from: (INTERVIEWER: READ AND MARK "YES," OR "NO," FOR EACH ITEM.)

a. Wages or salaries	1[] YES	0[] NO	1047
b. Self employment from business or farm	1[] YES	0[] NO	1048
c. Aid to Families with Dependent Children (AFDC)	1[] YES	0[] NO	1049
d. Supplemental Security Income (SSI)	1[] YES	0[] NO	1050
e. General Assistance or other public assistance	1[] YES	0[] NO	1051
f. Food Stamps	1[] YES	0[] NO	1052
g. Social Security or Railroad Retirement	1[] YES	0[] NO	1053
h. Unemployment compensation	1[] YES	0[] NO	1054

TAKE BACK EXHIBIT 114

Appendix D (Continued)

HAND RESPONDENT EXHIBIT 115

115. Now let's look at this list of income groups. Please tell me which group letter best describes the total combined income in 1981 of all members of your family living here, from all sources -- wages, dividends, Social Security, and so forth -- before taxes and deductions. (Family includes all related persons living in this household.)

CIRCLE LETTER FOR INCOME GROUP

01	A	LESS THAN $ 3,000	10	J	$11,000 - $11,999	19	S $27,500 - $29,999
02	B	$ 3,000 - $ 3,999	11	K	$12,000 - $12,999	20	T $30,000 - $32,499
03	C	$ 4,000 - $ 4,999	12	L	$13,000 - $13,999	21	U $32,500 - $34,999
04	D	$ 5,000 - $ 5,999	13	M	$14,000 - $14,999	22	V $35,000 - $39,999
05	E	$ 6,000 - $ 6,999	14	N	$15,000 - $17,499	23	W $40,000 - $49,999
06	F	$ 7,000 - $ 7,999	15	O	$17,500 - $19,999	24	X $50,000 - $74,999
07	G	$ 8,000 - $ 8,999	16	P	$20,000 - $22,499	25	Y $75,000 OR OVER
08	H	$ 9,000 - $ 9,999	17	Q	$22,500 - $24,999	96	[] DON'T KNOW
09	I	$10,000 - $10,999	18	R	$25,000 - $27,499	97	[] REFUSED

1055-1056

TAKE BACK EXHIBIT 115

IF ANSWER TO Q. 115 IS GROUP R THROUGH Y (INCOME $25,000 OR OVER), SKIP TO Q. 121

IF ANSWER TO Q. 115 IS GROUP A THROUGH Q (INCOME UNDER $25,000), "DON'T KNOW", OR REFUSED", CONTINUE WITH Q. 116

HAND RESPONDENT EXHIBIT 116

116. Between October 1, 1981 and September 30, 1982 did your household receive any of the following services free or at reduced cost, from the federal, state, or local government? (INTERVIEWER: READ AND MARK "YES," OR "NO," FOR EACH ITEM).

a. Insulation in the attic, outside wall, or basement/crawl space below the floor of the house	1[] YES	0[] NO	1057
b. Insulation around the hot water heater	1[] YES	0[] NO	1058
c. Repair of broken windows or doors to keep out the cold or hot weather	1[] YES	0[] NO	1059
d. Weather stripping or caulking around any windows or doors to the outside	1[] YES	0[] NO	1060
e. Storm doors or windows added	1[] YES	0[] NO	1061
f. Repair of broken furnace	1[] YES	0[] NO	1062
g. Furnace tuneup and/or modifications	1[] YES	0[] NO	1063
h. Other home energy-saving devices (Specify): _____	1[] YES	0[] NO	1064

TAKE BACK EXHIBIT 116

Appendix D (Continued)

117. The government has an energy assistance program that helps pay heating and cooling costs. This assistance can be received directly by the household or it can be paid directly to the electric or gas company, fuel dealer, or landlord.

Between October 1, 1981 and September 30, 1982 did your household receive assistance of this type for home cooling from the federal, state, or local government? 1[] YES 0[] NO 1065

118. Between October 1, 1981 and September 30, 1982 did your household receive assistance of this type for home heating from the federal, state, or local government? 1[] YES 0[] NO 1066

IF "YES," ON Q. 118, HAND RESPONDENT EXHIBIT 119 AND ASK:

119. Were heating assistance payments made in the form of checks, coupons, or vouchers sent to this household or were the payments sent directly to the utility company, fuel dealer, or landlord? (MARK "YES," OR "NO," FOR EACH ITEM.)

a. Check to household . . . . . 1[] YES 0[] NO 1067

b. Coupon/voucher to household . . . . . 1[] YES 0[] NO 1068

c. Assistance sent directly to electric or gas company, fuel dealer, or landlord . . . . . 1[] YES 0[] NO 1069

TAKE BACK EXHIBIT 119

120. Altogether, how much government energy assistance to help pay heating costs has been provided directly to this household and/or provided on behalf of this household to a utility company, fuel dealer, or landlord between October 1, 1981 and September 30, 1982? (PROBE FOR BEST ESTIMATE) 1070-1073

NUMBER OF DOLLARS $_____.00

ASK EVERYONE

121. Do you or members of your household own your home or do you rent?

1[] OWN (BUYING)
2[] RENT -- SKIP TO Q. 123
3[] OCCUPIED WITHOUT PAYMENT OF RENT -- SKIP TO Q. 124
1074

IF "OWN (BUYING)," ASK:

122. Is this (house/apartment) part of a condominium or cooperative?

1[] YES, CONDOMINIUM
2[] YES, COOPERATIVE
0[] NO
1075

IF "RENT," ASK:

123. What is the monthly rent of your (house/apartment)? 1076-1079

$ _____.00 PER MONTH

IF RENT IS NOT PAID BY THE MONTH, NOTE IN THE SPACE BELOW THE TIME PERIOD COVERED AND THE AMOUNT PAID PER TIME PERIOD.

TIME PERIOD COVERED: _____

AMOUNT PAID PER TIME PERIOD: $ _____.00

Appendix D (Continued)

HAND RESPONDENT EXHIBIT 124

124. We may have covered some of these points before, but just to be sure, please look at this exhibit and tell me whether these fuels are used for these purposes in your household. *1107-1108:11*

	USED	NOT USED	PAID BY HOUSEHOLD	INCLUDED IN RENT	OTHER (SPECIFY)	
ELECTRICITY						
a. FOR HOT WATER	1[]	0[]	1[]	2[]	5[] _____	*1111-1112*
b. FOR HEATING YOUR HOME	1[]	0[]	1[]	2[]	5[] _____	*1113-1114*
c. FOR AIR-CONDITIONING (CENTRAL OR WINDOW/WALL UNITS)	1[]	0[]	1[]	2[]	5[] _____	*1115-1116*
d. FOR COOKING	1[]	0[]	1[]	2[]	5[] _____	*1117-1118*
e. FOR LIGHTING AND OTHER APPLIANCES	1[]	0[]	1[]	2[]	5[] _____	*1119-1120*
GAS FROM UNDERGROUND PIPES SERVING YOUR NETGHBORHOOD						
f. FOR HOT WATER	1[]	0[]	1[]	2[]	5[] _____	*1121-1122*
g. FOR HEATING YOUR HOME	1[]	0[]	1[]	2[]	5[] _____	*1123-1124*
h. FOR CENTRAL AIR-CONDITIONING	1[]	0[]	1[]	2[]	5[] _____	*1125-1126*
i. FOR COOKING INSIDE HOME	1[]	0[]	1[]	2[]	5[] _____	*1127-1128*
j. FOR COOKING ON OUTDOOR GRILL	1[]	0[]	1[]	2[]	5[] _____	*1129-1130*
k. FOR OTHER APPLIANCES (INCLUDE OUTSIDE GAS LIGHT HERE)	1[]	0[]	1[]	2[]	5[] _____	*1131-1132*
LPG GAS (BOTTLED OR TANK GAS)						
l. FOR HOT WATER	1[]	0[]	1[]	2[]	5[] _____	*1133-1134*
m. FOR HEATING YOUR HOME	1[]	0[]	1[]	2[]	5[] _____	*1135-1136*
n. FOR CENTRAL AIR-CONDITIONING	1[]	0[]	1[]	2[]	5[] _____	*1137-1138*
o. FOR COOKING INSIDE HOME	1[]	0[]	1[]	2[]	5[] _____	*1139-1140*
p. FOR COOKING ON OUTDOOR GRILL	1[]	0[]	1[]	2[]	5[] _____	*1141-1142*
q. FOR OTHER APPLIANCES (INCLUDE OUTSIDE GAS LIGHT HERE)	1[]	0[]	1[]	2[]	5[] _____	*1143-1144*
FUEL OIL OR KEROSENE						
r. FOR HOT WATER	1[]	0[]	1[]	2[]	5[] _____	*1145-1146*
s. FOR HEATING YOUR HOME	1[]	0[]	1[]	2[]	5[] _____	*1147-1148*
t. FOR COOKING	1[]	0[]	1[]	2[]	5[] _____	*1149-1150*

FOR EACH USE OF EACH FUEL, ASK:

125. Is that paid for by your household, included in your rent, or do you get it some other way?

TAKE BACK EXHIBIT 124

IF GAS FROM UNDERGROUND PIPES IS NOT USED, ASK Q. 126. OTHERWISE, SKIP TO INSTRUCTION AT BOTTOM OF THIS PAGE

126. Is gas from underground pipes available in this neighborhood? *1151*

1[] YES
0[] NO
6[] DON'T KNOW

IF NONE OF FUEL BILLS ARE "PAID BY HOUSEHOLD," SKIP TO INSTRUCTION FOR Q. 144 ON PAGE 35
OTHERWISE, CONTINUE WITH Q. 127 ON NEXT PAGE.

Appendix D (Continued)

IF HOUSEHOLD USES AND PAYS FOR ELECTRICITY, GAS (FROM UNDERGROUND PIPES OR LPG), OR FUEL OIL/KEROSENE IN Q. 125, ASK Q. 127ff. OTHERWISE, SKIP TO INSTRUCTION FOR Q. 144.

HAND RESPONDENT EXHIBIT 127

127. Do any of your household fuel bills include charges for fuel used for purposes other than for your own living quarters, such as farm buildings or machinery, the house or apartment of another household, a business or office, or anything else?

1 [] YES
0 [] NO -- TAKE BACK EXHIBIT 127; SKIP TO INSTRUCTION FOR Q. 133 *1152*

IF "YES," ASK:

128. Which fuel bills include charges for fuel used for purposes other than your own living quarters? (MARK AS MANY AS APPLY.)

[] ELECTRICITY *1153*
[] GAS FROM UNDERGROUND PIPES *1154*
[] LPG GAS (BOTTLED OR TANK GAS) *1155*
[] FUEL OIL OR KEROSENE *1156*

TURN TO EXHIBIT 129-132

IF "ELECTRICITY" ON Q. 128, ASK:

129. About how much of your household's electricity bill is used for non-household uses such as farm buildings or machinery, the house or apartment of another household, a business or office, or anything else?

0 [] VERY LITTLE (LESS THAN 5%)
1 [] 1/4 (5 - 33%)
2 [] 1/2 (34 - 66%) *1157*
3 [] 3/4 (67 - 95%)

IF "GAS FROM UNDERGROUND PIPES" ON Q. 128, ASK:

130. About how much of your household's gas bill is used for non-household uses such as farm buildings or machinery, the house or apartment of another household, a business or office, or anything else?

0 [] VERY LITTLE (LESS THAN 5%)
1 [] 1/4 (5 - 33%)
2 [] 1/2 (34 - 66%) *1158*
3 [] 3/4 (67 - 95%)

IF "LPG GAS" ON Q. 128, ASK:

131. About how much of your household's LPG bill is used for non-household uses such as farm buildings or machinery, the house or apartment of another household, a business or office, or anything else?

0 [] VERY LITTLE (LESS THAN 5%)
1 [] 1/4 (5 - 33%)
2 [] 1/2 (34 - 66%) *1159*
3 [] 3/4 (67 - 95%)

IF "FUEL OIL OR KEROSENE" ON Q. 128, ASK:

132. About how much of your household's fuel oil/kerosene bill is used for non-household uses such as farm buildings or machinery, the house or apartment of another household, a business or office, or anything else?

0 [] VERY LITTLE (LESS THAN 5%)
1 [] 1/4 (5 - 33%
2 [] 1/2 (34 - 66%) *1160*
3 [] 3/4 (67 - 95%)

TAKE BACK EXHIBIT 129-132

Appendix D (Continued)

IF HOUSEHOLD USES AND PAYS FOR LPG GAS (SEE QUESTIONS 124-125, PARTS l-q), ASK Q. 133ff. OTHERWISE, SKIP TO INSTRUCTION FOR Q. 136.

133. About how many deliveries of LPG does your household usually get in a year?

NUMBER OF DELIVERIES: [ ] *1161-1162*

94[] CASH AND CARRY, PICK UP AT STORE
95[] LIVED HERE LESS THAN 1 YEAR

134. Did you buy LPG for this (house/apartment) in the past 12 months from one company or from more than one company?

1[] ONE COMPANY *1163*
2[] MORE THAN ONE COMPANY

IF "MORE THAN ONE COMPANY," ASK:

135. How many different companies?

2[] TWO
3[] THREE *1164*
4[] FOUR OR MORE

IF HOUSEHOLD USES AND PAYS FOR FUEL OIL OR KEROSENE (SEE QUESTIONS 124-125, PARTS r-t), ASK Q. 136ff. OTHERWISE, SKIP TO Q. 140.

136. About how many deliveries of fuel oil/kerosene does your household usually get in a year?

NUMBER OF DELIVERIES: [ ] *1165-1166*

94[] CASH AND CARRY, PICK UP AT STORE
95[] LIVED HERE LESS THAN 1 YEAR

137. Did you buy fuel oil/kerosene for this (house/apartment) in the past 12 months from one company or from more than one company?

1[] ONE COMPANY
2[] MORE THAN ONE COMPANY *1167*

IF "MORE THAN ONE," ASK:

138. How many different companies?

2[] TWO
3[] THREE *1168*
4[] FOUR OR MORE

HAND RESPONDENT EXHIBIT 139

139. About how much fuel oil/kerosene does your household use in a year -- which of these groups would it be, just approximately? PROBE FOR BEST ESTIMATE.

1[] LESS THAN 100 GALLONS PER YEAR
2[] 100-499 GALLONS PER YEAR
3[] 500-999 GALLONS PER YEAR *1169*
4[] 1000 OR MORE GALLONS PER YEAR

TAKE BACK EXHIBIT 139

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Appendix D (Continued)

CONTINUE IF ANY ELECTRIC, GAS (FROM UNDERGROUND PIPES OR LPG), OR FUEL OIL/KEROSENE BILLS ARE PAID BY HOUSEHOLD. OTHERWISE, SKIP TO INSTRUCTION FOR Q. 144

140. In addition to the types of fuel you use, we are interested in the quantities used and in the amount that people pay for electricity, gas, fuel oil, or kerosene in different parts of the United States.

I have a form that would authorize the companies that supply your household to provide that information to Response Analysis Corporation. The authorization applies to the period from January 1982 through April 1986.

Since this study is being done nationwide, it will give a good picture of the differences in fuel cost and usage all over the country. The information is needed to help establish important national energy policies.

INTERVIEWER: REMOVE THE AUTHORIZATION FORM FROM THE QUESTIONNAIRE AND HAND TO RESPONDENT. EITHER YOU OR RESPONDENT SHOULD FILL IN THE NAME(S) OF COMPANIES. IF MORE THAN ONE LPG OR FUEL OIL OR KEROSENE COMPANY HAS BEEN USED SINCE JANUARY 1, 1982, FILL IN ADDITIONAL COMPANY NAMES ON OTHER SIDE OF FORM. PLEASE PRINT.

1 [] AUTHORIZATION FORM SIGNED 1176

0 [] AUTHORIZATION FORM NOT SIGNED -- INTERVIEWER, EXPLAIN BELOW:

_____

_____

IF AUTHORIZATION FORM IS SIGNED, ASK Q. 141ff. OTHERWISE, SKIP TO INSTRUCTION FOR Q. 144.

141. Do your fuel bills come addressed to (NAME OF SIGNATURE ON AUTHORIZATION FORM), or are they in another name?

1[] SAME NAME -- SKIP TO Q. 143. 1177

2[] ANOTHER NAME

IF BILL IS IN ANOTHER NAME, ASK:

142. What is that name and address:

BILLING NAME: _____

STREET ADDRESS: _____

CITY AND STATE: _____

ZIP CODE: _____

143. Would it be possible for you to give me your customer number at your electric/gas company? This number is on your bills from the company.

ELECTRIC COMPANY -- CUSTOMER NUMBER: _____ 1178

[] NOT AVAILABLE/REFUSED

GAS (FROM UNDERGROUND PIPES) -- CUSTOMER NUMBER: _____ 1179

[] NOT AVAILABLE/REFUSED

Appendix D (Continued)

Remove Form Carefully At Perforation

U.S. DEPARTMENT OF ENERGY SURVEY

Authorization Form for
Residential Energy Consumption Survey

I hereby give permission to the company (companies) below to provide information to Response Analysis Corporation (or other designee of the U.S. Department of Energy) for confidential use in connection with their survey for the U.S. Department of Energy.

This authorization covers use of fuels (electricity, natural gas or LPG, fuel oil or kerosene) by my household from January 1, 1982 through April 30, 1986 including:

1) the total amount of fuels used by my household.
2) the total price charged for fuels by my household.

Companies are authorized to provide this information by monthly periods or by delivery date, whichever applies.

A photocopy of this authorization may be accepted with the same authority as the original.

Signature _____

Date _____

PLEASE PRINT

YOUR NAME

ADDRESS *APT. NO.*

CITY OR POST OFFICE *STATE* *ZIP CODE*

TELEPHONE
*AREA CODE:*_____ *NUMBER:*_____

PLEASE COMPLETE ONE BLOCK BELOW FOR EACH FUEL USED BY YOUR HOUSEHOLD
(IF MORE THAN ONE SUPPLIER OF A PARTICULAR FUEL USE THE OTHER SIDE OF THIS SHEET)

ELECTRICITY →

PRINT FULL NAME OF ELECTRIC COMPANY

LOCATION OF COMPANY (IF KNOWN) – CITY AND STATE

TELEPHONE
*AREA CODE:*_____ *NUMBER:*_____

GAS → from underground pipes or LPG (bottled or tank gas)

PRINT FULL NAME OF GAS COMPANY

LOCATION OF COMPANY (IF KNOWN) – CITY AND STATE

TELEPHONE
*AREA CODE:*_____ *NUMBER:*_____

FUEL OIL → or KEROSENE

PRINT FULL NAME OF OIL COMPANY

LOCATION OF COMPANY (IF KNOWN) – CITY AND STATE

TELEPHONE
*AREA CODE:*_____ *NUMBER:*_____

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Appendix D (Continued)

GAS
LPG (bottled or tank gas)

SECOND GAS COMPANY

PRINT FULL NAME OF GAS COMPANY

LOCATION OF COMPANY (IF KNOWN) – CITY AND STATE

TELEPHONE
AREA CODE:_____ NUMBER:_____

THIRD GAS COMPANY

PRINT FULL NAME OF GAS COMPANY

LOCATION OF COMPANY (IF KNOWN) – CITY AND STATE

TELEPHONE
AREA CODE:_____ NUMBER:_____

FUEL OIL
or KEROSENE

SECOND FUEL OIL/KEROSENE COMPANY

PRINT FULL NAME OF OIL COMPANY

LOCATION OF COMPANY (IF KNOWN) – CITY AND STATE

TELEPHONE
AREA CODE:_____ NUMBER:_____

THIRD FUEL OIL/KEROSENE COMPANY

PRINT FULL NAME OF OIL COMPANY

LOCATION OF COMPANY (IF KNOWN) – CITY AND STATE

TELEPHONE
AREA CODE:_____ NUMBER:_____

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Appendix D (Continued)

IF HOUSEHOLD HAS ONE OR MORE FUELS "INCLUDED IN RENT" OR "OTHER" (SEE Q. 125 ON PAGE 29,) ASK Q. 144. OTHERWISE, SKIP TO Q. 145.

144. We may be needing some additional information about fuels used in this building (house). May I have the name of the person or company to whom you pay rent or who is responsible for paying the fuel bills for this building (house)?

NAME: _____

TELEPHONE NUMBER: (AREA CODE: _____) _____

STREET ADDRESS: _____

CITY OR TOWN/STATE/ZIP CODE: _____

ASK EVERYONE

145. For interview verification purposes, may I have your name, phone number, and mailing address please?

RESPONDENT'S NAME: _____

TELEPHONE NUMBER: (AREA CODE: _____) _____

STREET ADDRESS: _____

CITY OR TOWN/STATE/ZIP CODE: _____

Appendix D (Continued)

1207-1208:12

146. INTERVIEWER: MARK TYPE OF HOUSING UNIT

1[] MOBILE HOME OR TRAILER
2[] ONE-FAMILY HOUSE
  1[] ONE STORY
  2[] TWO STORY
  3[] THREE STORY
  4[] SPLIT-LEVEL
  5[] OTHER (SPECIFY): _____
3[] HOUSE OR BUILDING WITH 2 TO 4 UNITS
4[] APARTMENT BUILDING OR OTHER STRUCTURE WITH 5 OR MORE UNITS

IF ONE-FAMILY HOUSE, MARK STYLE BASED ON GENERAL APPEARANCE FROM OUTSIDE — 1211-1212

IF THIS IS A MOBILE HOME OR A BUILDING WITH 5 OR MORE HOUSING UNITS, SKIP TO Q. 153.
IF THIS IS A BUILDING WITH 2 TO 4 HOUSING UNITS, SKIP TO Q. 150.
IF THIS IS A ONE-FAMILY HOUSE, CONTINUE WITH Q. 147.

HAND RESPONDENT EXHIBIT 147

147. Does this house have a basement, an enclosed crawl space, a crawl space open to the outside, a concrete slab, or a combination of these?

1[] BASEMENT
2[] CRAWL SPACE -- ENCLOSED
3[] CRAWL SPACE -- OPEN TO THE OUTSIDE
4[] CONCRETE SLAB -- SKIP TO Q. 153
5[] COMBINATION (MARK ALL THAT APPLY.)
  [] BASEMENT
  [] CRAWL SPACE -- ENCLOSED
  [] CRAWL SPACE -- OPEN TO THE OUTSIDE
  [] CONCRETE SLAB

1213
1214
1215
1216
1217

TAKE BACK EXHIBIT 147

IF "BASEMENT," "CRAWL SPACE," OR "COMBINATION," ASK:

148. Is all, part, or none of the basement or crawl space heated?

1[] ALL -- SKIP TO Q. 153
2[] PART
0[] NONE

1218

IF RESPONDENT ASKS, A BASEMENT IS CONSIDERED HEATED IF IT IS A COMFORTABLE PLACE TO SIT, WORK, OR PLAY, ETC., YEAR-ROUND

IF "PART," OR "NONE" IS HEATED, HAND RESPONDENT EXHIBIT 149 AND ASK:

149. About how much of the floor area above the unheated basement or crawl space is insulated?

[] NONE, VERY LITTLE (LESS THAN 4%)
[] 1/4 (5 - 33%)
[] 1/2 (34 - 66%)
[] 3/4 (67 - 95%)
[] ALL (96 - 100%)
[] DON'T KNOW

1219

TAKE BACK EXHIBIT 149; SKIP TO Q. 153

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Appendix D (Continued)

IF THIS IS A BUILDING WITH 2 TO 4 HOUSING UNITS, ASK Q. 150, OTHERWISE, SKIP TO Q. 153.

150. Does this building have a basement? — 1[] YES, 0[] NO — 1220

IF "YES," ASK:

151. Is any part of the basement for the exclusive or primary use of your household? — 1[] YES, 0[] NO — 1221

IF "YES," ASK:

152. Thinking of the basement space used by your household -- is all, part, or none of that space heated? — 1[] ALL, 2[] PART, 0[] NONE — 1222

IF RESPONDENT ASKS, A BASEMENT IS CONSIDERED HEATED IF IT IS A COMFORTABLE PLACE TO SIT, WORK, OR PLAY, ETC., YEAR-ROUND.

ASK EVERYONE

HAND RESPONDENT EXHIBIT 153

153. Since September 1980, have any of the kinds of things listed on this exhibit been done to your home -- that is, anything that has either increased or decreased the total number of square feet of space, or that has changed the number of square feet of heated space? — 1[] YES, 0[] NO — 1223

IF "YES", TO Q. 153

154. Did the total number of square feet of space increase, decrease, or remain the same? — 1[] INCREASED, 2[] DECREASED, 3[] REMAINED THE SAME — 1224

155. Did the amount of heated space increase, decrease, or remain the same? — 1[] INCREASED, 2[] DECREASED, 3[] REMAINED THE SAME — 1225

156. Please give me a description of the work that was done. — 1226-1227

157. *In what month and year was the work completed?* — MONTH: _____ YEAR: 198_____ — 1228-1231

TAKE BACK EXHIBIT 153

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Appendix D (Continued)

158. So far, we've been talking about things in your household that affect your energy use. What we need also is a measure of your year-round living space.

With your permission, I would like to measure your home. I can do it from the inside or the outside. With your home, I think it would be most accurate to do it on the (inside/outside).

INTERVIEWER INSTRUCTIONS:

In general, measure all parts of the housing unit enclosed from the weather.

Basements or cellars

Include basements or cellars in one-family houses.

Include basement space in buildings with 2 to 4 housing units, if it is for the exclusive or primary use of household for this interview. See Q. 151.

Exclude basements and cellars in buildings with 5 or more units.

Exclude crawl spaces.

Attics

Include attics if heated or finished.

Exclude attics if unheated and also unfinished.

Garages, sheds, or barns

Include garages if attached to house and enclosed from the weather.

Exclude garages, sheds, or barns if not attached to house or if open to the weather.

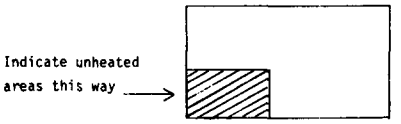
Porches

Include porches if enclosed from the weather.

Exclude porches if open to the weather.

Buildings with 2 or more housing units: Measure only the space used by household for this interview (do not measure the entire building).

Unheated areas: Within the housing unit that you measure, indicate unheated area(s) in the diagrams with lines. Give dimensions of unheated area(s).



USE BACKS OF MEASUREMENT PAGES FOR ADDITIONAL SPACE AS NEEDED, FOR SKETCHES AND MEASUREMENTS.

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Appendix D (Continued)

RECORD MEASUREMENTS ON DIAGRAM TO NEAREST FOOT

START HERE

if this household has a basement or cellar (see *instruction* on facing page for basements and cellars)

BASEMENT MEASUREMENTS [] FULL BASEMENT [] HALF BASEMENT

RECTANGULAR SHAPE	DRAW DIAGRAM, IF OTHER THAN RECTANGULAR
[ ] [ ]	

INTERVIEWER: HAVE YOU MARKED WITH LINES AND GIVEN DIMENSIONS OF UNHEATED AREAS IN DIAGRAM ABOVE?

START HERE

if this household does not have a basement or cellar

FIRST STORY MEASUREMENTS [] FULL STORY [] HALF STORY

RECTANGULAR SHAPE	DRAW DIAGRAM, IF OTHER THAN RECTANGULAR
[ ] [ ]	

INTERVIEWER: HAVE YOU MARKED WITH LINES AND GIVEN DIMENSIONS OF UNHEATED AREAS IN DIAGRAM ABOVE?

CONTINUE ON PAGE 41 FOR SECOND AND THIRD STORIES

FOR OFFICE USE ONLY

	Fir Codes			Unit A			Unit B			Unit C			Unit D			# of Units
	1232	33	34	35	36-37	38-39	40	41-42	43-44	45	46-47	48-49	50	51-52	53-54	55
B																
	1256	57	58	59	60-61	62-63	64	65-66	67-68	69	70-71	72-73	74	75-76	77-78	79
1																

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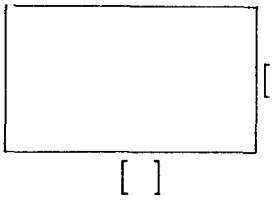
Appendix D (Continued)

IF NO SECOND OR THIRD STORY TO MEASURE, GO TO Q. 159

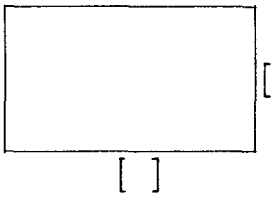
RECORD MEASUREMENTS ON DIAGRAM TO NEAREST FOOT

SECOND STORY MEASUREMENTS [] FULL STORY [] HALF STORY

RECTANGULAR SHAPE	DRAW DIAGRAM, IF OTHER THAN RECTANGULAR
	

INTERVIEWER: HAVE YOU MARKED WITH LINES AND GIVEN DIMENSIONS OF UNHEATED AREAS IN DIAGRAM ABOVE?

THIRD STORY MEASUREMENTS [] FULL STORY [] HALF STORY

RECTANGULAR SHAPE	DRAW DIAGRAM, IF OTHER THAN RECTANGULAR
	

INTERVIEWER: HAVE YOU MARKED WITH LINES AND GIVEN DIMENSIONS OF UNHEATED AREAS IN DIAGRAM ABOVE?

FOR OFFICE USE ONLY 1307-1308:13

	Fir Codes			Unit A			Unit B			Unit C				Unit D		# of Units
	1311	12	13	14	15-16	17-18	19	20-21	22-23	24	25-26	27-28	29	30-31	32-33	34
2																
	1335	36	37	38	39-40	41-42	43	44-45	46-47	48	49-50	51-52	53	54-55	56-57	58
3																

Heated	Unheated	DK Htd/Unhtd
1359-1363	1364-1368	1369-1373

TOTALS		
H	UH	DK
74	75	76

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Appendix D (Continued)

159. One part of my task is to mark on my diagram any parts of your home that are not heated during the heating season.

TELL RESPONDENT WHAT PARTS OF HOME, IF ANY, YOU HAVE MARKED AS NOT HEATED DURING HEATING SEASON. THEN ASK:

Is that correct -- have I missed any unheated areas?

REVISE SKETCHES AS NECESSARY; THEN MARK APPROPRIATE BOX AT RIGHT

0[] NO UNHEATED AREAS

1[] ALL UNHEATED AREAS HAVE BEEN MARKED WITH LINES 

2[] ENTIRE UNIT IS UNHEATED (NO HEATING EQUIPMENT)

160. INTERVIEWER:

MARK BOX TO INDICATE HOW MEASUREMENTS WERE OBTAINED FOR (HOUSE/APARTMENT)

01[] MEASURED INSIDE

02[] MEASURED OUTSIDE

03[] COMBINATION OF INSIDE AND OUTSIDE MEASUREMENTS

04[] RESPONDENT GAVE TOTAL SQUARE FEET FROM PLAN

05[] RESPONDENT'S ESTIMATES

21[] OTHER MEASUREMENT PROCEDURE (SPECIFY): _____

_____

TURN PAGE TO COMPLETE INTERVIEW

FOR OFFICE USE ONLY

FL	LQT

1377-1379

Appendix D (Continued)

INTERVIEWER REPORT ON MEASUREMENT OF YEAR-ROUND LIVING SPACE

161. WHAT PROBLEMS, IF ANY, DID YOU HAVE IN MEASURING THIS (HOUSE/APARTMENT)?

162. WHAT EFFECT, IF ANY, DID THESE PROBLEMS HAVE ON THE ACCURACY OF YOUR MEASUREMENTS?

1407-1408:14

TIME INTERVIEW COMPLETED: _____ AM / PM LENGTH OF INTERVIEW: _____ MINUTES *1411-1413*

INTERVIEWER'S SIGNATURE _____ DATE: _____ *1414-1419*

INTERVIEWER'S I.D. #: _____

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Appendix D (Continued)

U.S. DEPARTMENT OF ENERGY
1982 - 1983 RESIDENTIAL ENERGY CONSUMPTION SURVEY
Conducted by
RESPONSE ANALYSIS CORPORATION
P.O. Box 158, Princeton, New Jersey 08540
Mandatory under Public Law 93-275 and 94-385

OMB NO. 1905-0092
(Expires 8/31/83)
EIA-457E F-4153

HOUSEHOLD:

If the customer account number is not shown, please enter it.

If you have any questions, please call collect to Ms. Luci Raaum at (609) 921-3333

CUSTOMER
ACCOUNT #:

Information about specific households will be kept strictly confidential. The data will be summarized within large groupings for statistical purposes.

ELECTRICITY USAGE FROM MARCH 1, 1982 TO THE PRESENT					
Time Period	Consumption Period: Beginning Date	Consumption Period: Ending Date	Number of kWh Used	(Circle One) kWh are: A - Actual E - Estimates R - Read by Customer	Total Dollar* Amount
1				A E R	
2				A E R	
3				A E R	
4				A E R	
5				A E R	
6				A E R	
7				A E R	
8				A E R	
9				A E R	
10				A E R	
11				A E R	
12				A E R	
13				A E R	
14				A E R	
15				A E R	
16				A E R	
17				A E R	
18				A E R	

*Please include state and local taxes. Exclude merchandise, repair, and service charges. If the household is on the budget plan, do not provide the budgeted bill; provide instead the dollar amount that is the cost of the actual consumption in the period.

Form completed by: _____ (Name) _____ (Telephone Number) _____ (Date)

Appendix D (Continued)

U.S. DEPARTMENT OF ENERGY
1982 - 1983 RESIDENTIAL ENERGY CONSUMPTION SURVEY
Conducted by
RESPONSE ANALYSIS CORPORATION
P.O. Box 158, Princeton, New Jersey 08540
Mandatory under Public Law 93-275 and 94-385

OMB NO. 1905-0092
(Expires 8/31/83)
EIA-457F F-4154

HOUSEHOLD:

If the customer account number is not shown, please enter it.

If you have any questions, please call collect to Ms. Luci Raaum at (609) 921-3333

CUSTOMER
ACCOUNT #:

Information about specific households will be kept strictly confidential. The data will be summarized within large groupings for statistical purposes.

UTILITY GAS USAGE FROM MARCH 1, 1982 TO THE PRESENT					
Time Period	Consumption Period: Beginning Date	Consumption Period: Ending Date	Quantity Used*	(Circle One) Quantities are: A - Actual, E - Estimated, R - Read by Customer	Total Dollar** Amount
1				A E R	
2				A E R	
3				A E R	
4				A E R	
5				A E R	
6				A E R	
7				A E R	
8				A E R	
9				A E R	
10				A E R	
11				A E R	
12				A E R	
13				A E R	
14				A E R	
15				A E R	
16				A E R	
17				A E R	
18				A E R	

*The quantity used is expressed in terms of: (Mark one)

[ ] Therms
[ ] Cubic Feet
[ ] Hundreds of Cubic Feet (CCF)
[ ] Thousands of Cubic Feet (MCF)
[ ] Other (Please specify): _____

**Please include state and local taxes. Exclude merchandise, repairs, and service charges. If the household is on the budget plan, do not provide the budgeted bill; provide instead the dollar amount that is the cost of the actual consumption in the period.

Form completed by _____ (Name) _____ (Telephone Number) _____ (Date)

Appendix D (Continued)

OMB NO. 1905-0092
(Expires 8/31/83)

EIA-457G F-4151

U.S. DEPARTMENT OF ENERGY

1982 - 1983 RESIDENTIAL ENERGY CONSUMPTION SURVEY

Conducted by
RESPONSE ANALYSIS CORPORATION
Research Park, Route 206
P. O. Box 158
Princeton, New Jersey 08540

FUEL OIL OR KEROSENE

HOUSEHOLD

These data will be combined with similar data throughout the country to show the use of fuel oil or kerosene in U.S. homes.

This research is being conducted by Response Analysis Corporation under U.S. Department of Energy Contract Number DE-AC01-82EI-11557. This survey is mandatory as authorized by the Federal Energy Administration Act of 1974 (Public Law 93-275), as amended by the Energy Conservation and Production Act (Public Law 94-385).

Information about specific households will be kept strictly confidential. The data will be summarized within large groupings for statistical purposes.

Appendix D (Continued)

HOUSEHOLD:

If you have any questions, please call collect to Luci Raaum at (609) 921-3333.

FUEL OIL AND KEROSENE USAGE

Please provide information on all deliveries to this household from January 1, 1982 to the present date. If information is available only for a shorter period, just report deliveries for that shorter period.

Del. #	Column 1 Date of Delivery	Column 2 Fuel Sold Was: Fuel oil #1 (1) Fuel oil #2 (2) Kerosene (K) Other (O) (Circle one)	Column 3 Gallons Delivered	Column 4 Price per Gallon	Column 5 Total Dollar Amount*	Column 6 Was tank completely filled: Yes No Don't Know (DK) (Circle one)
1		1 2 K O				YES NO DK
2		1 2 K O				YES NO DK
3		1 2 K O				YES NO DK
4		1 2 K O				YES NO DK
5		1 2 K O				YES NO DK
6		1 2 K O				YES NO DK
7		1 2 K O				YES NO DK
8		1 2 K O				YES NO DK
9		1 2 K O				YES NO DK
10		1 2 K O				YES NO DK
11		1 2 K O				YES NO DK
12		1 2 K O				YES NO DK
13		1 2 K O				YES NO DK
14		1 2 K O				YES NO DK
15		1 2 K O				YES NO DK
16		1 2 K O				YES NO DK
17		1 2 K O				YES NO DK
18		1 2 K O				YES NO DK

PLEASE CONTINUE ON PAGE 4 IF NECESSARY.

*Please include state and local sales taxes, where applicable. Exclude merchandise, repairs, or service charges.

Appendix D (Continued)

FUEL OIL AND KEROSENE

1. If "Other" has been circled for type of fuel in Column 2 (page 2 or page 4), please specify what fuel was sold: _____

   [] NOT APPLICABLE

2. What is the capacity of this household's storage tank?

   CAPACITY: _____ GALLONS

3. Was this household your customer as of January 1, 1982?

   [] YES [] NO

   ↘IF "NO," approximately when did this household become a customer of your company?

   APPROXIMATE DATE: _____

   [] DON'T KNOW

   [] NEVER A CUSTOMER

4. Is this household presently your customer?

   [] YES [] NO

   ↘IF "NO," approximately when did this household stop being a customer of your company?

   APPROXIMATE DATE: _____

   [] DON'T KNOW

   [] NEVER A CUSTOMER

5. The information presented here is from:

   [] COMPANY RECORDS

   [] AN ESTIMATE MADE BY A COMPANY REPRESENTATIVE

   [] INFORMATION SECURED FROM THE CUSTOMER

6. This information has been supplied by:

(Name)	(Company)	(Telephone)	(Date)

Appendix D (Continued)

FUEL OIL AND KEROSENE

Del. #	Column 1 Date of Delivery	Column 2 Fuel Sold Was: Fuel oil #1 (1) Fuel oil #2 (2) Kerosene (K) Other (O) (Circle one)	Column 3 Gallons Delivered	Column 4 Price per Gallon	Column 5 Total Dollar Amount*	Column 6 Was tank completely filled? Yes No Don't Know (DK) (Circle one)
19		1 2 K O				YES NO DK
20		1 2 K O				YES NO DK
21		1 2 K O				YES NO DK
22		1 2 K O				YES NO DK
23		1 2 K O				YES NO DK
24		1 2 K O				YES NO DK
25		1 2 K O				YES NO DK
26		1 2 K O				YES NO DK
27		1 2 K O				YES NO DK
28		1 2 K O				YES NO DK
29		1 2 K O				YES NO DK
30		1 2 K O				YES NO DK

*Please include state and local sales taxes, where applicable. Exclude merchandise, repairs, or service charges.

PLEASE USE THIS SPACE FOR ANY ADDITIONAL NOTES THAT YOU WISH TO MAKE TO EXPLAIN ENTRIES ON THIS FORM.

PLEASE CHECK THAT THE QUESTIONS ON PAGE THREE HAVE BEEN ANSWERED.

Appendix D (Continued)

OMB NO. 1905-0092
(Expires 8/31/83)
EIA-457H F-4152

U.S. DEPARTMENT OF ENERGY

1982 - 1983 RESIDENTIAL ENERGY CONSUMPTION SURVEY

Conducted by
RESPONSE ANALYSIS CORPORATION
Research Park, Route 206
P. O. Box 158
Princeton, New Jersey 08540

LIQUEFIED PETROLEUM GAS (LP-GAS)

HOUSEHOLD

These data will be combined with similar data throughout the country to show the use of LP-Gas in U.S. homes.

This research is being conducted by Response Analysis Corporation under U.S. Department of Energy Contract Number DE-AC01-82EI-11557. This survey is mandatory as authorized by the Federal Energy Administration Act of 1974 (Public Law 93-275), as amended by the Energy Conservation and Production Act (Public Law 94-385).

Information about specific households will be kept strictly confidential. The data will be summarized within large groupings for statistical purposes.

Appendix D (Continued)

HOUSEHOLD:

If you have any questions, please call collect to Luci Raaum at (609) 921-3333.

LIQUEFIED PETROLEUM GAS USAGE

Please provide information on all deliveries to this household from January 1, 1982 to the present date. If information is available only for a shorter period, just report deliveries for that shorter period.

Del. #	Column 1 Date of Delivery	Column 2 Fuel Sold Was: Propane P Butane B Other O (Circle one)	Column 3 Quantity Delivered	Column 4 Price per Unit	Column 5 Total Dollar Amount*	Column 6 Was tank/cylinder completely filled? Yes No Don't Know (DK) (Circle one)
1		P B O				YES NO DK
2		P B O				YES NO DK
3		P B O				YES NO DK
4		P B O				YES NO DK
5		P B O				YES NO DK
6		P B O				YES NO DK
7		P B O				YES NO DK
8		P B O				YES NO DK
9		P B O				YES NO DK
10		P B O				YES NO DK
11		P B O				YES NO DK
12		P B O				YES NO DK
13		P B O				YES NO DK
14		P B O				YES NO DK
15		P B O				YES NO DK
16		P B O				YES NO DK
17		P B O				YES NO DK
18		P B O				YES NO DK

PLEASE CONTINUE ON PAGE 4 IF NECESSARY.

*Please include state and local taxes, where applicable. Exclude merchandise, repairs, or service charges.

Appendix D (Continued)

LIQUEFIED PETROLEUM GAS (LPG)

1. If "Other" has been circled for type of fuel in Column 2 (page 2 or page 4), please specify what fuel was sold? _____

   [] NOT APPLICABLE

2. Please mark unit of measure for deliveries reported on page 2.

   [] POUNDS
   [] GALLONS
   [] CUBIC FEET
   [] CUBIC METERS
   [] DECITHERMS
   [] OTHER (Please specify): _____

3. What is the capacity of this household's storage tank(s)?

   Capacity is _____ and is measured in number of:

   [] POUNDS
   [] GALLONS
   [] OTHER UNIT (Please specify): _____

4. Were you supplying this household on January 1, 1982?

   [] YES
   [] NO

   ↘ IF "NO," approximately when did this household become a customer of your company?

   APPROXIMATE DATE _____

   [] DON'T KNOW
   [] NEVER A CUSTOMER

5. Is this household presently your customer?

   [] YES
   [] NO

   ↘ IF "NO," approximately when did this household stop being a customer of your company?

   APPROXIMATE DATE _____

   [] DON'T KNOW
   [] NEVER A CUSTOMER

6. *The information reported here is from:*

   [] COMPANY RECORDS
   [] AN ESTIMATE MADE BY A COMPANY REPRESENTATIVE
   [] INFORMATION SECURED FROM THE CUSTOMER

7. This information has been supplied by:

(Name)	(Company)	(Telephone)	(Date)

Appendix D (Continued)

LIQUEFIED PETROLEUM GAS (LPG)

Del. #	Column 1 Date of Delivery	Column 2 Fuel Sold Was: Propane P Butane B Other O (Circle one)	Column 3 Quantity Delivered	Column 4 Price per Unit	Column 5 Total Dollar Amount*	Column 6 Was tank/cylinder completely filled? Yes No Don't Know (DK) (Circle one)
19		P B O				YES NO DK
20		P B O				YES NO DK
21		P B O				YES NO DK
22		P B O				YES NO DK
23		P B O				YES NO DK
24		P B O				YES NO DK
25		P B O				YES NO DK
26		P B O				YES NO DK
27		P B O				YES NO DK
28		P B O				YES NO DK
29		P B O				YES NO DK
30		P B O				YES NO DK

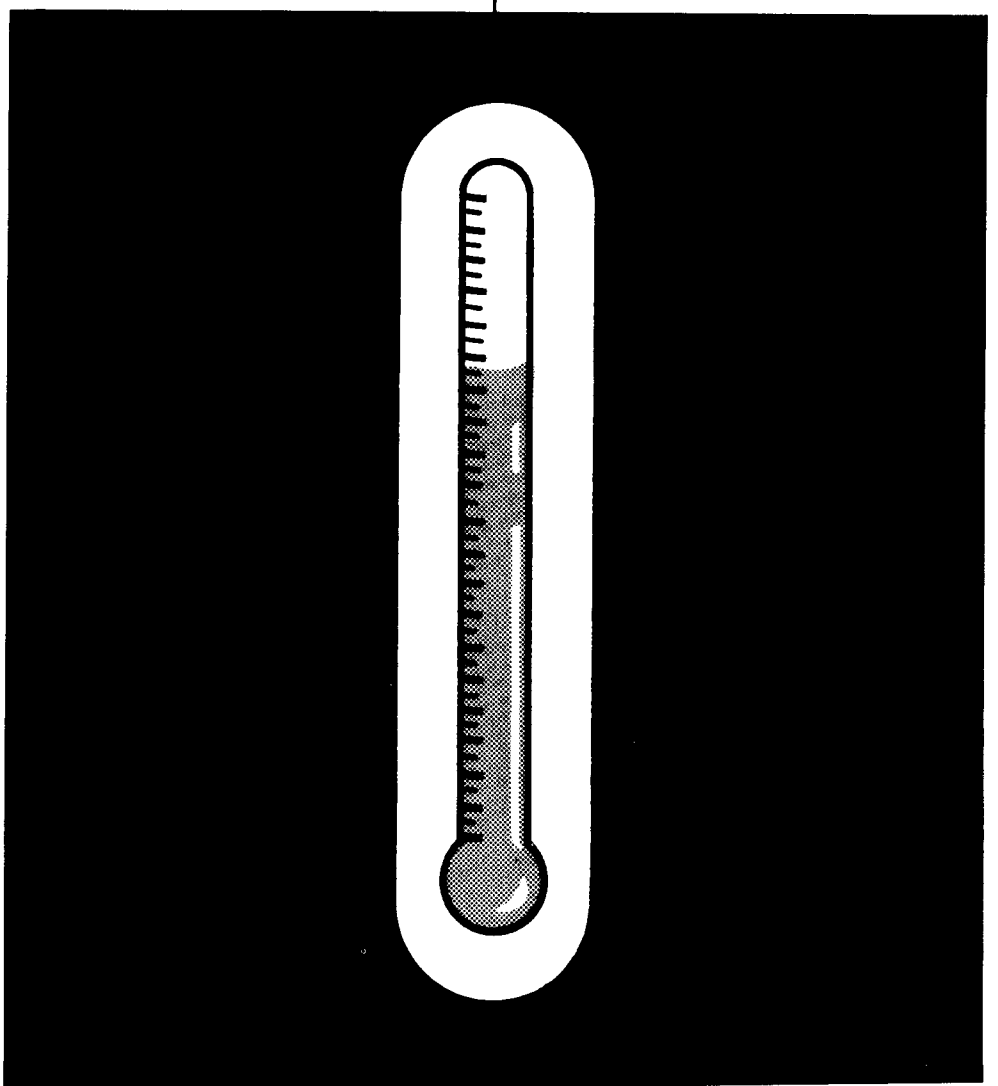
*Please include state and local sales taxes, where applicable. Exclude merchandise, repairs, or service charges.

PLEASE USE THIS SPACE FOR ANY ADDITIONAL NOTES THAT YOU WISH TO MAKE TO EXPLAIN ENTRIES ON THIS FORM.

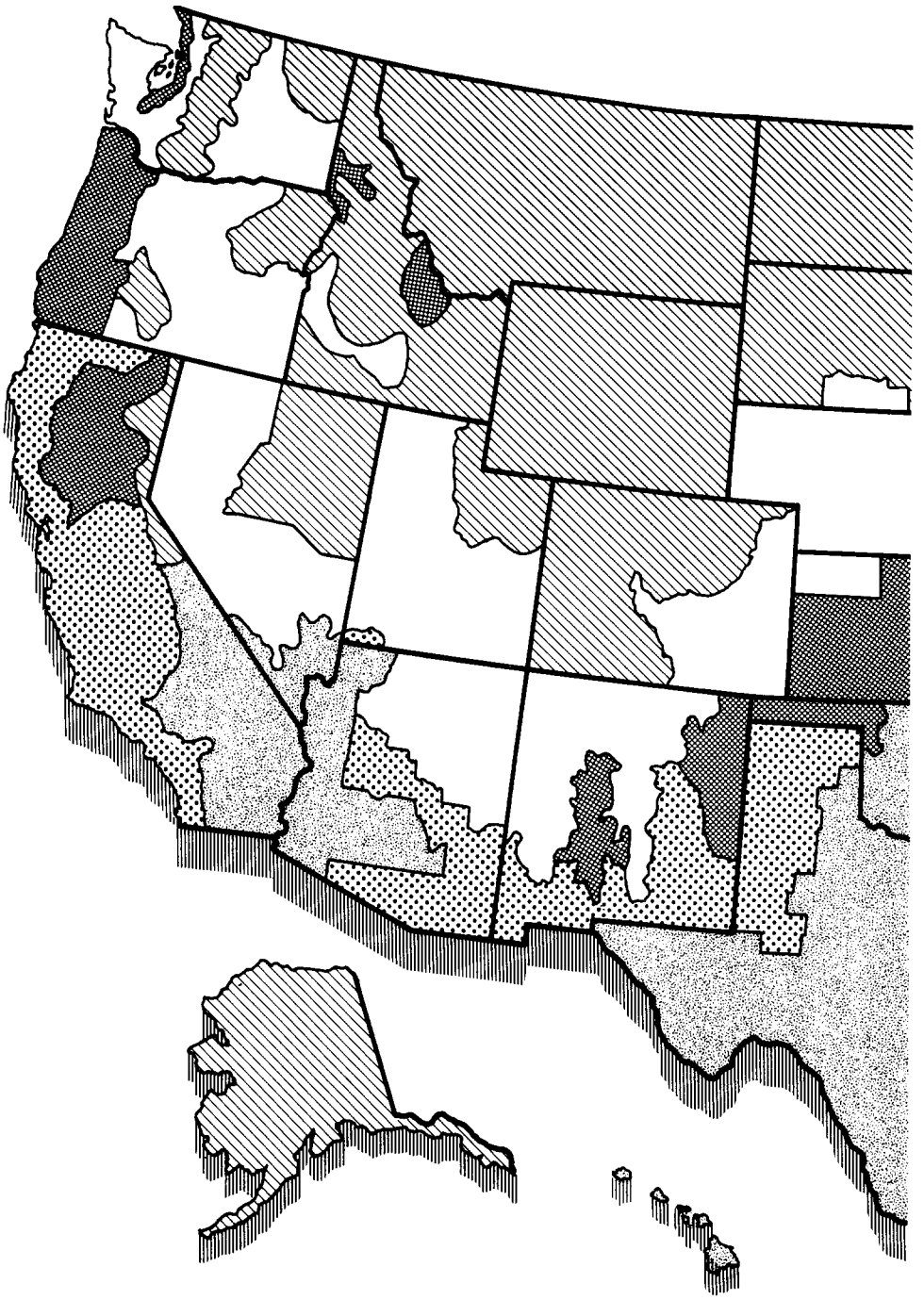
PLEASE CHECK THAT THE QUESTIONS ON PAGE THREE HAVE BEEN ANSWERED.

Appendix E

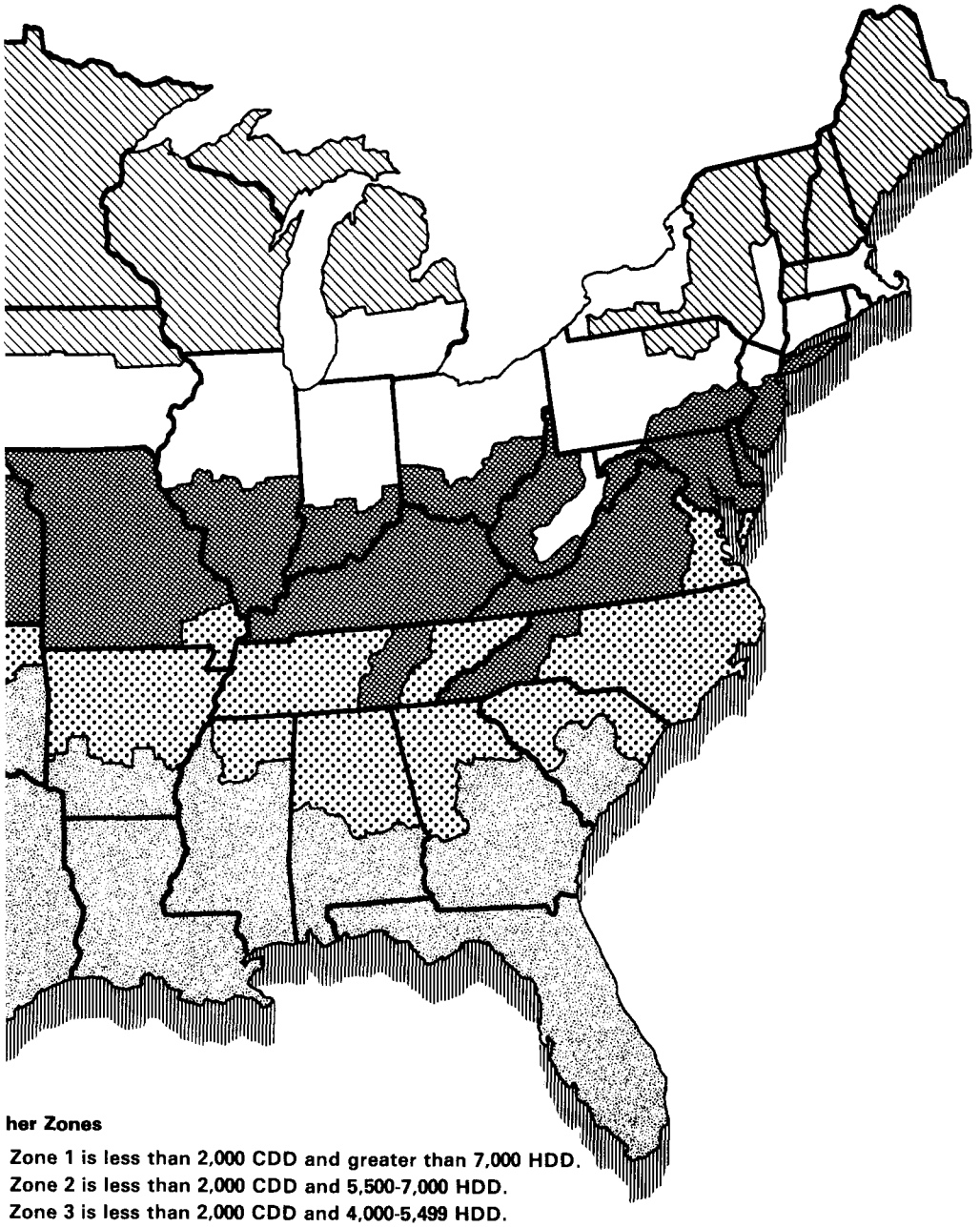
U.S.
Weather Zone
Map



Appendix E



RECS: Consumption and Expenditures, April 1982 Through March 1983: National Data
Energy Information Administration

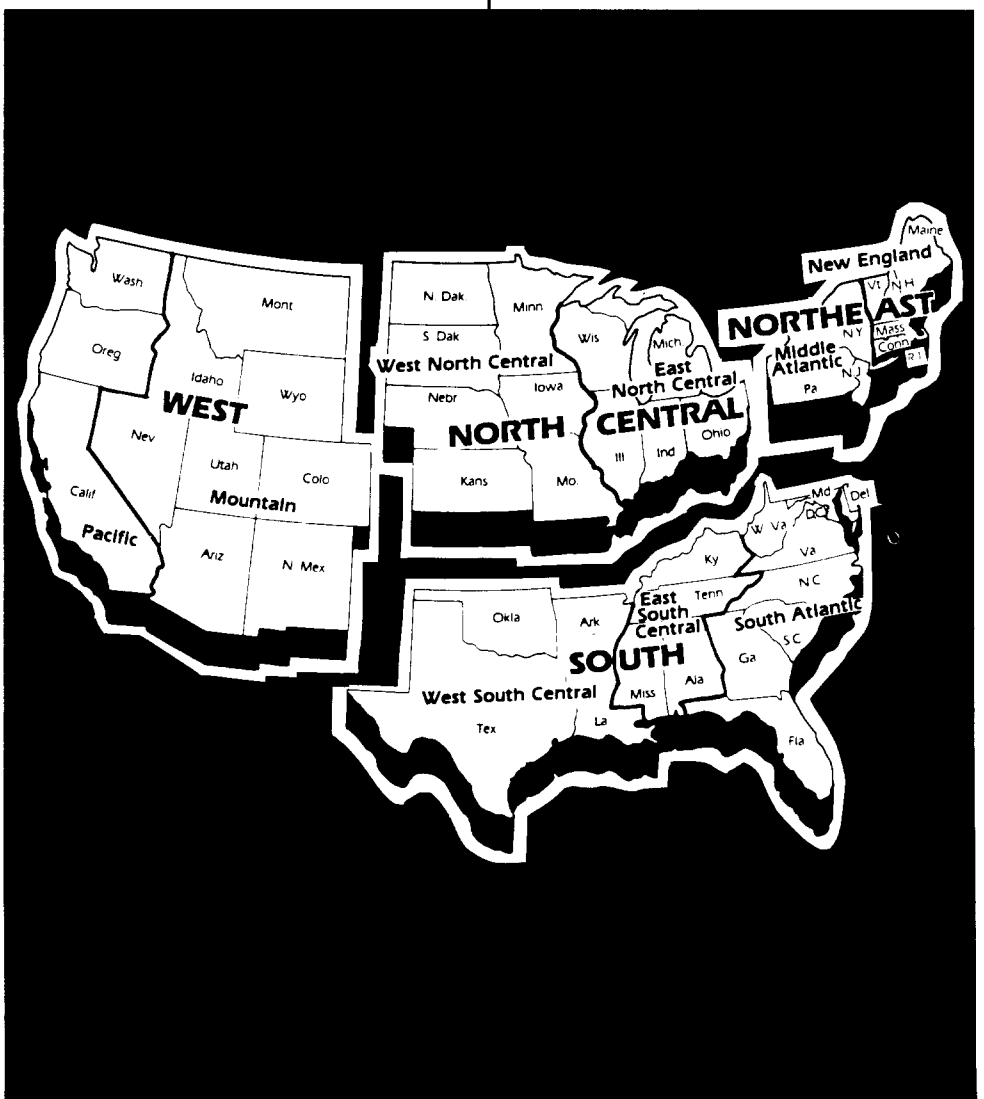


her Zones

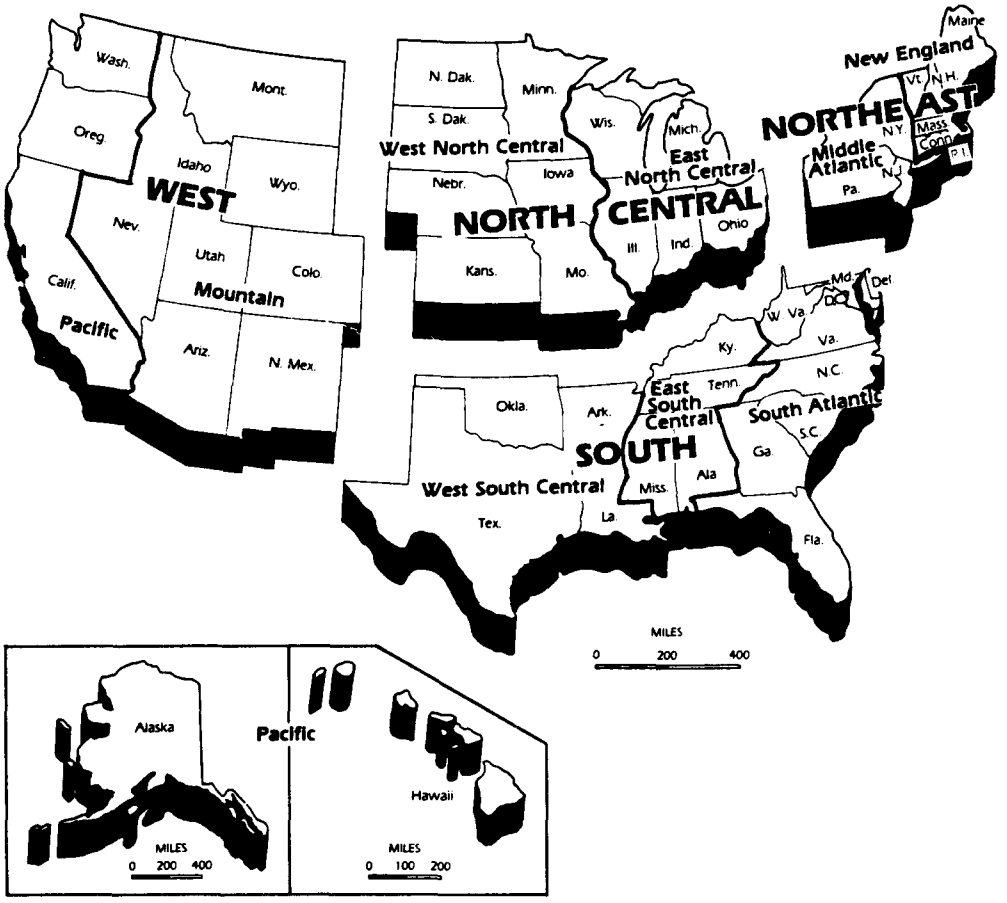
Zone 1 is less than 2,000 CDD and greater than 7,000 HDD.
Zone 2 is less than 2,000 CDD and 5,500-7,000 HDD.
Zone 3 is less than 2,000 CDD and 4,000-5,499 HDD.
Zone 4 is less than 2,000 CDD and less than 4,000 HDD.
Zone 5 is greater than 2,000 CDD and less than 4,000 HDD.

Appendix F

U.S. Census Regions and Divisions

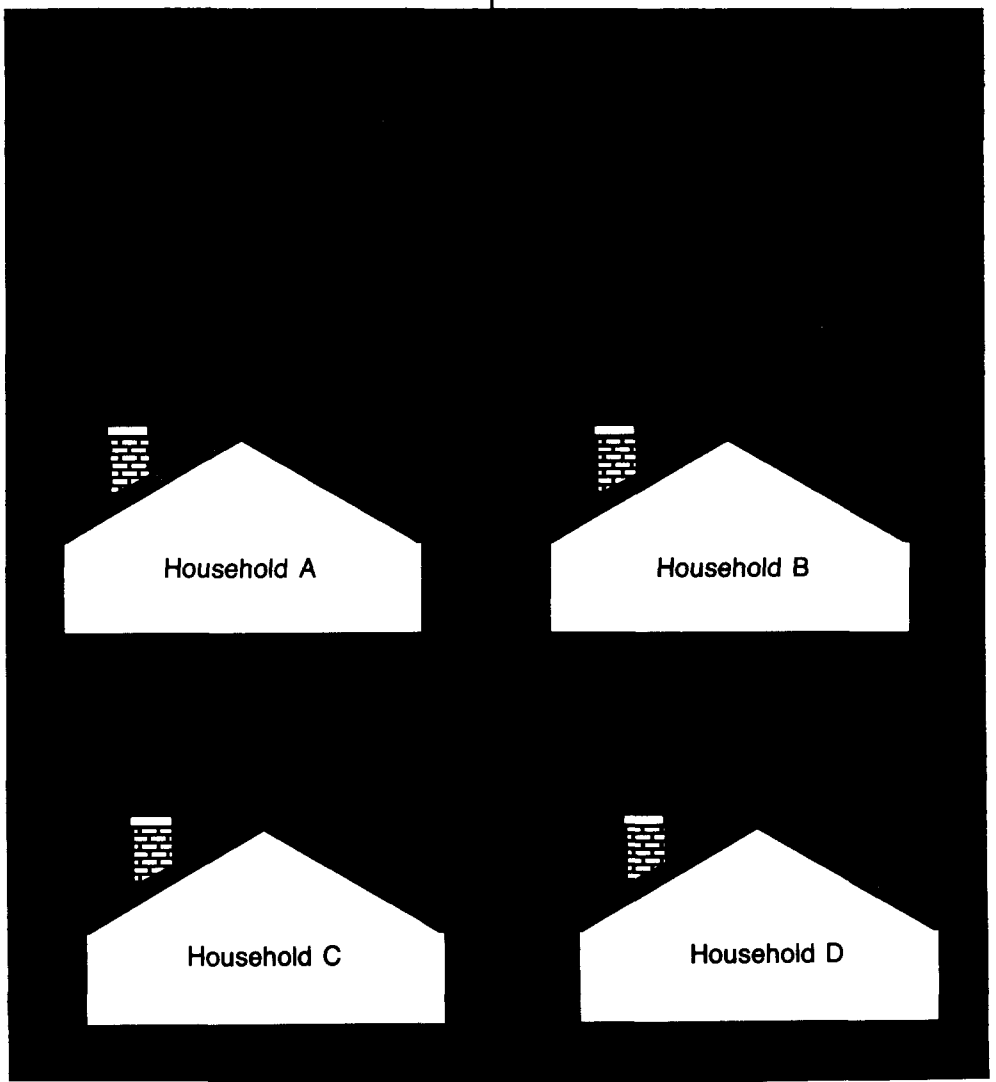


Appendix F


Wash.
Oreg.
Calif.
Idaho
Nev.
Mont.
Wyo.
Utah
Colo.
Ariz.
N. Mex.
WEST
Mountain
Pacific
N. Dak.
S. Dak.
Minn.
Nebr.
Iowa
Kans.
Mo.
West North Central
Wis.
Mich.
East North Central
Ill.
Ind.
Ohio
NORTH CENTRAL
Maine
New England
Vt.
N.H.
N.Y.
Mass.
Conn.
R.I.
Middle Atlantic
Pa.
N.J.
NORTHEAST
Md.
Del.
D.C.
W. Va.
Va.
Ky.
N.C.
Tenn.
East South Central
South Atlantic
S.C.
Ga.
Okla.
Ark.
Miss.
Ala.
SOUTH
West South Central
Tex.
La.
Fla.
MILES
0 200 400
Alaska
Pacific
Hawaii
MILES
0 200 400
MILES
0 100 200

Appendix G

Followup Interviews With Four Households Using Unusual Amounts of Energy



Appendix G

Introduction

The Energy Information Administration (EIA) is committed to publishing statistics that are of the highest quality possible within existing resource constraints. To that end, EIA is continually working to ensure the continued credibility of its statistics and data systems. Our ongoing analysis of issues related to the quality of the data is presented in Appendix C, "Limitations of the Data." That appendix contains a discussion of the effect of excluding wood fuel from consumption statistics for the major fuels, and the reliability of floor space measurements and temperature settings. In evaluating the Residential Energy Consumption Survey (RECS) questionnaire prior to implementing the 1984 RECS, a major question was whether the questionnaire could be expanded to include information that might help explain the reasons for unusually high or low energy consumption.

The four followup interviews described below were the result of that concern. The outcome was a judgment that an improved understanding of the unusual consumption patterns in the four households would not come from adding questions to the questionnaire. Improvement may require other changes in the survey procedures, such as follow-up interviews or improved training and internal procedures. These are areas now under review.

The reader is cautioned that the four households which are described below are not typical households but rather are representative of the 20 percent of households that consume more or less than would be expected.

Four households were selected from those which had participated in the 1981 Residential Energy Consumption Survey. Each of the selected households had consumed above or below average amounts of electricity or natural gas during the period from April 1, 1981, to March 31, 1982. The primary goal of this project was to find out why each household might have had a higher or lower consumption rate than other households with the same number of people living in a similar size home.

The interviews were conducted by Harold L. Wilhite and Richard R. Wilk of the University of California at Santa Cruz in March 1984. The authors developed the interview methods during a 1-year study of energy conservation decision making in Santa Cruz, California. The interview methods were based on conventional ethnographic methods used in anthropology, and can be described as guided but open-ended. The household members being interviewed were encouraged to take the lead in linking their energy use to other aspects of their life-style, including home improvement, recreation, and family interactions. The interviewers also explored attitudes toward utility companies, nuclear power, resource conservation, rising costs, and family finances in general. Households Energy Conservation Decision Making in Santa Cruz County, California, (Paper UER-105, Universitywide Energy Research Group, Berkeley 1983) contains a more complete description of the Santa Cruz project research methodology.

Appendix G (Continued)

Summary of Findings

The reasons for overconsumption or underconsumption of fuels by the sample households were quite straightforward, although the extended analysis goes beyond the most obvious answers. The most important reasons for deviant consumption by each household are presented in this section.

Household A: Consumption of natural gas was 66 percent above that of households with similar characteristics.

Major Cause: On the original survey form, the head of the household claimed that he never used natural gas for space heating, but depended instead on a wood-burning stove. During the interview, he admitted that he had in fact used his natural gas heater during the period in question, a time when his wife was terminally ill at home.

Household B: Consumption of natural gas was 72 percent below that of households with similar characteristics.

Major Cause: Because of language differences, the original survey form reported that the thermostat on the wall heater was kept at 65 degrees Fahrenheit when the occupants were in the apartment. In actuality, the heater was completely turned off when the apartment was first occupied (in 1980) and had not been used since.

Household C: Consumption of electricity was 101 percent above that of households with similar characteristics.

Major Cause: At the time of the original survey, this household included a married couple and three young adult sons. Each son had what was essentially his own apartment with appliances (all electric), meaning that this house contained four semi-autonomous units. In addition, a number of electrical appliances in the house were omitted from the original form, perhaps because the household head was self-conscious about high consumption.

Household D: Consumption of natural gas was 62 percent below that of households with similar characteristics.

Major Cause: One month after the original survey, the household installed a wood burning-stove and turned off the pilot light for the natural gas furnace. Therefore, during most of the winter of 1981-1982, this household did not use natural gas for space heating.

Detailed Analysis of Each Case

Household A: This household consists of a single retired male, Mr. A. At the time of the survey interview in 1981, Mrs. A was also living in the house. Shortly after the survey interview, in November 1981, Mrs. A contracted cancer. From that time on she was hospitalized for short periods, but was otherwise house bound until she died a year later.

Mr. A is a retired mechanic who prides himself on his frugal and conservative life-style. He performs many maintenance tasks around the house ("I never hire nothing out...") and places a high value on self-reliance and independence. These are some of the characteristics that led him to install an air-tight fireplace insert in fall 1980. In addition, Mr. and Mrs. A spent most of their time in and around the

house, did not go on long vacations, and did not have many recreations that took them outside the home. During Mrs. A's illness, this trend was exacerbated, although Mr. A began to spend much less time in the house after his wife died.

One reflection of Mr. A's pride in his frugality is his attitude towards his utility bills. He feels that his bills are very low and compares them favorably with those of his neighbors and his children. It is significant that his explanation for their higher bills is that they are careless and wasteful. According to him, they forget to turn off lights and they leave outside doors open. The interviewers have found a similar linkage between energy use and moral issues among the households they have interviewed.

His attitude towards independence and frugality and the need to rationalize the purchase of a woodstove, which was a large expense considering their limited income, is reflected by Mr. A's response during the original survey that he did not use his natural gas heater. At that time, he claimed that all of his heat came from his new woodstove. The interviewers have often found that people exaggerate the benefits of woodstoves, solar panels, and other expensive conservation measures. The assertion that he did not use piped gas for heating is in accordance with a desire for self-reliance and independence.

The conversational format of the interview allowed the interviewers to draw Mr. A out on this topic, and they found that each time he mentioned heating or thermostat settings, he increased his estimate of his use of natural gas. At first he said that the furnace was off all of the time. Then he admitted that it was used sometimes. Eventually, he mentioned that the thermostat was kept between 55 and 60 degrees all winter, so that the furnace was functioning even when he was absent from the house.

When confronted directly with the evidence that his household had used quite a bit of natural gas during the period from March 1981 to April 1982, Mr. A admitted that the gas heater may have been used more often during his wife's illness. The interviewers' found that it is common, especially among older Americans, for good health to be associated with a warm house (this is quite different from the attitudes of most younger households in the Santa Cruz sample), and it is likely that the home was kept warmer than usual during the winter of 1981-1982. Mr. A's gas heater is of a particularly inefficient type; it is a forced-air wall furnace with only two outlets into the house, controlled by a single thermostat in a drafty hallway.

The interviewers have often observed a male bias in the operation of woodstoves; males often take major responsibility for lighting and stoking the heater. When Mrs. A was ill and alone in the house, she probably used the gas heater rather than the woodstove, again increasing gas consumption. Being house-bound may lead to high energy consumption in other ways. More meals may be taken in the home and many other appliances may be used more often.

Household B: At the time of the original survey, this household consisted of two adult males who rented the apartment. One of them has since moved out, and Mr. B, the original respondent, now has a new roommate. The interview was conducted with Mr. B only. Mr. B is Hispanic and has lived and worked in the United States for only a few years. His family remains in Mexico. The interviewers established that much of his disposable income goes to support them, which means that the household income recorded on the original survey form is far greater than the actual disposable income.

Mr. B and his roommate are both single males with incomes and very few possessions. Their recreations often take them out of the house. They use few appliances, cook few meals, and live a frugal lifestyle, conserving cash for major expenses. During 1981 and 1982, Mr. B worked a shift from 4 p.m. to 12:30 p.m., so that he was not home for the dinner meal, nor was he home during the cool evening hours.

The facts that Mr. B is a renter and has a low income both have a strong bearing on his energy use. He has had neither the incentive nor the means to invest in energy conserving devices as a strategy to reduce his energy costs. He had, therefore, developed a lean energy lifestyle that is reflected by his decision not to use space heating in the apartment. He stopped using the space heater a few months after he moved in. The original survey form recorded that he kept the house at 65 degrees Fahrenheit when he was at home. This report may have been the result of miscommunication, as English is not his native language.

Mr. B was brought up in rural Mexico, and had never before lived in a home with any kind of space heating. The interviewers have found that early life comfort conditioning often carries over into later life.

Mr. B is aware that his utility bills are low and is pleased by it. He mentioned that he had compared his bill on several occasions with his neighbor's, and that his bills were much lower. He attributed the difference to the presence of a child in the neighbor's household.

Household C: Household C includes Mr. and Mrs. C and their four children. Three of the children are sons around 20 years of age, each of whom has his own bedroom in the back of the house. They pay rent to Mr. C, but do not pay a share of the utility bills. They eat with the rest of the family, and Mrs. C does their laundry (sometimes four or five loads a day). They spend much of their leisure time in their rooms, where they have their own television sets, stereos, and electric resistance heaters (these heaters were omitted from the original survey form). Mr. C is a general contractor, upwardly mobile, with a high income and high standards of consumption.

This is an increasingly common type of housing arrangement in areas where housing is expensive. The economic arrangements fall between those of regular conjugal-family household and those of a houseful (the term for several independent households which share a single domicile). As such, this is an ambiguous situation, which was dealt with in the original survey by recording the son's energy consumption as fuel "used for purposes other than for your own living quarters." Mr. C estimated that about 25 percent of the energy was used by the sons. The situation is, in fact, more complex; the sons probably use more than a quarter of the total electricity in their own rooms, in addition to their share of the energy spent in cooking, washing, and cooling.

Mr. C's household has a high energy use profile. They have many appliances, spend much of their time at home, and have habits conducive to high energy use. In an extensive exchange, the interviewers compiled a complete list of all the electrical appliances in his house at the time of the original interview. The interviewers found that a truly exhaustive list requires taking the interviewee through a room-by-room visualization. This often results in the mention of appliances which are omitted when answering a query such as "what other electrical appliances

do you have?". The final list included 6 television sets, a Jacuzzi pump (run 2 hours a day), a pool pump, four stereos, two baseboard heaters, two ovens, an electric indoor barbeque, a trash compactor, a dishwasher, two refrigerators, and old freezer, a table saw, two skill saws, a stove, a clothes washing machine, and an electric dryer.

Mr. C is aware that his household has high electricity bills. "I can go out there and look at that (utility company) meter and that thing is spinning faster than heck!" His first explanation was that there was a fault in the wiring or metering, but the utility company found nothing wrong. He admitted that the problem must be "just overusing," but places the blame on his wife for all her cooking and washing (she was not present at the interview). At the same time, he expressed minimal interest in energy conservation measures. In this, he is like many of the upwardly-mobile people interviewed, for whom a high-consumption lifestyle is a sign of wealth. Conservation measures are seen as being mean or stingy and are associated with poverty. However, he does not want to be seen as wasteful or extravagant, just comfortable. High usage is viewed as a consequence of greater comfort.

Household D: This interview was conducted with Mr. and Mrs. D, a middle-aged married couple with three teen-aged children. In 1980, Mr. D moved from a management position in his company to a sales position. He reported that his potential for earnings became higher, but that his income began to fluctuate dramatically because he works strictly on a commission basis. In the meantime, he had become concerned about rapidly rising utility rates, which looked even higher to him from his less stable economic position. He became very disaffected with the utility company, characterizing them as "a ripoff."

Mr. D faces what he perceives to be a serious dilemma; he must continue to meet the energy needs of his family, "even though I don't always have the financial stability." His first recourse was to impose a strict regimen of energy management in the home. The pilot on the gas furnace was turned off for several months during the year, doors were closed, and family members wore sweaters and bulky clothing in the house. These efforts helped to reduce the bills, but not enough. If he could eliminate his need for natural gas, he would no longer have to worry about "paying the high price of gas" in those periods when his income was down.

In November 1981, one month after the original interview was conducted, Mr. D bought a wood burning stove (it is possible that the interview sparked the decision). Shortly thereafter, he turned off the pilot light on his gas central heater and has not lit it since. Thus, the principle reason that this household used so much less than the norm in the winter of 1981-1982 was that it began using wood instead of gas as its space heating fuel.

The conversion to the woodstove for space heating was not the only way that this household has reduced energy use. After a couple of years with the thermostat turned down, the members of the household had habituated themselves to the cooler temperature in the house. Mrs. D said that "I liked a house hot, but I have adjusted that down. Now I think we are healthier." The interviewers have found that "better health" is often a rationalization that follows temperature set-backs. The strategy is then not perceived as stinginess, but as an effort to improve family health.

Appendix G (Continued)

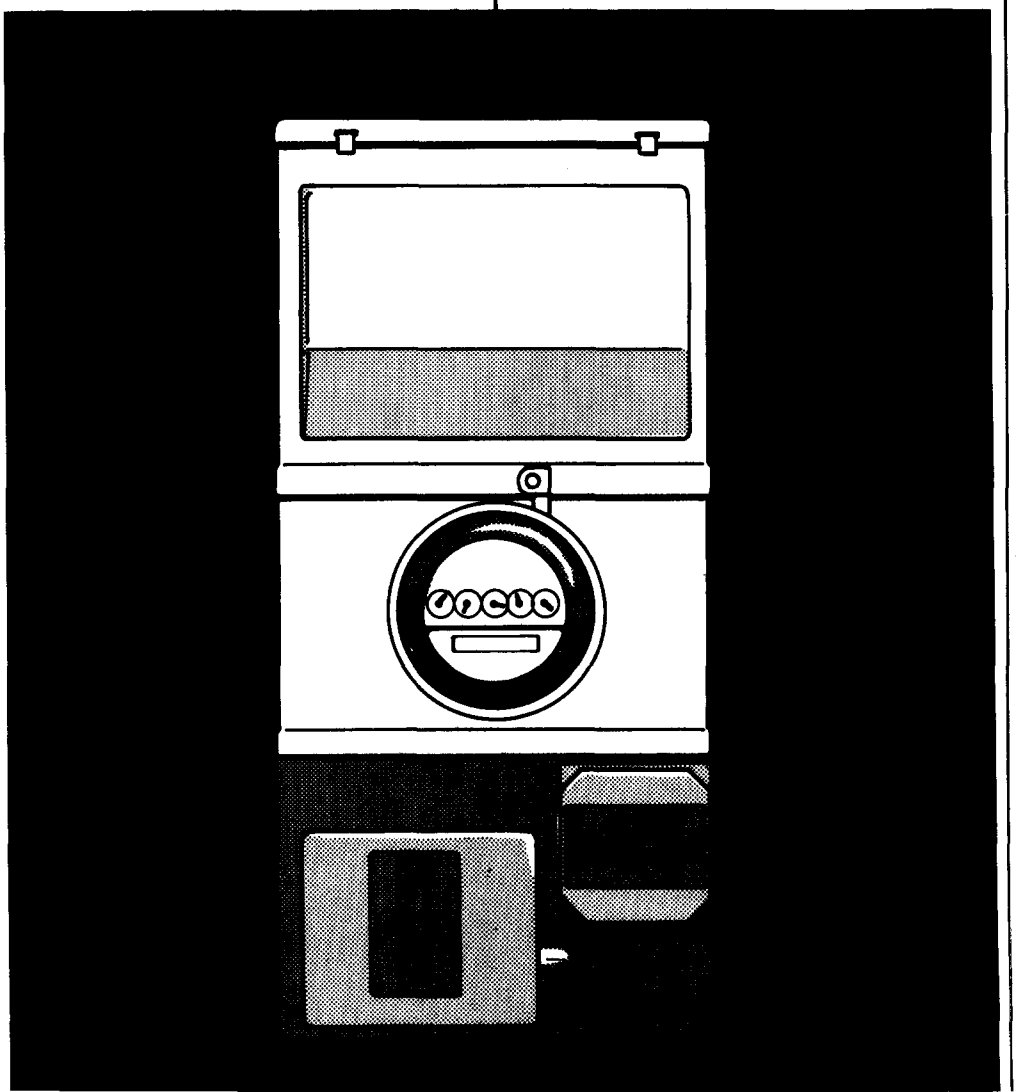
In this case, the family got rid of their electric blankets which reduced their need for night time heating, though they kept their heated water beds. Another reason for their lower household energy consumption is that they own a camper and a boat, and spend many weekends out of the house. They divert as much of their income as possible into these recreations.

Another strategy that Mr. D used was to get the utility to raise his electricity lifeline level by lying to them about his central heating source. When he bought the woodstove, he called the utility company and said that he had bought an electric heater and it would now be his principle heating source. The utility took him at his word, even though he never bought the electric heater. He considers this to be a "white lie," saying that when he called he really had intended to buy a heater.

Mr. D said that when he "saw what happened with the fireplace," he decided to invest in solar panels for his hot water heating. He did this after the survey data were collected, but it is another manifestation of his drive for independence. The interviewers have found that positive feedback from one investment in conservation often leads people to do more. In this case, there is no doubt that Mr. D was happy with his stove. He said "I love the stove," and when it was installed, he took full charge of its operation. In 1983, he decided to buy a more efficient wood stove insert. He expressed special satisfaction with his low gas consumption in comparison to that of his father, who had chided him about his high utility bill. According to Mr. D "that really dorked me off." Now he has the advantage in their competition.

In the case of the D household, an unstable household income, a dislike of the utility company, and a fear of ever higher energy costs led to a multi-faceted drive for independence from the utility company. One of the mainfestations of that drive was the installation of the woodburning stove in November 1981 as the principle source of space heating; it was this more than anything else that was responsible for the tremendous reduction in the use of natural gas by this household.

Glossary



Glossary

Air Conditioning: Cooling of air by a refrigeration unit. This does not include fans, blowers, or evaporative cooling systems or "swamp coolers" that are not connected to a refrigeration unit. Air-conditioning units that are not currently in working condition or are not used, but are in place in the housing unit, are included in this survey.

"Number of rooms that can be air conditioned" refers to the number of rooms the air-conditioning equipment is capable of cooling when the equipment is used. The question "How many rooms in your house (apartment) can be cooled by your air conditioning?" refers to rooms that could be cooled if the air-conditioning equipment were used. There are, therefore, no cases in the data set of a household with air-conditioning equipment that cooled zero rooms.

"All rooms air conditioned" means that 100 percent of the rooms are air conditioned. "Some rooms air conditioned" means that fewer than 100 percent are air conditioned.

"Central air-conditioning system" refers to a system that air-conditions a number of rooms in a home. See also Central System for the Building. For a definition of rooms, see Number of Rooms.

All-Electric Home: Uses electricity for space heating, water heating, and cooking. Other fuels may be used for supplementary heating or other purposes.

Appliances Used: Appliances possessed and used by the household during the year. Appliances possessed by the household but not used are not counted. Air-conditioning units are an exception. Air conditioning is counted as present whether or not it is used. (See Air Conditioning.) Appliances loaned to the household for their regular use are included. Appliances temporarily not in working condition but generally used by the household are included only if a repair person has been called or the appliance has been taken to a repair shop. "Swimming pool heater" applies only to swimming pools that are for the exclusive use of the housing unit. Swimming pools in apartment buildings, condominiums, or cooperatives that are for the use of many resident households are not included. Ponds, hot tubs, jacuzzis, or childrens wading pools are not swimming pools. "Oven" includes microwave and convection ovens, but does not include toaster ovens. "An evaporative cooler (swamp cooler)" is an air-cooling unit that turns air into moist, cool air by saturating the air with water vapor. (See also Refrigerators.)

April 1982 through March 1983: The annual consumption period is a 365-day period beginning as close as possible to April 1, 1982. For natural gas and electricity, the actual beginning date for a household may vary from April 1 in either direction by several weeks depending on that household's billing cycle. For fuel oil or kerosene and LPG, the beginning date is always April 1, but the amounts represent deliveries received by the household during the 365-day period, not gallons consumed. The expenditures for fuel oil or kerosene and LPG represent expenditures for the amount of fuel delivered to the home, not the amount of fuels consumed. (See Consumed.)

Availability of Natural Gas in the Neighborhood: Respondents who did not use natural gas answered "yes," "no," or "don't know" to the question, "Is gas from underground pipes available in this neighborhood?" Respondents were not provided with a definition of "available" or "neighborhood," so some variation is expected in what these concepts

Glossary (Continued)

mean to each respondent. The intent of this question is to determine whether a household could hook up to a gas line. This question was asked only of households living in single-family or mobile homes in the 1980 RECS. In subsequent surveys, this question was asked of all households.

Basement: An enclosed space in which a person can walk upright under all or part of the building. A "crawl space" is the space between the ground and the floor of a house. An "enclosed" crawl space is one not accessible from the outside of the house because the walls of the space protect it from the weather. A crawl space "open to the outside" is accessible from outside the house even though it may be covered by a trellis or lathwork, or some kind of brickwork that leaves space for circulation of air.

Bathroom: A "complete" bathroom has a flush toilet, a bathtub or shower, and a sink or washbasin with running water. A "half-bath" has a flush toilet or a bathtub or shower but does not have all the facilities for a complete bathroom.

Billing Period: The time between meter readings. It does not refer to the time the bill was sent or when the payment was to have been received. In some cases, the billing period is the same as the billing cycle that corresponds closely (within several days) to meter-reading dates. For fuel oil and LPG, the billing period is the number of days between fuel deliveries.

Btu (British Thermal Units): A Btu is the amount of energy required to raise the temperature of 1 pound of water 1 degree Fahrenheit at or near 39.2 degrees Fahrenheit and 1 atmosphere of pressure. One Btu is about equal to the heat given off by a blue-tip match.

Btu conversion factors for this survey are

Electricity	3,412 Btu/kilowatt-hour
Natural Gas	1,027 Btu/cubic foot
Fuel Oil No. 1	135,000 Btu/gallon
Kerosene	135,000 Btu/gallon
Fuel Oil No. 2	138,690 Btu/gallon
LPG (propane)	21,540 Btu/pound
	91,330 Btu/gallon
	2,510 Btu/cubic foot
	88,640 Btu/cubic meter
Wood	20 million Btu/cord

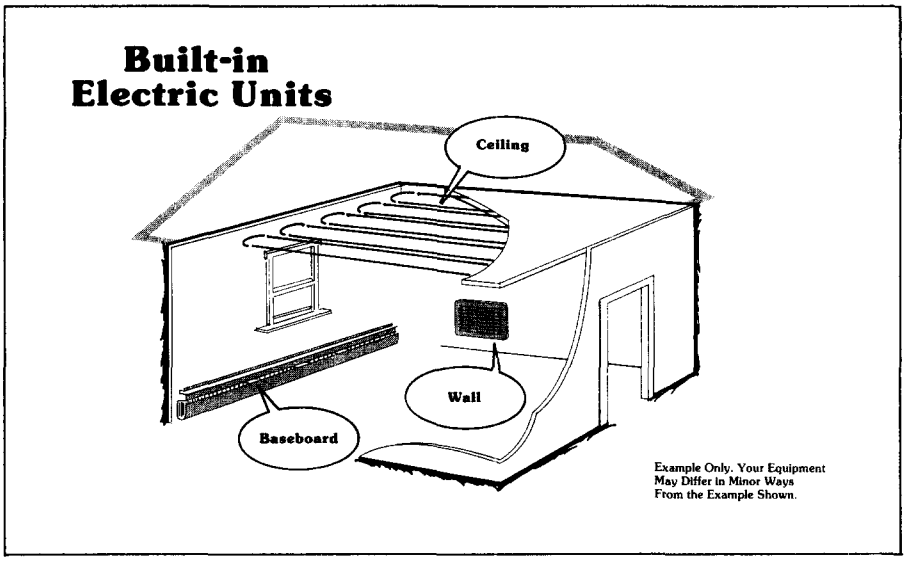
Other conversion factors used include:

1 therm = 100,000 Btu
1 barrel = 42 gallons

Almost all LPG reported by the fuel suppliers was propane. Hence, the LPG conversion factors are those for propane. See Wood Burned for discussion of the Btu value of wood.

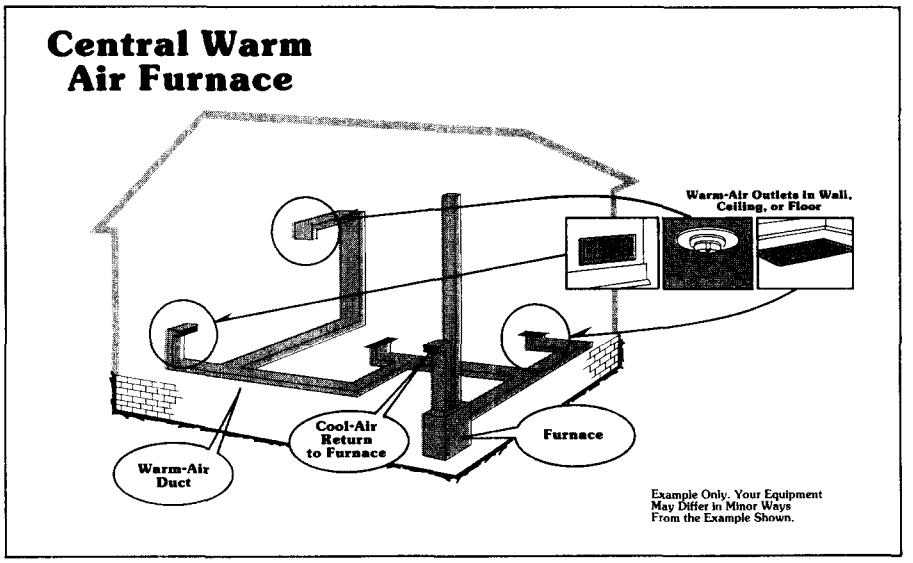
Built-in Electric Units: Individual resistance electric heating units are permanently installed in the floors, walls, ceilings, or baseboards and are part of the electrical installation of the building. Electric heating devices that are plugged into an electric socket or outlet are not considered built in.

Glossary (Continued)



Central System for the Building: A central system serving one or more buildings of two or more housing units each that is used for main heating, water heating, or air conditioning. A system that is for the respondent's living quarters only is not a central system for the building.

Central Warm-Air Furnace: A central furnace providing warm air through ducts leading to the various rooms. Heat pumps are not included in this category. A "forced-air" furnace is one in which a fan is used to force the air through the ducts. In a "gravity" furnace, air is circulated by gravity. The warm air rises through ducts and the cold air falls through ducts that return it to the furnace to be reheated. This completes the circulation cycle.



Glossary (Continued)

Conservation Items Added: Energy-saving items added to the housing unit the household now occupies. Items added to a previous place of residence and changes made by previous occupants of the housing unit are not counted. Changes made by a landlord are counted.

"Automatic or clock thermostat" is a thermostat that can be set to turn the heating system off and on at certain preset times.

"Flame-retention head burner for furnace (fuel oil)" is a device that controls the pattern of flame in the combustion chamber of a boiler or furnace.

"Automatic flue door (vent damper)" automatically closes the flue when the furnace goes off, preventing heat loss up the chimney.

"Electrical or mechanical furnace ignition system (spark ignition)" added to the furnace means that fuel will ignite from an electrically or mechanically produced spark rather than from a pilot light that burns continuously.

"Insulation around heating and/or cooling ducts" is extra insulation around the heating and/or cooling ducts to reduce the loss of hot or cold air as it travels to different parts of the residence.

"Insulation around the hot water and/or cooling pipes" is wrapping hot water and/or cooling pipes with insulation to reduce the heat or cold loss through the pipes.

"Insulation around hot water heater" is blanket insulation wrapped around the hot water heater to reduce heat loss. This is in addition to any insulation provided by the manufacturer.

"Closeable shutters, insulating drapes, reflective film" are counted if any one of these has been added to any door or window in the housing unit. Shutters that close to provide an insulating effect are counted as well as insulated roller shades or "window quilts" whose sides ride in a channel attached to the window frame. Decorative shutters that do not close are not counted.

"Plastic sheets" may be used to cover a window or other opening in the housing unit in an attempt to reduce heat loss.

"Caulking around any windows or doors to the outside" usually comes in a tube and is clay-like in that it can be molded into the space being treated. It is used to prevent drafts from coming into the house through cracks around the frames of windows or doors or cracks in other stationary parts of the house. Caulking could have been applied to the inside or outside of the home.

"Weather stripping around any windows or doors to the outside" can be applied on the inside or outside of the home. Weather stripping comes in strips or rolls of metal, vinyl, or foam rubber. It is used to prevent drafts from coming into the house around movable parts of the door or window.

Consumed: Is the amount of electricity or natural gas used by the household during the 365-day period. For fuel oil, kerosene, and LPG, the quantity represents fuel purchased, not fuel consumed. If the level of fuel in the tank was the same at the beginning and end of the annual period, then the quantity consumed would be the same as the quantity purchased. Measurements or reports of the level of fuel in the tank were not included in the data collection.

Glossary (Continued)

Cooling Degree-Days: Refers to the number of degrees per day the daily average temperature is above 65 degrees Fahrenheit. Normally, cooling is not required in a building when the outdoor average daily temperature is below 65 degrees. Cooling degree-days are determined by subtracting the base of 65 from the daily average temperature. For example, a day with an average temperature of 85 degrees has 20 cooling degree-days (85-65 = 20), while one with an average temperature of 65 degrees or lower has none. The average daily temperature is the mean of the maximum and minimum temperatures for a 24-hour period. The cooling degree-days for RECS households in the 48 States and the District of Columbia were assigned according to the NOAA division in which each household was located (See NOAA Division). Cooling degree-day totals for Alaskan and Hawaiian households were assigned by appropriate nearby weather stations.

Doors: (Outside doors) go from a heated area to the outside or to an unheated area, such as a porch or garage. Doors to a heated hallway in an apartment building, doors permanently sealed shut, and doors to an unheated attic or basement were not counted because these doors are not usually fitted with storm doors. The NIECS survey counted doors to an unheated attic or basement, but this rule was not followed in the RECS survey. Double doors were counted as one door. A pair of sliding glass doors was counted as one door in this survey. A pair of sliding glass doors was counted as two doors in the NIECS survey. "Standard" doors include doors with and without glass panels.

Electricity: See Fuels.

Electricity Paid by Household: The household paid directly to the electric utility company for all household uses of electricity, such as for water heating, space heating, air conditioning, cooking, lighting, and operating other appliances. (See Fuels.)

Estimated Bills: Are calculated by the fuel supplier when the meter is not read. The estimate may be based on one or more of the following factors: past usage, usage by similar households, and weather data.

Expenditures: Refers to the cost for electricity or natural gas consumed during the 365-day period. Expenditures include State and local taxes, but exclude merchandise, repairs, or special service charges. For households on a budget plan, the expenditures are for the actual consumption. Fuel oil, kerosene, and LPG expenditures are for the amount of fuel purchased, which may differ from the amount of fuel consumed (see Consumed). For households that do not pay directly to their fuel supplier, the expenditures for fuels are estimated and included in the tables.

Expenditures as a Percentage of Income: Is determined by taking each household's energy expenditures and dividing it by the family's income. The median percentage is the percentage of income that is spent on energy for the middle household when households are listed according to the percentage they spend on energy. That is, 50 percent of the weighted households in the cell spend a lower percentage on energy than the median value.

The percentage of income spent on energy is overestimated because the calculation uses family income for the year 1981 but the energy expenditure data are for a later year, April 1982 through March 1983. For further discussion of this overestimate, see Appendix C, "Limitations of the Data."

Glossary (Continued)

The reader should also be aware that the consumption and expenditures data include households that do not pay directly for the energy used. For 18 percent of the households in 1982, the cost of one or more fuels is included in a tenant's rent or paid by someone outside of the household.

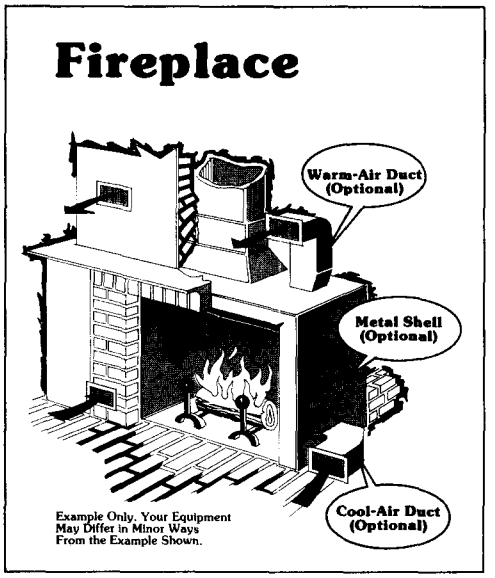
Family Income: Is the total combined income in 1981 of all members of the family from all sources before taxes and deductions. It includes wages, salaries, tips, commissions, and income from Social Security, pensions, interest, dividends, rent, public assistance, and unemployment insurance. This includes the total income for all family members who lived in the household in 1981, regardless of whether they were living there at the time of the interview. Income of nonfamily members of the household is not included. "Family" includes the following types of relationships: mother, father, sister, brother, son, daughter, father-in-law, uncle, aunt, niece, grandchild, foster child, and similar relationships.

Federal Regions: The States are divided into 10 groups as follows (These regions are not to be confused with Census regions shown on the map in Appendix F):

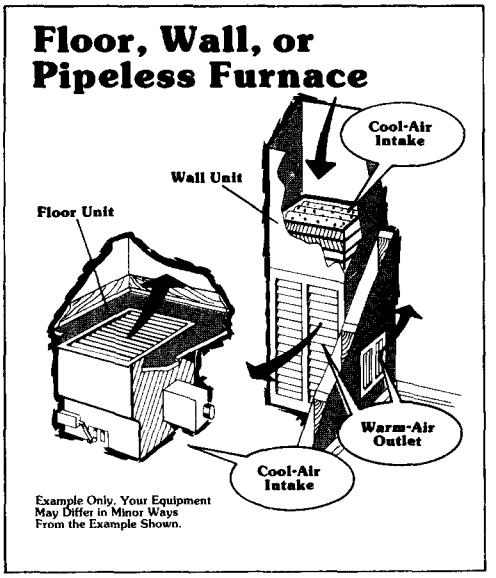
Region	States
1	Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut
2	New York, New Jersey
3	Delaware, Pennsylvania, Maryland, Virginia, West Virginia, District of Columbia
4	Kentucky, Tennessee, North Carolina, South Carolina, Georgia, Alabama, Mississippi, Florida
5	Ohio, Indiana, Illinois, Michigan, Wisconsin, Minnesota
6	Louisiana, Arkansas, Texas, Oklahoma, New Mexico
7	Missouri, Iowa, Nebraska, Kansas
8	Colorado, Utah, North Dakota, South Dakota, Wyoming, Montana
9	Hawaii, Arizona, California, Nevada
10	Alaska, Idaho, Oregon, Washington.

Glossary (Continued)

Fireplace: Is usually a masonry unit, built into the wall of a house. Fireplaces in mobile homes are included. A fireplace must have a permanent chimney. A freestanding fireplace that can be detached from its chimney is a heating stove. A fireplace insert is classified as a fireplace.



Floor, Wall, or Pipeless Furnace: A "floor furnace" is located below the floor and delivers heated air to the room immediately above or, if under a partition, to the room on each side. A "wall furnace" is installed in a partition or in an outside wall and delivers heated air to the rooms on one or both sides of the wall. A "pipeless furnace" is installed in a basement and delivers heated air through a large register in the floor of the room or hallway immediately above.



Glossary (Continued)

Fuel: Refers to the primary fuels delivered to the residential site. It may be converted at the site to some other energy form. "Electricity" is included in this report as a fuel.

"Coal" includes coke.

"Electricity" refers to metered electric power supplied by a central utility company to a residence via underground or aboveground power lines. It does not refer to electricity generated onsite for the exclusive use of the residence. In this case, the fuel used for the generator will be indicated. The Btu equivalent for electricity is the energy value of electricity as received by the household (3,412 Btu per kilowatt-hours). Electrical energy losses that occur in the generation and transmission of electricity are not included in the conversion of electricity into Btu for this report. If these losses were to be included, in general, the conversion rate would be about 10,353 Btu per kilowatt-hour.

"Fuel Oil" is No. 1, No. 2, or No. 4 grade fuel oil or residual oil that is burned for space- or water-heating purposes. No. 1 distillate fuel oil is a form of heating oil used mostly as a blending stock to assure that heavier grades of fuel flow under severe cold weather conditions. No. 2 distillate collectively refers to No. 2 heating oil and No. 2 diesel fuel. Although these products are not precisely identical, they are essentially interchangeable in most applications. No. 2 fuel oil is the most common form of heating oil. No. 4 distillate is a blend of No. 2 and No. 5 or No. 6 residual fuel oil used in large stationary diesel engines and boilers equipped with fuel preheating equipment. Residual fuel oil refers to the heavier oils that remain after the distillate fuel oils and lighter hydrocarbons are boiled off in refinery operations.

"Kerosene" refers to a distilled product of oil or coal with the generic name "kerosene." Kerosene is similar to No. 1 distillate fuel oil and is used for space heating or water heating or lighting equipment using wicks. It is sometimes sold under the names "range oil" or "stove oil."

"LPG or liquefied petroleum gas" refers to any fuel gas supplied to a residence in liquid form such as propane or butane. It is usually delivered by tank truck and stored near the residence in a tank or cylinder until used. Propane was the most common liquefied petroleum gas supplied to RECS households. Household use of LPG solely for outdoor gas grills is not considered sufficient use to mark the household as an LPG user.

"Natural gas" is utility gas supplied by underground pipeline to individual housing units by a central utility company. It does not refer to privately owned gas wells operated by the household.

"Solar collector" refers to active, thermal, concentrating collectors using either air or liquid as the working fluid. It does not refer to passive collection of solar thermal energy.

Fuel Oil Paid by Household: The household paid directly to the fuel supplier for all household uses of fuel oil or kerosene such as for space heating or water heating. (See Fuels.)

Gas Paid by Household: The household paid directly to the utility company for all household uses of natural gas such as for water heating, space heating, air conditioning, cooking, and operating appliances including outdoor gas lights. (See Fuels.)

Glossary (Continued)

Heating Degree-Days: The number of degrees per day the daily average temperature is below 65 degrees Fahrenheit. Normally, heating is not required in a building when the outdoor average daily temperature is above 65 degrees. Heating degree-days are determined by subtracting the average daily temperature below 65 degrees from the base 65. For example, a day with an average temperature of 50 degrees has 15 heating degree-days (65 - 50 = 15), while one with an average temperature of 65 or higher has none. The average daily temperature is the mean of the maximum and minimum temperature for a 24-hour period.

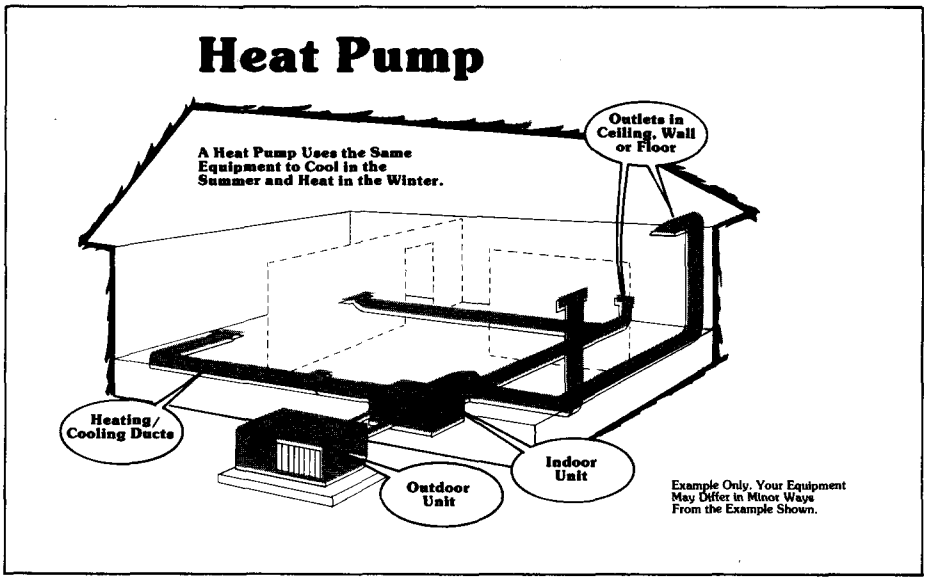
The heating degree-days for RECS households in the 48 States and the District of Columbia were assigned according to the NOAA division in which each household is located (See NOAA Division). Heating degree-days for Alaskan and Hawaiian households were assigned by appropriate nearby weather stations. See also Cooling Degree-Days.

Heating Stove Burning Wood, Coal, and Coke: Any freestanding box or controlled draft stove or stove installed in the fireplace opening and using the chimney of the fireplace. Stoves are made of cast iron, sheet metal, or plate steel. Freestanding fireplaces that can be detached from their chimneys are considered heating stoves. "Airtight" stoves allow one to control the amount of air in the stove in order to regulate the rate of combustion. The doors fit tightly so that air can be controlled. Many air tight stoves have a gasket aroung the door of the stove. "Non-airtight" stoves do not have gaskets around their door openings.

Glossary (Continued)

Heat Pump (Reverse Cycle System): A year-round heating/air-conditioning system in which refrigeration equipment supplies both heating and cooling through ducts leading to individual rooms. It generally consists of a compressor, both indoor and outdoor coils, and a thermostat.

When the heat pump is attached to a central furnace, the heat pump is either the main or secondary heating equipment depending on how often the heat pump operates. If it operates for a short time and then the furnace comes on, the heat pump is secondary (or additional heating equipment). If the heat pump is sufficient to provide the desired warmth, the heat pump is the main heating equipment.



Hot-Deck Imputation: An imputation procedure used for item nonresponse in which the household file is sorted by variables related to the missing item. A household is then selected that has the same value on those variables, and this "donor" household supplies the value for the missing item. (See Imputation).

Household: Is a family, an individual, or a group of up to nine unrelated persons occupying the same housing unit. "Occupy" means the housing unit was the person's usual or permanent place of residence at the time of the first field contact. The household includes babies, lodgers, boarders, employed persons who live in the housing unit, and persons who usually live in the household, but are away traveling or in a hospital. The household does not include persons who are normally members of the household but who were away from home as college students or members of the armed forces at the time of the contact.

Glossary (Continued)

The household does not include persons temporarily visiting with the household if they have a place of residence elsewhere, persons who take their meals with the household but usually lodge or sleep elsewhere, domestic employees or other persons employed by the household who do not sleep in the same housing unit, or persons who are former members of the household, but have since become inmates of correction or penal institutions, mental institutions, homes for the aged or needy, homes or hospitals for the chronically ill or handicapped, nursing homes, convents or monasteries, or other places in which residents may remain for long periods of time. By definition, the count of households is the same as the count of occupied housing units.

Householder: The person (or one of the persons) in whose name the home is owned or rented. If there is no lease or similar agreement or if the person who owns the home or pays the rent does not live in the housing unit, the householder is the person responsible for paying the household bills or generally in charge.

Housing Structure: One of four structure types used to categorize the building in which the housing unit was located.

A "single-family housing unit" refers to 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 to the roof.

A "house or building with two to four housing units" is divided into living quarters for two, three, or four families or households. This category also includes houses originally intended for occupancy by one family or for some other use that have since been converted to a separate dwelling for two to four families. Typical arrangements in these types of living quarters are separate apartments, downstairs and upstairs, or one apartment on each of three or four floors.

A "building with five or more housing units" refers to a building containing living quarters for five or more separate households or families.

A "mobile home or trailer" refers to 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 contain one or more rooms. If additional rooms are added to the structure, it is still considered a mobile home.

Housing Unit: A structure or part of a structure where a household (family or individual) lives or could live. It has direct access from the outside of the building or through a common hall. Housing units do not include group quarters such as prisons, hospitals, dormitories, nursing homes, fraternity houses, or convents where 10 or more unrelated persons live. Hotel rooms, motel rooms, mobile homes, or trailers are considered housing units if occupied.

Imputation: Is a statistical method used to estimate the response to specific questions for which answers are missing. In general, it is a procedure for filling in missing data values.

Glossary (Continued)

Insulation: Refers to any material that, when placed between the interior of the dwelling and the outdoor environment, reduces the rate of heat loss to the environment or heat gain from the environment. The four forms of insulation, illustrated in a drawing shown to respondents, are listed below:

"Blankets or batts"--rolls or pieces of insulation that are nailed or stapled between the rafters or wall joists (beams). It is usually made of fiberglass or rock wool.

"Loose particles or loose fill"--loose insulation comes in a bag and is poured between joists (beams). Loose insulation can also be blown into open spaces. Loose fill can be glass fiber, rock-wool fibers, cellulose fiber, or vermiculite.

"Firm foam or firm plastic"--rigid boards (such as styrofoam) that can be cut to size and either edged, nailed, or glued into place.

"Sprayed-in foam" solidifies after being sprayed on a surface or poured into a cavity to be insulated.

"Floor insulation" is insulation between the bottom floor and the unheated basement or crawl space. Carpeting or carpeting pads are not insulation.

LPG Paid by Household: The household paid directly to the fuel supplier for all household uses of LPG such as for water heating, space heating, air conditioning, cooking (cooking on an outdoor grill is not counted), and operating appliances. (See Fuels.)

Main Cooking Fuel: Is the answer to the question: "Thinking of all the different kinds of cooking done here, including cooking in the oven, on a range, and with small appliances, which fuel is used most?"

Main Heating Equipment: (See description of specific heating equipment.) Main heating equipment, if temporarily out of order, is reported as the main heating equipment. If two types of heating equipment are used, the main equipment is the one used more. If both are used equally, the main equipment is the one that appears first on the list in the question.

Main Heating Fuel: The fuel mentioned by the respondent in response to the question: "What is the main fuel used for heating your home?

Major Fuels: Electricity, natural gas, fuel oil or kerosene and LPG. Although the Btu value of wood burned in the home is greater than the Btu value of LPG, wood is not included as a major fuel primarily because the wood data are not as high in quality as data for the other fuels. Also, expenditure data are not available for wood.

Master Metered: The method used by utility companies (e.g., electricity and natural gas) to measure the total volume of energy used by several individual customers collectively.

Median: A measure of central tendency, intended to express a "typical" value for an attribute. The median is different from the arithmetic average (mean) in that its value is not much influenced by extremes. For example, the mean number of cords of wood consumed per household would be affected by the inclusion of a few heavy users of wood, and would not express wood consumption for a "typical"

Glossary (Continued)

wood-using household. However, the median number of cords of wood consumed per household would not be so affected. Medians are computed by listing all values in ascending order. The value that divides the list in half is the median.

Metropolitan: A group of households located within Metropolitan Statistical Areas (MSA's) as defined in the 1980 Census. Except in New England, an MSA is a county or group of contiguous counties that contain at least one city of 50,000 inhabitants or more, or "twin cities" with a combined population of at least 50,000. The contiguous counties are included in an MSA if, according to certain criteria, they are essentially metropolitan in character and are socially and economically integrated with the central city. In New England, MSA's consist of towns and cities, rather than counties. "Non-Metropolitan" refers to households not located within MSA's as defined in the 1980 Census.

NIECS: The National Interim Energy Consumption Survey, the first developmental survey in the planned series of Residential Energy Consumption Surveys. The NIECS contacted 4,081 households in October and November 1978. Fuel suppliers provided data on consumption and expenditures for the period April 1978 through March 1979.

NOAA Division: One of the 344 weather divisions designated by the National Oceanic and Atmospheric Administration (NOAA) encompassing the 48 contiguous States. These divisions usually follow county borders to encompass counties with similar weather conditions. The NOAA division does not follow county borders when weather conditions vary considerably within a county such as is likely to happen when the county borders the ocean or contains high mountains. A State contains an average of seven NOAA divisions; a NOAA division contains an average of nine counties.

Number of Rooms: Whole rooms are rooms such as living rooms, dining rooms, bedrooms, kitchens, lodger's rooms, finished basements or attic rooms, recreation rooms, and permanently enclosed sun porches that are used year-round. Rooms used for offices by a person living in the unit are included in this survey. Finished means that the ceiling and walls are covered with finishing materials.

Bathrooms, halls, foyers or vestibules, balconies, closets, alcoves, pantries, strip or pullman kitchens, laundry or furnace rooms, unfinished attics or basements, open porches, and unfinished space used for storage are not included.

A partially divided room, such as a dinette next to a kitchen or a living room, is a separate room only if there is a partition from floor to ceiling, but not if the partition consists solely of shelves or cabinets. If a room is used by occupants of more than one unit, the room is included with the unit from which it is most easily reached.

Occupied Housing Unit: A unit someone was living in as his or her usual or permanent place of residence at the time of the first field contact.

Origin: Each respondent was asked, "Which of the groups on this exhibit best describes (HOUSEHOLDER)?" The groups included white, black or Negro, American Indian, Alaskan native, Asian, Pacific Islander. The word "race" was not used in either the questionnaire or the instructions.

Glossary (Continued)

Owner/Renter: Own/rent refers to the structure itself, not the land on which it is located. The household is classified "renter" even if the rent is paid by someone not living in the unit. "Rent free" means the unit is not owned or being bought and no money is paid or contracted for rent. Such units are usually provided in exchange for services rendered or as an allowance or favor from a relative or friend not living in the unit. "Rent free" also includes occupants who pay only for utilities. Unless shown separately, "rent free" households are grouped together with "renters."

Poverty: "Below 100 Percent of Poverty" defines a group of households with incomes below the poverty level defined by the Bureau of the Census. "Below 125 Percent of Poverty" defines a group of households with incomes below 125 percent of the poverty level. This group of the poor and near poor represents an alternative level for defining poverty. The definitions of poor are based on the number of family members in the household and family income.

Because income data were collected by using categories of income (for example, $3,000 to $3,999), an exact match of Census thresholds could not be made. Furthermore, underreporting of income is a problem in surveys of this type (cf. reference in Table G1). Underreporting may be a greater problem in the RECS survey which measures income by one question. In comparson the Current Population Survey (CPS) collects data on individual household members by source of income. The CPS estimate for households below 100 percent of poverty was 11.677 million for March 1982. The RECS estimate was 12.096 million poor households (below 100 percent of poverty). This difference may be due in part to greater underreporting of income in RECS, but on the other hand, could be accounted for entirely by sampling error.

Glossary (Continued)

Table G1. Definition of Poverty

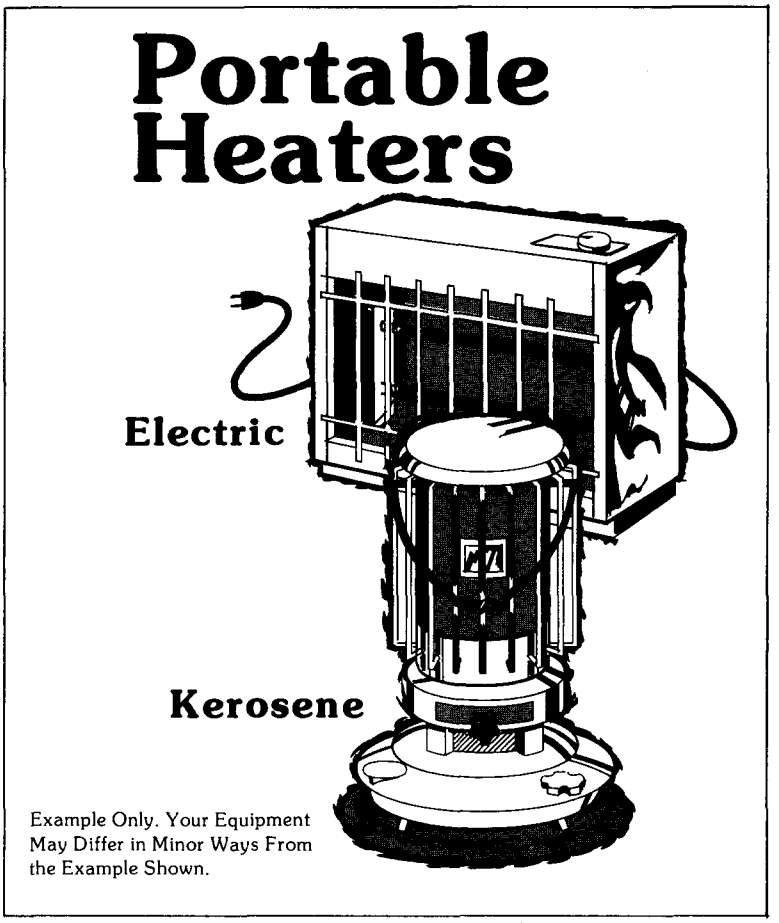
Number of Persons per Family	Below 100 Percent of Poverty: 1981 RECS Income Range Less Than:	Below 100 Percent of Poverty: Census Threshold[a]	Below 125 Percent of Poverty: 1981 RECS Income Range Less Than:	Below 125 Percent of Poverty: 125 Percent Threshold
1				
Respondent is under 65	$5,000	$4,729	$6,000	$5,911
Respondent is over 64	$4,000	$4,359	$5,000	$5,449
2				
Householder is under 65	$6,000	$6,111	$8,000	$7,639
Householder is over 64	$5,000	$5,498	$7,000	$6,873
3	$7,000	$7,250	$9,000	$9,063
4	$9,000	$9,287	$12,000	$11,609
5	$11,000	$11,007	$14,000	$13,759
6	$12,000	$12,449	$15,000	$15,561
7	$14,000	$14,110	$17,500	$17,638
8	$15,000	$15,655	$20,000	$19,569
9	$17,500	$18,572	$22,500	$23,215

[a]Figures from the U.S. Bureau of the Census, Money Income and Poverty Status of Families and Persons in the United States: 1981 (Advance Data from the March 1982 Current Population Survey). (Current Population Reports, Series P-60, No. 134) (July 1982, Table A1, 31).

Source: Energy Information Administration, 1982 Residential Energy Consumption Survey.

Glossary (Continued)

Portable Electric Heater(s): Heaters that can be picked up and moved.



Portable Kerosene Heater(s): Heaters that can be picked up and moved.

Quadrillion: Equals 1,000,000,000,000,000 or 10^{15}.

Race: See Origin.

Receive Assistance for Heating in Winter: Indicates the household received assistance from the Low-Income Home Energy Assistance Program (LIHEAP) during the Fiscal Year 1983 that began in October 1982 and ended September 1983. The purpose of the program was to provide assistance to low-income households to offset the rising costs of home energy that are excessive in relation to household income. The most recent report on the program is found in U.S. Department of Health and Human Services, Low-Income Home Energy Assistance Program: Report to Congress for Fiscal Year 1982, November 1, 1983. Copies are available from:

Office of Family Assistance
Welfare Management Institute
Transpoint Building
2100 Second Street, S.W.
Washington, D.C. 20201

Glossary (Continued)

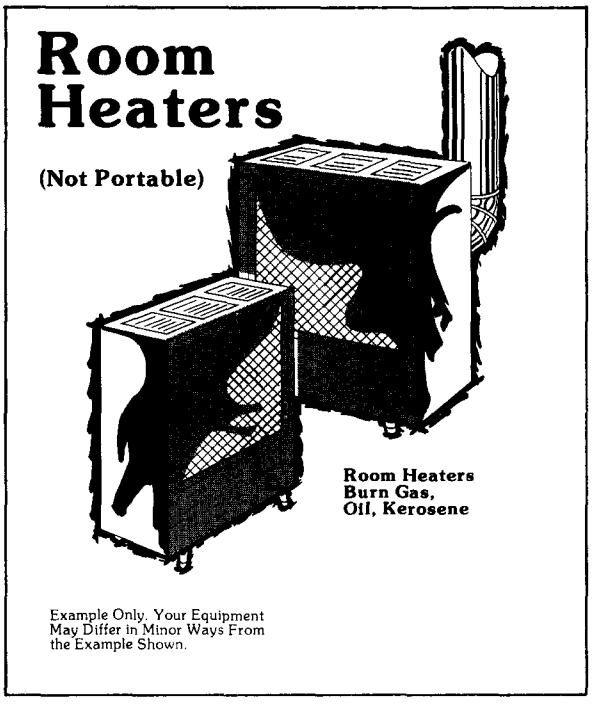
Note: There is a basic incongruity of time periods that the readers should note. Recipients of LIHEAP were identified in this survey for the period October 1982 through September 1983. The fuel bills for these households, however, were for a somewhat earlier period--April 1982 through March 1983 although both time periods covered essentially the same 1982-1983 winter. Family income, on the other hand, covers the calendar year 1981. For an estimate of how these different time periods affect the figures on percentage of income spent on home energy, see Appendix C, "Limitations of the Data."

Residential: Refers to occupied housing units including mobile homes, single-family housing units (attached and detached), and apartments. The definition of housing units is the same as that used by the U.S. Bureau of the Census. (See Household and Housing Unit for further definition.)

Rooms: (See Number of Rooms.)

Refrigerators: With no freezer sections are included in the non-frost-free category. "Frost-free" means that frost does not build up on the insides of the freezer section or ice cube section.

Room Heaters Burning Gas, Oil, Kerosene: Are circulating heaters, convectors, radiant gas heaters, space heaters, or other nonportable room heaters that may or may not be connected to a flue, vent, or chimney.



Screener Survey: The Residential Energy Consumption Survey that contacted 4,033 households in October and November 1979. Fuel suppliers provided data on consumption and expenditures for the period April 1979 through March 1980. This survey was named the Household Screener Survey because it was used to screen households for participation in the Household Transportation Panel.

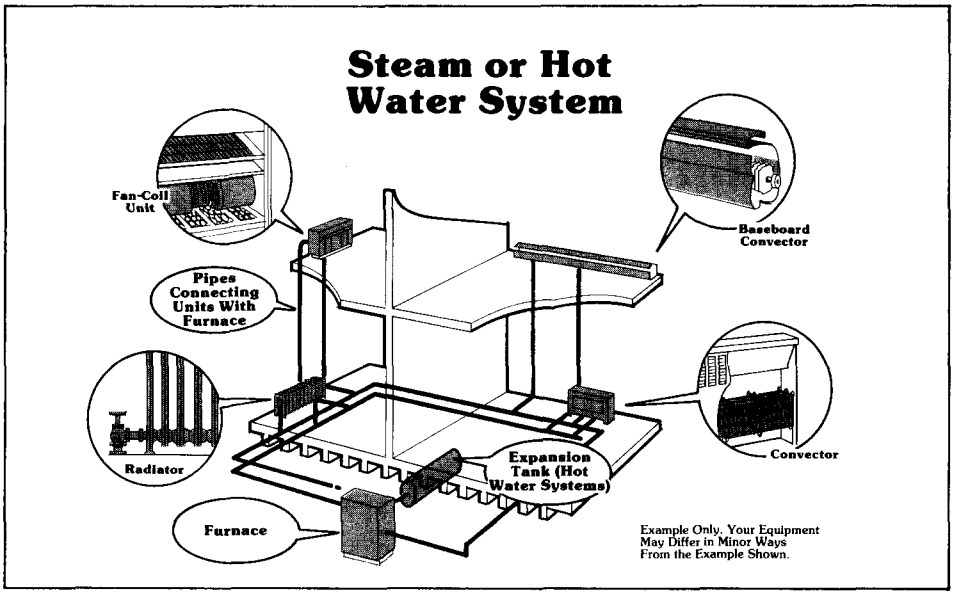
Glossary (Continued)

Secondary Heating Equipment: Equipment used in addition to the main equipment. Description of the secondary heating equipment is the same as for the main heating equipment.

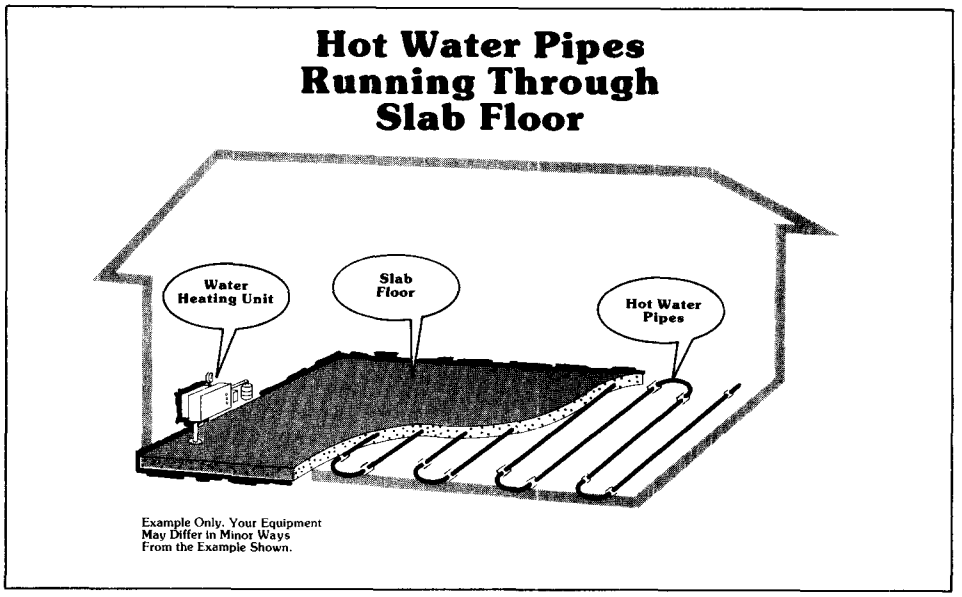
Square Feet: The floor area of the housing unit that is enclosed from the weather. Basements are included whether or not they contain finished space. Garages are included if they have a wall in common with the house. Attics that have finished space and attics that have some heated space are included. Crawl spaces are not included even if they are enclosed from the weather. Sheds and other buildings that are not attached to the house are not included. "Measured" square feet means that the measurement of the dimensions of the home did not rely on the respondent's reports but was an actual measurement by the interviewer using a metallic, retractable, 50-foot tape measure. For details on how the measurement was made and how the data were treated, see Appendix B. For information on the reliability of the measurements, see Appendix C.

"Heated square feet" are that portion of the measured square feet that is heated during most of the season. Rooms that are shut off during the heating season to save on fuel use are not counted as heated square footage. Attached garages that are unheated and unheated areas in basements and attics are not counted as heated square feet.

Steam or Hot Water System with Radiators or Convectors: A central heating system supplying steam or hot water to conventional radiators, baseboard radiators, heating pipes embedded in the walls or ceilings, or heating coils or equipment that are part of a combined heating/ventilating or heating/air-conditioning system. This category also includes radiant heating through hot water pipes inlaid in a concrete, slab floor.



Glossary (Continued)



Storm Doors and Windows: Storm doors made of double or insulating glass such as thermopane. Glass or plexiglass placed over a sliding glass door on either the exterior or interior is counted as a storm door. A plastic sheet covering the door is not counted as a storm door.

Storm windows are made of double or insulating glass, such as thermopane. Glass or plexiglass placed over windows on either the interior or exterior side are counted as storm windows. Plastic sheets covering windows are not counted only if they can be used year after year.

Note: Responses of "don't know" for storm doors, windows, and/or attic insulation were treated the same as "do not have." For example, a respondent who indicated that his or her house had storm windows (some or all) and storm doors (some or all), but who did not know if it had attic insulation, was counted in the "have one or two of these" category.

Utilities Paid by Household: Fuel suppliers or utility companies paid directly for all electricity, natural gas, fuel oil, kerosene, or liquefied petroleum gas used by the household. Households paying directly to the utility company were classified in this survey as "all paid." Households that paid directly for at least one but not all their fuels used and had at least one fuel charge included in their rent were classified as "some paid, some included in rent." Households in which all fuels used were included in their rent were classified as "all included in rent." Some households were classified as "other" if they did not fall into any of those three categories.

Glossary (Continued)

Included are households for which fuel bills were paid by a department of social services or a relative and households that paid for some of their fuels used but paid for other fuels through some other arrangement.

Vacant Housing Unit: A housing unit not occupied at the time of the first field contact. An occupied seasonal or migratory housing unit is classified as vacant at the time of the first field contact when all persons had a usual place of residence elsewhere.

Vehicles: Are all motorized vehicles used by U.S. households for personal transportation excluding motorcycles, mopeds, large trucks, and buses. They include automobiles, station wagons, passenger vans, cargo vans, motor homes, pickup trucks, jeeps, or similar vehicles owned (being bought) by one or more members of the household. Vehicles also include company cars, pickup trucks, taxicabs, and other motorized vehicles that are not owned by household members but which are regularly available to household members for their personal use and ordinarily kept at home. Cars rented or leased for one month or more are included.

Not included are motorized vehicles used solely for business purposes, such as police cars or other Government-owned vehicles. Dismantled or dilapidated vehicles in an early stage of being junked or immobile vehicles used only as a source of power for some pieces of machinery are not included. Vehicles used primarily for competition or display purposes such as racing cars, stock cars, or antique cars not used as passenger automobiles are not included. Vehicles kept by students who live away at school or kept by persons who reside on military bases or similar institutional settings are not included.

Water-Heating Fuel: The answer to the question, "Which fuel is used most for heating water?" The phrase "other than just for cooking purposes" was added to the question in the 1982 RECS to clarify that the use for hot water is for bathing and washing. Households that did not have running water in their home were also asked this question.

The hot water may have been available anywhere in the same building as the respondent's living quarters. This may have been in a hallway, in a room used by several units in the building, in the basement, or in an enclosed porch, provided the respondent's household had access to it.

Windows: All windows in the year-round living space. Windows in the basement, attic, garage, and porch are counted only if these areas are heated. Windows in doors are not counted. Each window that opens separately is counted as one window. Windows fixed in place are also counted. Panes of glass in a large window are not counted individually unless they open separately. Skylights and stained-glass windows are counted as windows.

Wood Consumed: Amount of wood burned in a fireplace, stove, or furnace in the home at any time during the 1982-1983 winter based on reports by the respondent at the time of the interview. The following values were assigned to respondent answers:

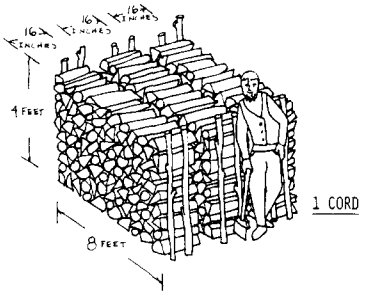
A few logs or scraps of wood	0.1 cord
1/4 to 1/3 of a cord	0.3 cord
1/2 cord (about one pick-up truck of wood)	0.5 cord
Over 1/2 cord but less than a full cord	0.7 cord

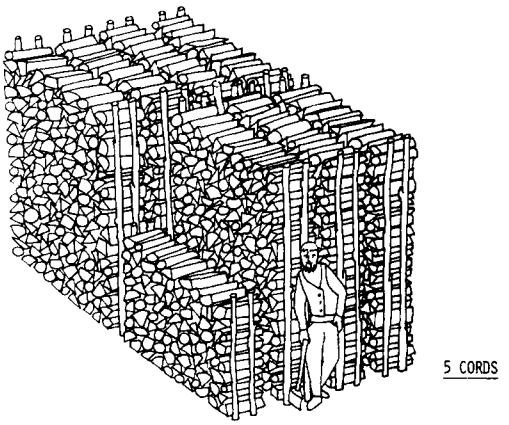
Glossary (Continued)

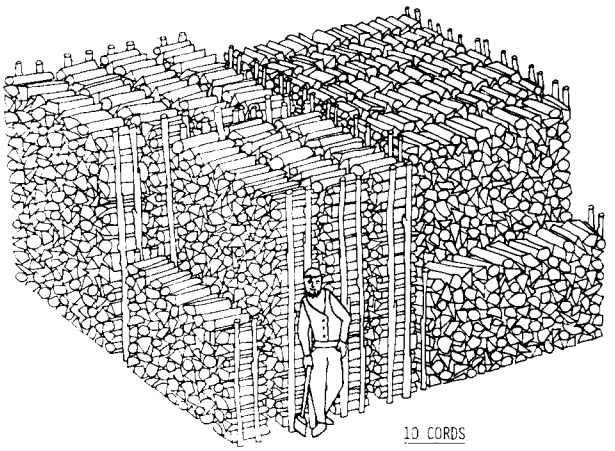
A "cord" measures 4 feet by 4 feet by 8 feet and is approximately 128 cubic feet. A third of a cord measures 16 inches by 4 feet by 8 feet.

More detailed and accurate drawings of wood piles were used for the first time in the 1982 RECS. The drawings were more correct in perspective, contained a person and holding an ax as a point of reference, and showed wood piles containing 5 and 10 cords. The purpose of these improvements was to enable respondents to be more accurate in reporting the amount of wood they burned especially those households burning more than 5 cords of wood. A copy of the drawings for 1, 5, and 10 cords is reproduced below.

Figure G1. Sketches of Woodpiles Used in the 1982 Recs (Reduced From Actual Size Used)







Glossary (Continued)

Converting cords of wood into a Btu equivalent is an imprecise exercise. The number of cords burned by each household is imprecise, as the estimate requires the respondent to sum up the use of wood over a 12-month period during which time wood may have been added to the supply as well as removed. In addition to the recall errors inherent in this task, the estimates are subject to problems in definition and perception of what a cord is. The nominal cord as delivered to a suburban residential buyer may differ from the dimensions of the standard cord. This can occur because wood is most often cut between the length that makes a third of a cord (16 inches) and a half a cord (24 inches).

In other cases, wood is bought or cut in unusual units (e.g., pickup truck load or trunk load). Finally, volume estimates are difficult to make when the wood is not stacked up but is left in a pile.

Other factors that make it difficult to estimate the Btu value of the wood burned is that the amount of empty space between the stacked logs may vary from 12 to 40 percent of the volume. The moisture content may vary from 20 percent in dried wood to 50 percent in green wood. Moisture reduces the useful Btu output because energy is used to drive off the moisture. Finally, some tree species contain twice the Btu content of species with the lowest Btu value. Generally, hardwoods have greater Btu value than softwoods. Wood was converted to Btu at the rate of 20 million Btu per cord, which is a rough average taking all these factors into account.

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