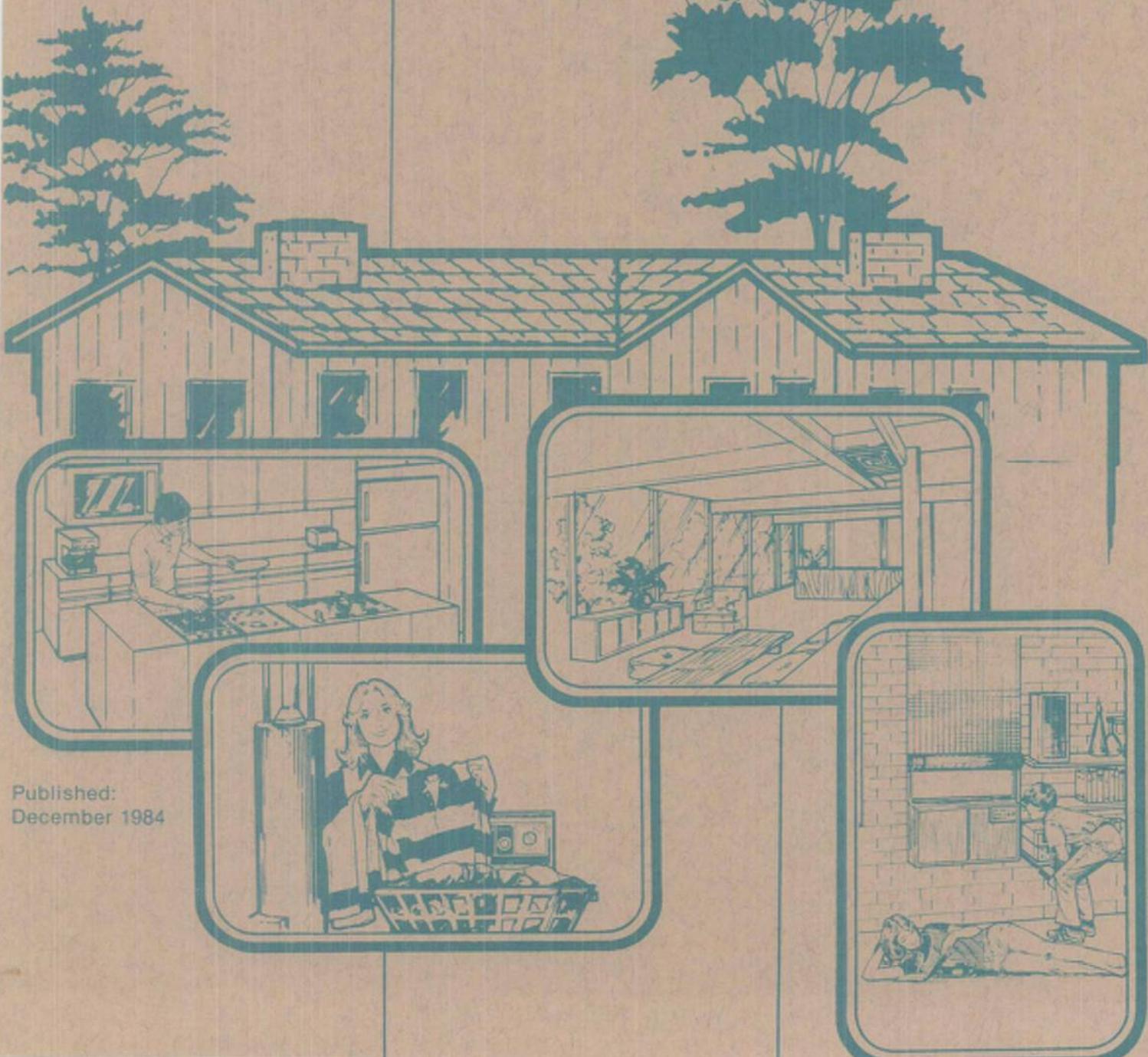


Residential Energy Consumption and Expenditures by End Use for 1978, 1980, and 1981

Energy Information Administration
Washington, D.C.



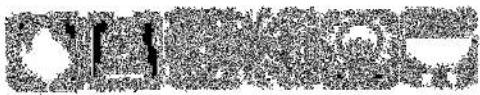
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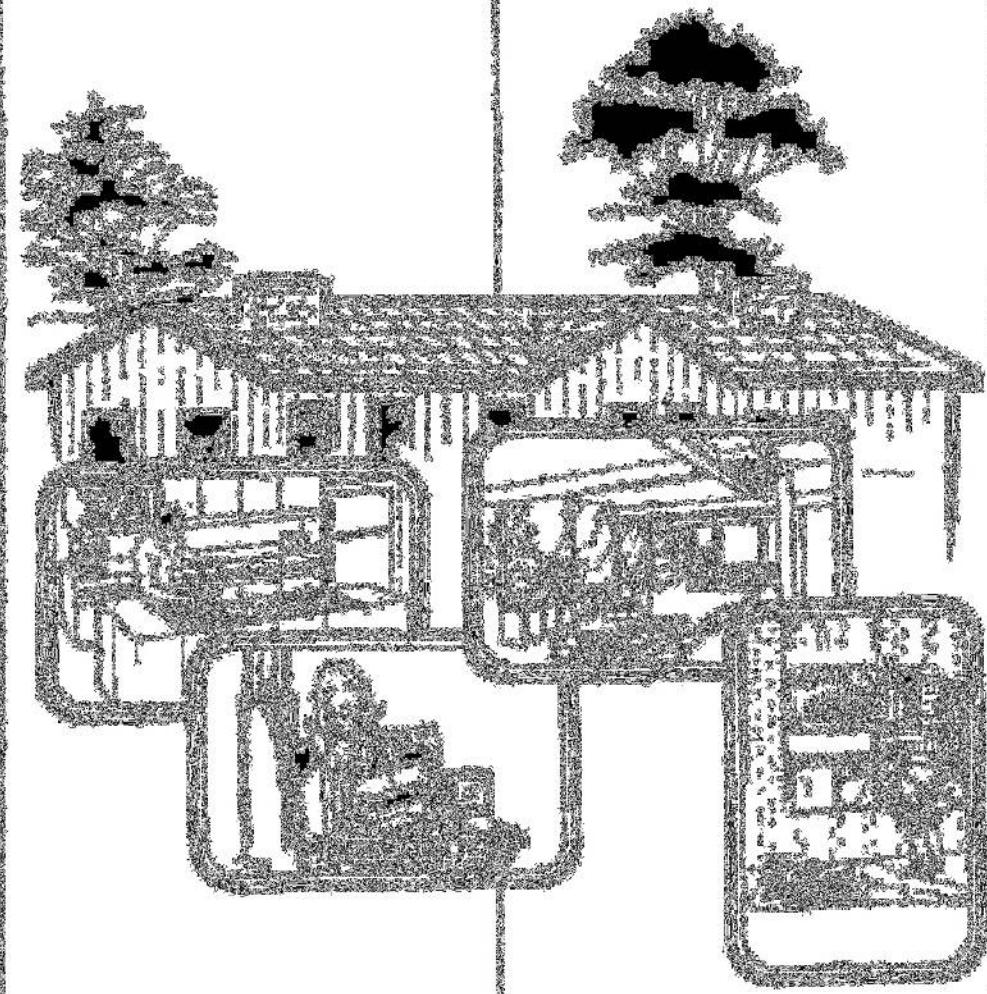
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Energy Information Administration
Office of Energy Markets and End
Use
Energy End Use Division
U.S. Department of Energy
Washington, D.C. 20585

Office of Energy
Information Administration

Prepared by
Martha Johnson





Contacts

General information about Energy Information Administration data on energy consumption may be obtained from W. David Montgomery, Director, Office of Energy Markets and End Use (202-232-1617) and Lynda T. Carlson, Director of the Energy End Use Division (202-337-1112). Specific information regarding the contents or preparation of this publication may be obtained from Nancy L. Leach, Chief of the Residential and Commercial Branch (202-232-1116); Michael Thompson, Project Manager for the Residential Energy Consumption Survey (202-232-1119); and Martha H. Johnson, principal author (202-232-1337). Questions concerning the methodology and sampling errors can be answered by Robert S. Laska (202-331-1363). The data collection agent for the report was Response Analytics Corporation, Princeton, New Jersey.

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Summary of Findings

Introduction

This is an introductory statement for information on the costs and uses of residential energy that is used for space heating, hot water heating, room heating, and cooking use. This report, in conjunction with a separate report,¹ in the same or similar family to energy household energy usage by end user.

The end-use categories of the average household consumption and expenditures are statistical relatives based on the 1970, 1980, and 1990 Residential Energy Consumption Survey (RECS) conducted by the Energy Information Administration (EIA) earlier than the reported discussions. The end-use categories were derived by developing a set of equations that predict the percentage of energy used for each household end-use category. The equations were applied separately to each household and to each fuel. The resulting household relative numbers were averaged by income quintiles of the survey and the consumption and expenditures on a national and regional basis. (Households in Alaska and Hawaii were included in the 1980 survey but not included in the 1990 survey, resulting in a change in sample population in the years from 1970 through 1990.) The equations and associated biases of these end-use relatives may depend on the fuel type, on the year of the survey, and on the type of end use.

The three 1990 surveys were census national surveys; thus, they did not try any households in census. Because households were not followed over time, only snapshots of one average consumption and expenditure for similar populations at different times can be made. One problem with this approach is that the population is changing over time. This is particularly true for nonresidentally built households living in facilities that have been built since 1970. The houses should be weighted such throughout this report 1970 refers to the period April 1970 through March 1971; 1980 refers to April 1980 through March 1981; and 1990 refers to April 1990 through March 1991. Data for April 1970 through March 1970 were not included in this report because there will be no comparable starting of apartments.

The figures and tables presented show the amount and the type of energy consumed, plus the cost of this energy. Residential surveys are given as well as averages for various categories including region, size and age of dwelling, number of heating degrees-days, and income. The majority of the report focuses on the amount and the cost of natural gas and electricity used for energy heating. However, data on other end uses and fuels are also presented.

The first section of this report discusses uses of the different fuel types. The second section discusses energy costs by end use for all fuels used in the home the 1970, 1980, and 1990. The third and fourth sections concentrate on residential consumption and expenditures for natural gas consumption and expenditures, respectively.

¹Residential Energy Consumption Survey, *Intermediate Analysis of Energy Use in the Home*, U.S. Bureau of the Census, U.S. Office of Energy, December 1989.
Residential Energy Consumption Survey, April 1980 through March 1981, April 1980 through March 1981; April 1981 through March 1982. It is important to note that the surveys are more detailed and are independently done, thus are different sets of households in each survey.

The Appendix B, "Limitations of Data," for further discussion of sampling and summarizing data.

Standard errors for the estimates in the different findings section can be found in tables we through five of this report and in the Residential Energy Consumption Survey 1970 through 1990. For a discussion on the computation of the standard error of the percent change, see Appendix B.

CHAPTER

Summary of Findings (Continued)

Significant Findings

The average U.S. energy consumption per household for all fuels used in the home declined 24 million Btu from 138 million Btu in 1978 to 114 million Btu in 1981. The primary cause of the decline is overall energy consumption was the amount of energy used for space heating. Although consumption for all fuels declined during this period, the drop was particularly evident from 1978 through 1980.

From 1978 through 1981, households experienced, on the average, a 28 percent decline in the amount of energy used to heat their houses. Even after adjusting for a difference in weather, space heating consumption still declined, on the average, 17 percent for natural gas heated houses and 31 percent for electrically heated houses. The largest decline in space heating consumption was among households that heated with electricity. These households experienced, on the average, a 39 percent decline from 11.6 million Btu in 1978 to 16.1 million Btu in 1981. The second largest decline, 27 percent, occurred among houses that heated with fuel oil. Among natural gas heated houses, there was, on an average, a 27 percent decline in space heating consumption from 1978 through 1980. Approximately a 10 percent increase then occurred from 1980 through 1981, giving an overall decline of about 19 percent from 1978 through 1981. The cost of space heating, however, increased from 1978 through 1981. Among households whose main heating fuel was natural gas, the cost of space heating increased, on the average, by 35 percent, while the cost among households heating with electricity only increased, on the average, by 7 percent. The largest increase in space heating costs occurred among houses where the main heating fuel was fuel oil. The following table shows that fuel oil costs increased by \$101 from 1978 through 1981.

Table S1. Average Household Consumption and Expenditures for Space Heating by Main Heating Fuel

	Consumption (in million Btu)			Expenditures (in dollars)		
	1978	1980	1981	1978	1980	1981
Electricity	10(2.2)	10(1.6)	10(1.3)	280(38)	241(34)	204(32)
Natural Gas	103(3.4)	74(1.9)	62(1.7)	231(6)	185(6)	167(6)
Fuel Oil/ Unknown	111(6.3)	96(2.3)	86(2.0)	471(59)	373(20)	360(20)

Note: The value in parenthesis represents one standard error of the statistic.

Source: Tables 1, 3, 5, 11, 13, 15, 17, 23, 27, 29, 35.

From 1978 through 1981, electrically heated households in the West¹ experienced the largest decline in space heating consumption with, on the average, a 38 percent decrease in electricity. However, it is important to note that there was not a steady decline. From 1978 through 1980, there was a 66 percent decrease in electricity consumption, then from 1980 through 1981, consumption increased by 31 percent. Houses heated by natural gas in the West reduced their space heating consumption by 20 percent from 1978 through 1981. In 1981, houses in the Northeast heated by electricity used 35 percent more Btu for space heating than

¹ Appendix D shows the States by region.



Summary of Findings (Continued)

the other hand, I am not sure if this was the case. I think the
main reason for this is that the report is not clear on what the
case law holding this particular fact true. It is not clear
why the court did not take into account the other evidence on the

other side before making their decision since that would prevent them from
only looking at their own side of the issue and not the other, especially when a D.A.
or someone else can make a better argument than the other side.

Another important aspect regarding the validity of this case is
that there is no clear evidence that the other side of the issue
is not true. In this case, it is not clear whether the other side of the
issue is true or false. However, it is not clear why the court did not take

into account the other side of the issue and the other side of the issue and not the
other side of the issue. This is because the other side of the issue
is not clear and it is not clear whether the other side of the issue is true or false.
However, it is not clear why the court did not take

Case Name	Date	Case Type	Case Status	Case Status
Case 1 - 12345	2023-01-01	Civil	Pending	Open
Case 2 - 12345	2023-01-01	Criminal	Pending	Open
Case 3 - 12345	2023-01-01	Civil	Pending	Open
Case 4 - 12345	2023-01-01	Criminal	Pending	Open
Case 5 - 12345	2023-01-01	Civil	Pending	Open
Case 6 - 12345	2023-01-01	Criminal	Pending	Open

that the other side of the issue is not clear and it is not clear whether the
other side of the issue is true or false.

Another important aspect regarding the validity of this case is
that there is no clear evidence that the other side of the issue is not true.
In this case, it is not clear whether the other side of the issue is true or false.
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Case 4 - 12345	2023-01-01	Criminal	Pending	Open
Case 5 - 12345	2023-01-01	Civil	Pending	Open
Case 6 - 12345	2023-01-01	Criminal	Pending	Open

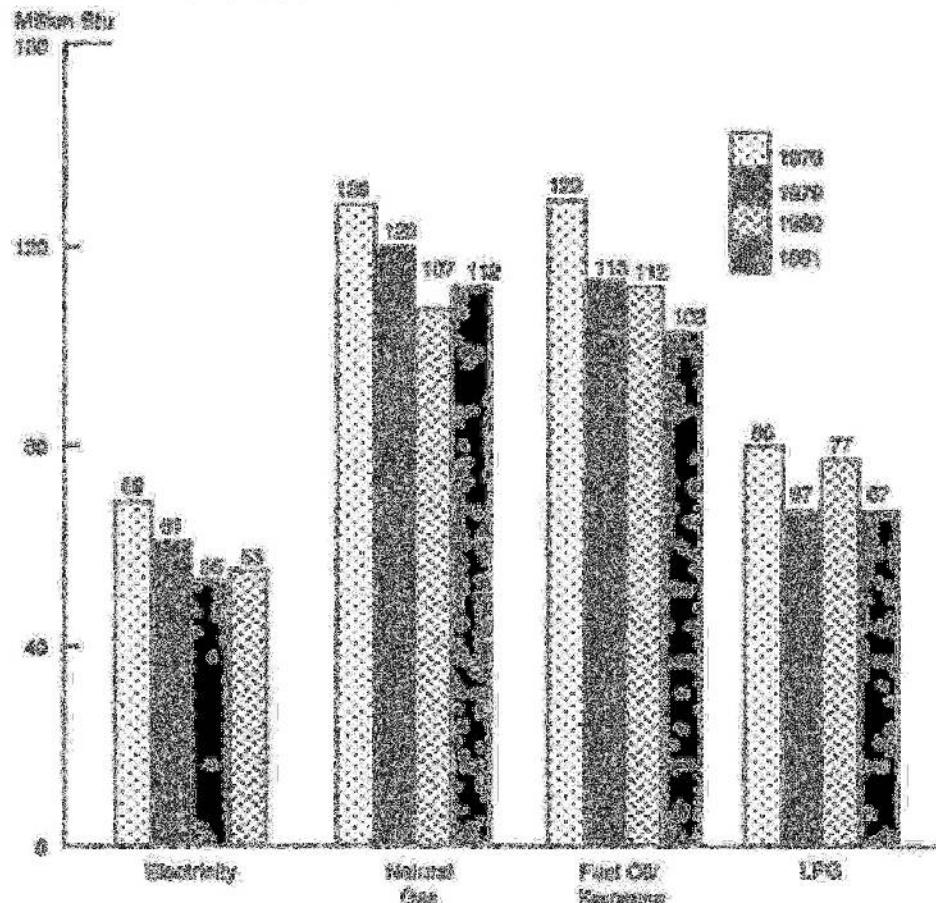
Energy End Use Trends

Average Household Consumption

Figure 1. Average Household Energy Consumption by Main Heating Fuel 1978, 1979, 1980, and 1981 (Billion Btu)

The average energy consumption per household decreased from 1978 through 1981 by 17 (3) percent, while average energy expenditures during the same period increased by 41 (2) percent. Although all fuels showed a decline in consumption from 1978 through 1981, the largest decreases was in electricity consumption.

Figure 1 shows that among households whose main heating fuel was electricity there was, on the average, a 23 (3)¹ percent decline in total electricity consumption from 1978 through 1981. During the same time, the average total consumption of natural gas among households heated by natural gas declined by 12 (3) percent, while average consumption for fuel oil in those households heated by fuel oil declined by 20 (4) percent.



Sources: Energy Information Administration, 1978, 1979, 1980, and 1981 Residential Energy Consumption Survey.

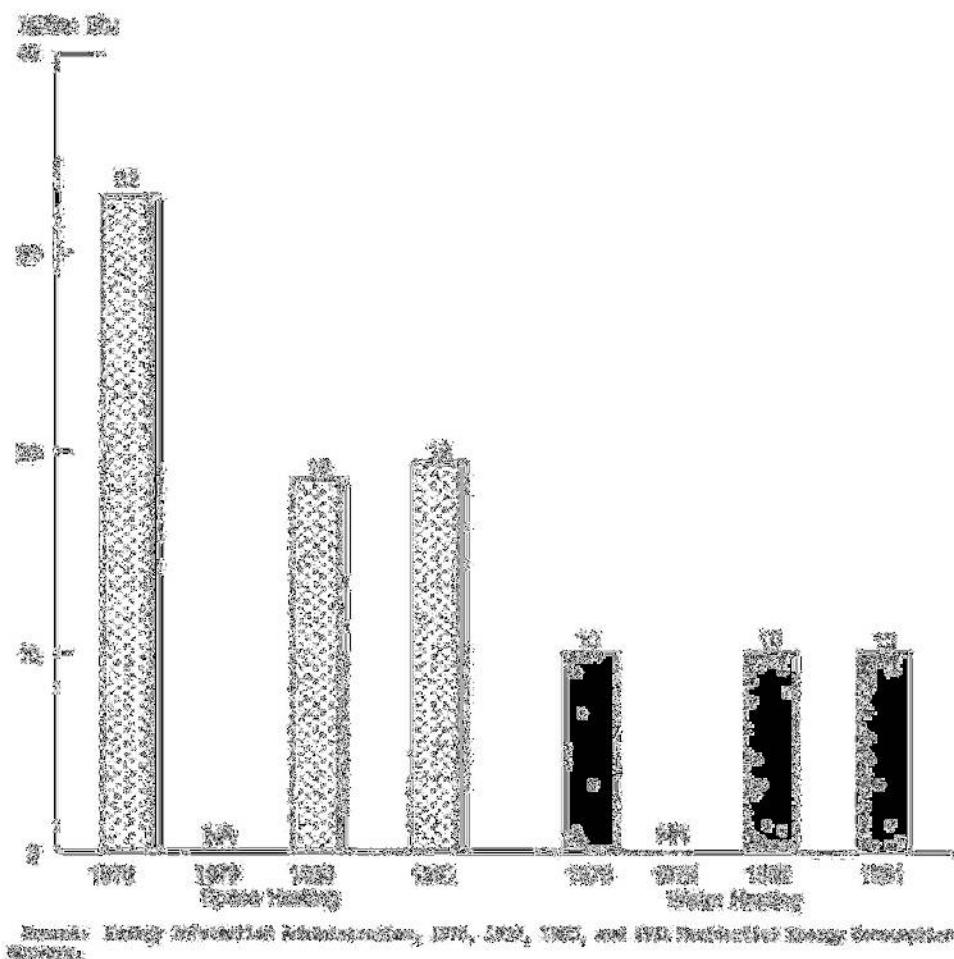
Note: Energy consumption pertains to electricity consumption for households whose main heating fuel is electricity, natural gas for households whose main heating fuel is natural gas, and so forth.

¹ The value in parenthesis represents one standard error of the statistic. The standard error is measure of the variability of an estimate.

Space Heating Consumption

The decrease in consumption from 1970 through 1981 is potentially attributed to a decline in the amount of energy used for space heating, rather than a change in the amount of energy used for other end uses such as cooking, space heating, and miscellaneous uses. Substantiated by the report that the greatest portion of this decline occurred from 1970 through 1976, Figure 8 shows that from 1970 through 1981, there was approximately a 30 (3) percent decrease in electricity used for space heating, while losses caused by obsolescence, while during this same time, there was no significant change in the amount of electricity used for water heating.

Figure 8. Average Residential Electricity Consumption for Space Heating and Water Heating From Utility Heating Fuel to Electricity (Million kWh)



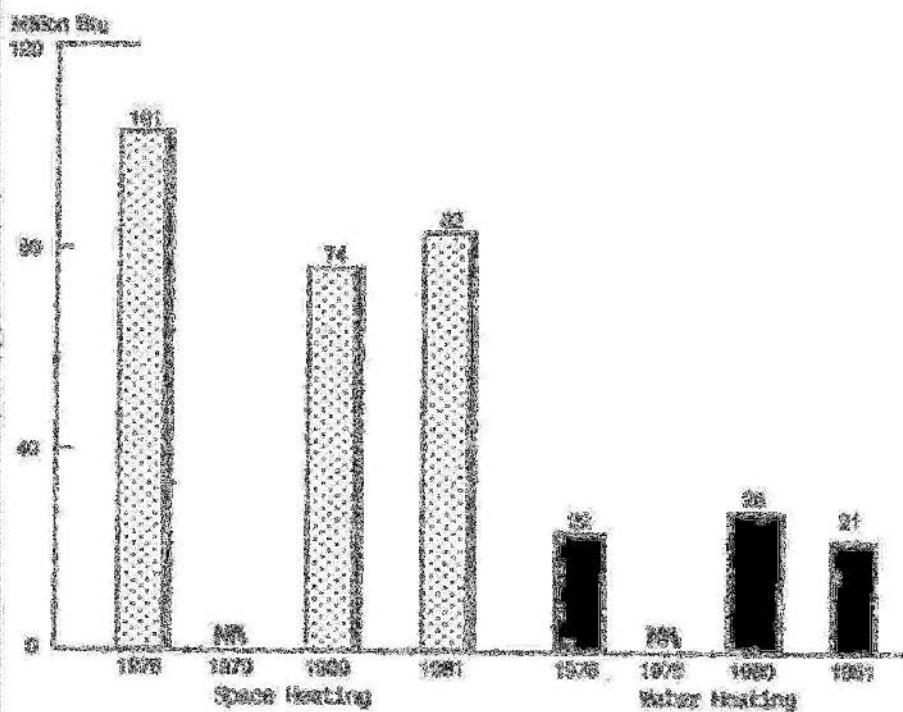
Source: Energy Information Administration, 1970, 1971, 1972, 1973, 1974, 1975, 1976, 1977, 1978, 1979, 1980, and 1981 Residential Energy Consumption Survey.

Electricity use related to other uses such as lighting, cooking, etc., were not included.

Summary of Findings (Continued)

Among homes heated by natural gas, approximately 101 (3.4) million Btu of natural gas was used for space heating in 1978. Figure 9 shows that like electricity, the largest decrease in gas consumption was in space heating with a 19 (2) percent decline from 1978 through 1981. However, unlike electricity, the estimated amount of natural gas used for water heating did not remain stable. From 1978 through 1980, water heating consumption increased by approximately 18 (3) percent and then decreased by approximately 17 (2) percent from 1980 through 1981.³ The average consumption for household's heated with

Figure 9. Average Household Natural Gas Consumption for Space Heating and Water Heating When Main Heating Fuel Is Natural Gas (Million Btu)

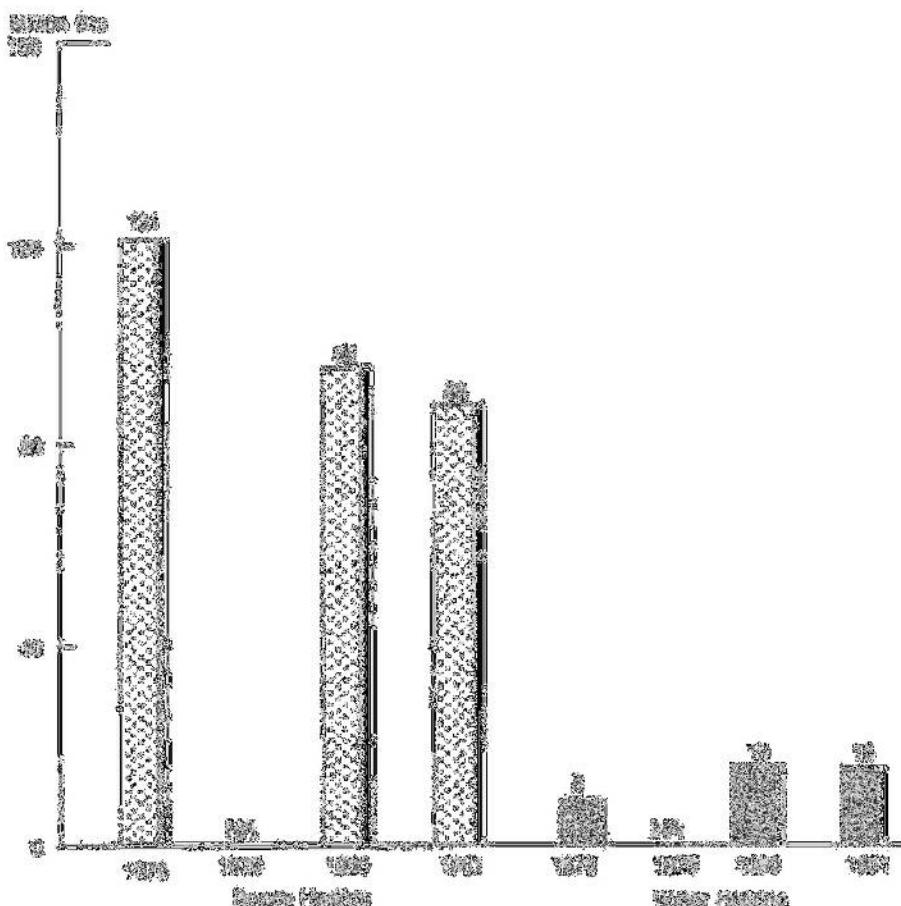


Sources: Energy Information Administration, 1978, 1979, 1980, and 1981 Residential Energy Consumption Survey.

³ See Appendix C "Limitations of the Data" for a discussion on the variability of the amount of natural gas consumed for water heating.

that all or almost during the most period (1976 through 1981) also showed a decrease in the energy used for space heating and an increase in the amount used for water heating (Figure 4).

**Figure 4. Source
Household Fuel Oil
or Kerosene
Consumption for Space
Heating and Water
Heating When Both
Heating Fuel Is Fuel
Oil or Kerosene
1976-1981**



Source: Energy Information Administration, 1976, 1977, 1978, 1980, 1981 Annual Residential Energy Consumption Survey.

The difference in the values of heating degree-days for 1976, 1980, and 1981 may have influenced energy consumption levels particularly for space heating. The following table shows average household consumption for space heating per heating degree-day.¹ The data suggest that even after controlling for the variation, electricity consumption would decline by 31 (10 percent), natural gas consumption declined by 17 (3) percent, and fuel oil consumption declined by 23 (10) percent. This suggests that factors other than weather may have also influenced the decreases in consumption from 1976 through 1981.

¹ Heating degree-days are based on degree-days. See Appendix D, "Definitions," for a definition of this quantity that is adjusted for heating degree-days.

Summary of Findings (Continued)

Table T1. Average Household Energy Consumption for Space Heating per Heating Degree-Day by Main Heating Fuel (Thousand Btu)

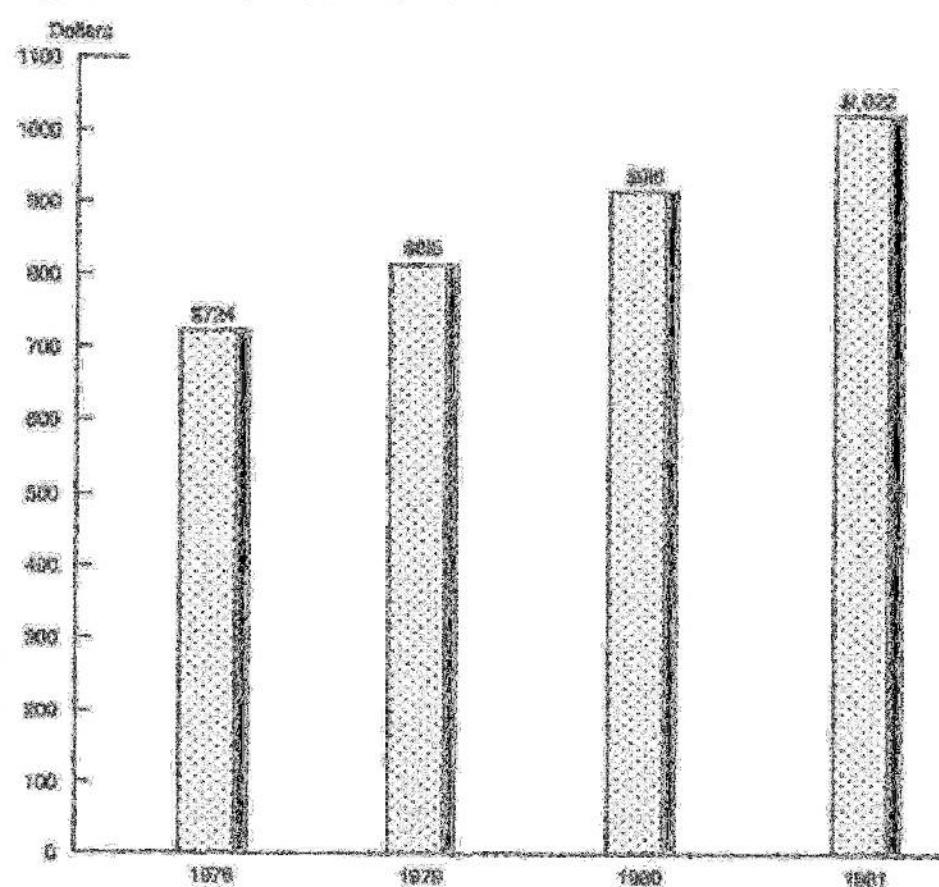
Year	Electricity	Natural Gas	Fuel Oil/ Kerosene
1978	2.1 (.4)	20.4 (.5)	22.7 (.7)
1980	3.6 (.2)	15.6 (.2)	17.6 (.4)
1981	3.2 (.2)	17.0 (.3)	16.7 (1.0)

Note: The value in parentheses represents one standard error of the statistic.

Source: Energy Information Administration, 1978, 1980, 1981, Residential Energy Consumption Surveys.

Average Household Expenditures

Figure 5. Average Household Energy Expenditures for 1978, 1979, 1980, and 1981 (Dollars)



Source: Energy Information Administration, 1978, 1979, 1980, and 1981 Residential Energy Consumption Survey.

Note: 1979 figures are included in the overall energy expenditures. The data, however, were incomplete for accurate one-use estimates.

Table E2. Average Household Consumption and Expenditures for Space Heating by Main Heating Fuel: Current Estimates
1978-1981, 1979-1980,
1980-1981

	Consumption	Expenditure	Consumption	Expenditure	Consumption	Expenditure
Residential ...	40.0	40.0	40.0	40.0	40.0	40.0
Nonresidential ...	40.0	40.0	40.0	40.0	40.0	40.0
Total all households	40.0	40.0	40.0	40.0	40.0	40.0

Note: The values in parentheses represent one standard error of the estimate.
Source: Tables 1, A, C, D, E, 12, 13, 14, 15, 16, 17.

Electricity Consumption and Expenditures for Space Heating

Table E3. Average Household Electricity Consumption and Expenditures for Space Heating Where Main Heating Fuel Is Electricity by Region

	Consumption	Expenditure	Consumption	Expenditure	Consumption	Expenditure
Residential ...	21 (0.4)	21 (0.4)	21 (0.4)	21 (0.4)	21 (0.4)	21 (0.4)
Nonresidential ...	45 (0.4)	47 (0.4)	47 (0.4)	47 (0.4)	47 (0.4)	47 (0.4)
Total ...	21 (0.4)	21 (0.4)	21 (0.4)	21 (0.4)	21 (0.4)	21 (0.4)
Total all regions	21 (0.4)	21 (0.4)	21 (0.4)	21 (0.4)	21 (0.4)	21 (0.4)

Note: The values in parentheses represent one standard error of the estimate.
Source: Tables 2, 11, 12, 13, 14, 15, 16.



Summary of Findings (Continued)

Table E2 shows that in the 1978, 1980, and 1981 surveys, electricity consumption for space heating consistently increased as the heated square footage of the house increased. Additionally, from 1978 through 1981 in all size categories, there was a decrease in consumption. However, Table E2 shows that there was no consistent trend by dwelling size in the percent of change for electricity. The statistically significant change in the amount of electricity used for space heating ranged from 31 (10) percent to 52 (19) percent.

Table E2. Average Household Electricity Consumption for Space Heating When Main Heating Fuel is Electricity, by Square Footage of Home (Million Btu)

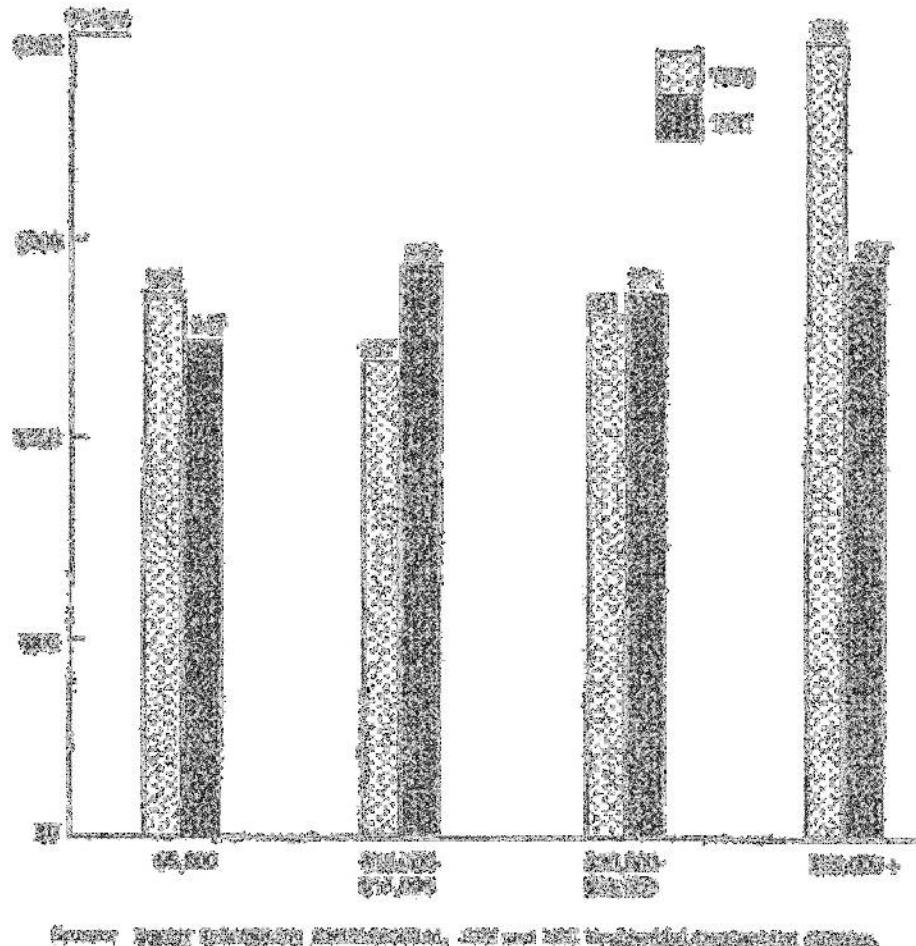
Square Feet	1978	1980	1981	Percent Change Between 1978-1981
1-799	20.3 (2.9)	11.8 (1.5)	15.7 (1.4)	23 (12)
800-999	26.7 (2.7)	14.5 (1.9)	15.9 (1.4)	40 (8)
1,000-1,199	28.3 (3.2)	16.0 (2.6)	19.0 (1.4)	32 (3)
1,200-1,399	29.6 (4.2)	19.4 (2.6)	17.2 (2.2)	42 (11)
1,400-1,799	39.4 (3.2)	19.9 (2.4)	18.9 (3.5)	32 (19)
1,800-2,399	40.5 (4.7)	26.6 (1.7)	28.0 (2.6)	31 (10)
2,400 or More	60.9 (6.5)	27.6 (2.3)	32.2 (2.9)	47 (8)

Note: The value in parentheses is one standard error of the statistic.
Source: Tables 1, 13, 23.

Energy expenditures, particularly for space heating, varied by income, and by geographic region. In 1978, the average space heating cost for electrically heated houses in the Northeast was approximately \$347 (57). By 1981, this cost had almost doubled to \$644 (81). However, other regions in the United States experienced a decline in electricity costs for space heating, with the West experiencing the largest decrease in costs.

Residential costs for space heating decreased from 1976 through 1981. In all four income categories the fuel oil space heating costs declined as well. The 4 (1) percent decrease in electricity usage among households in the lower income bracket than those below was not statistically significant. At all other income levels, the cost of heating with electricity increased from 1976 through 1981. While a slight electricity expenditure for 1980 and 1981 by selected categories of income.

Figure 11. Average Household Electricity Expenditure for Space Heating for 1976 and 1981 by Selected Levels of Income (\$/Year)



Source: United States Census Bureau, 1976 and 1981 Population Census.

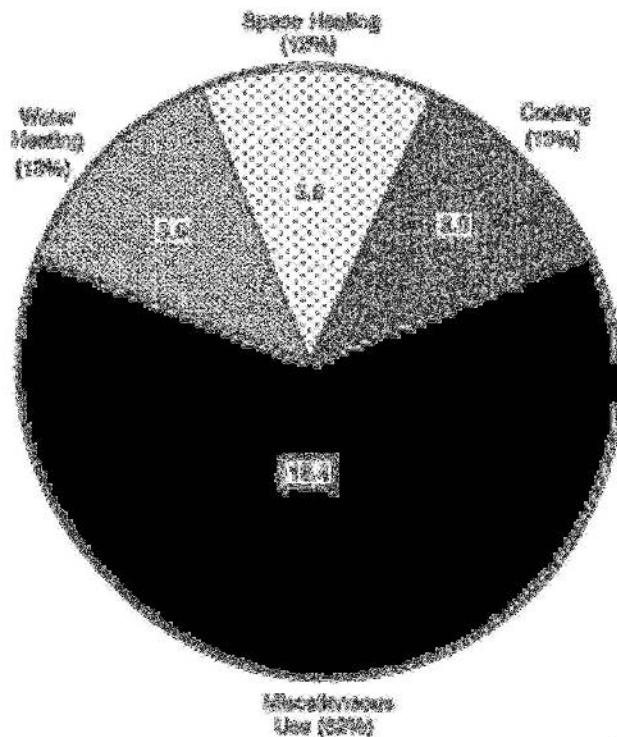
Summary of Findings (Continued)

End Use

In addition to the trends in consumption and expenditures, the patterns of energy use within a given time period are also of interest. Figures 7 through 11 describe the distribution of electricity consumption and expenditures by end use.

Figure 7 shows that in 1981, among households that used electricity but did not necessarily heat with it, approximately 62 (.8) percent of the average household electricity consumed was for miscellaneous use. Approximately 12 (.1) percent of household electricity consumption was used for space heating, while water heating accounted for approximately 13 (.1) percent and cooling accounted for 13 (.1) percent. This pattern was the same for 1979 and 1980.

Figure 7. Average Household Electricity Consumption for All Households That Use Electricity by End Use for 1981 (Million Btu)



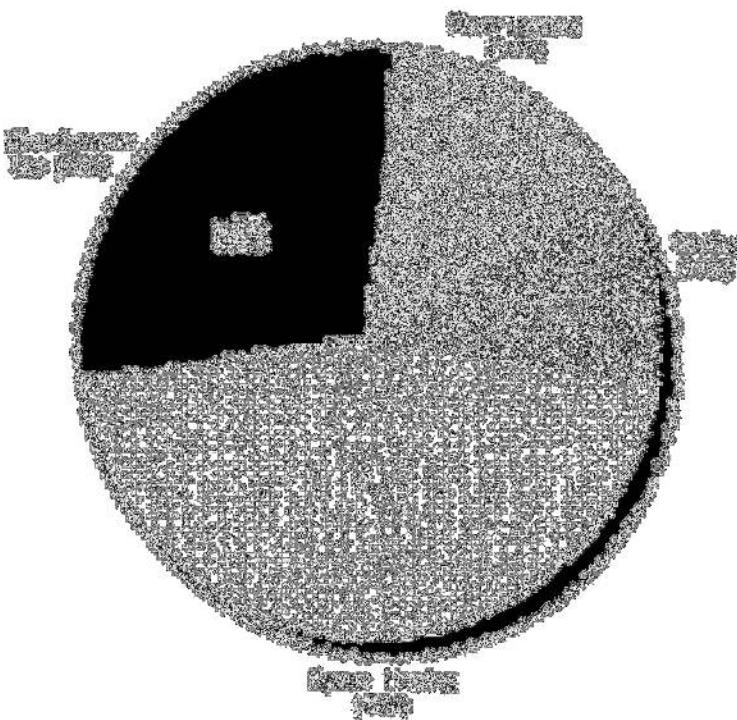
Source: Energy Information Administration, 1981 Residential Energy Consumption Survey.

Figures 8 through 10 show that this pattern of electricity consumption changes when electricity is the main heating fuel. The average household consumption for electricity was 33.4 (2) million Btu for those households that heated with electricity in 1981. Approximately 38 (.1) percent was used for space heating and 32 (.1) percent was used for miscellaneous use. Approximately 12 (.1) percent of electricity was used for cooling and 30 (.1) percent was used for water heating.

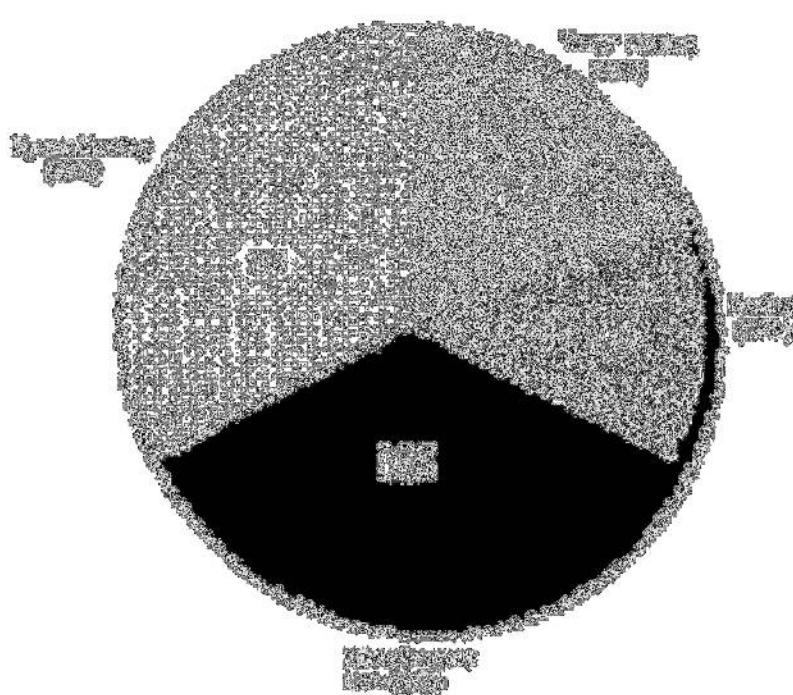
CHARTS

Summary of Findings (Continued)

Findings
- General Health
- Mental Health
- Physical Health
- Social Health
- Overall Health



Findings
- General Health
- Mental Health
- Physical Health
- Social Health
- Overall Health

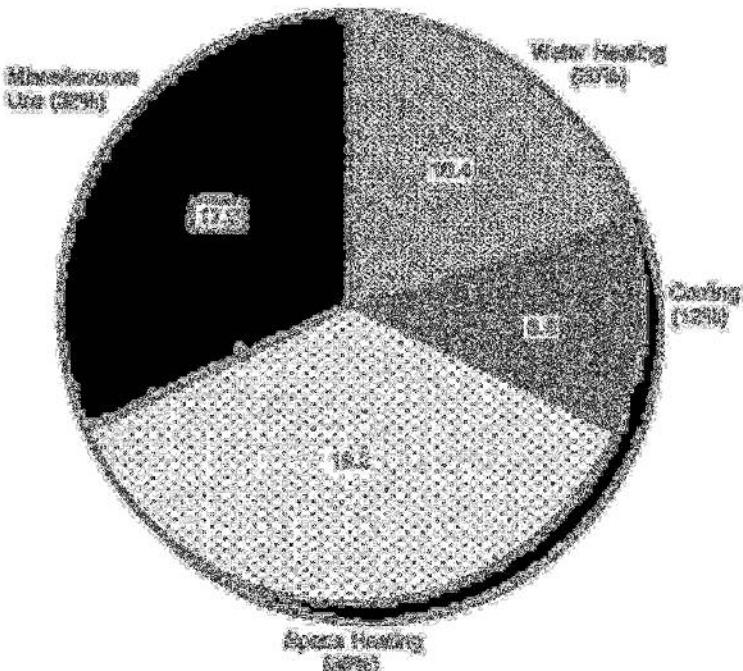


Findings
- General Health
- Mental Health
- Physical Health
- Social Health
- Overall Health

CHAPTER 2

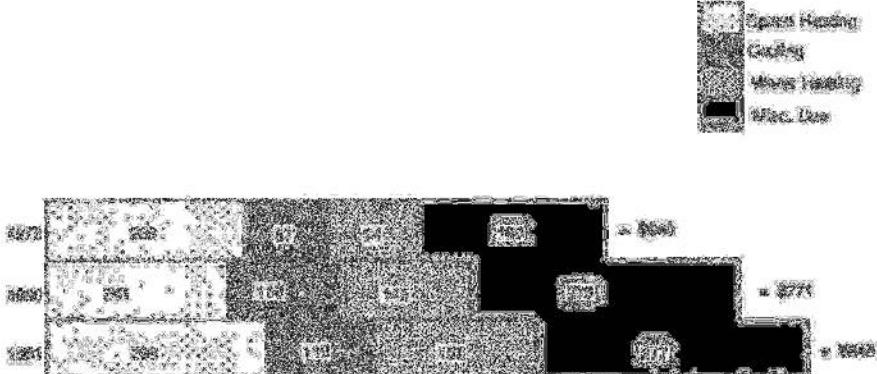
Summary of Findings (Continued)

Figure 10. Average Household Electricity Consumption When Main Heating Fuel Is Electricity by End Use for 1981 (Million Btu)



Source: Energy Information Administration, 1981 Residential Energy Consumer Survey.

Figure 11. Average Household Electricity Expenditures When Main Heating Fuel Is Electricity by End Use for 1978, 1980, and 1981 (Dollars)



Natural Gas Consumption and Expenditures

Space Heating

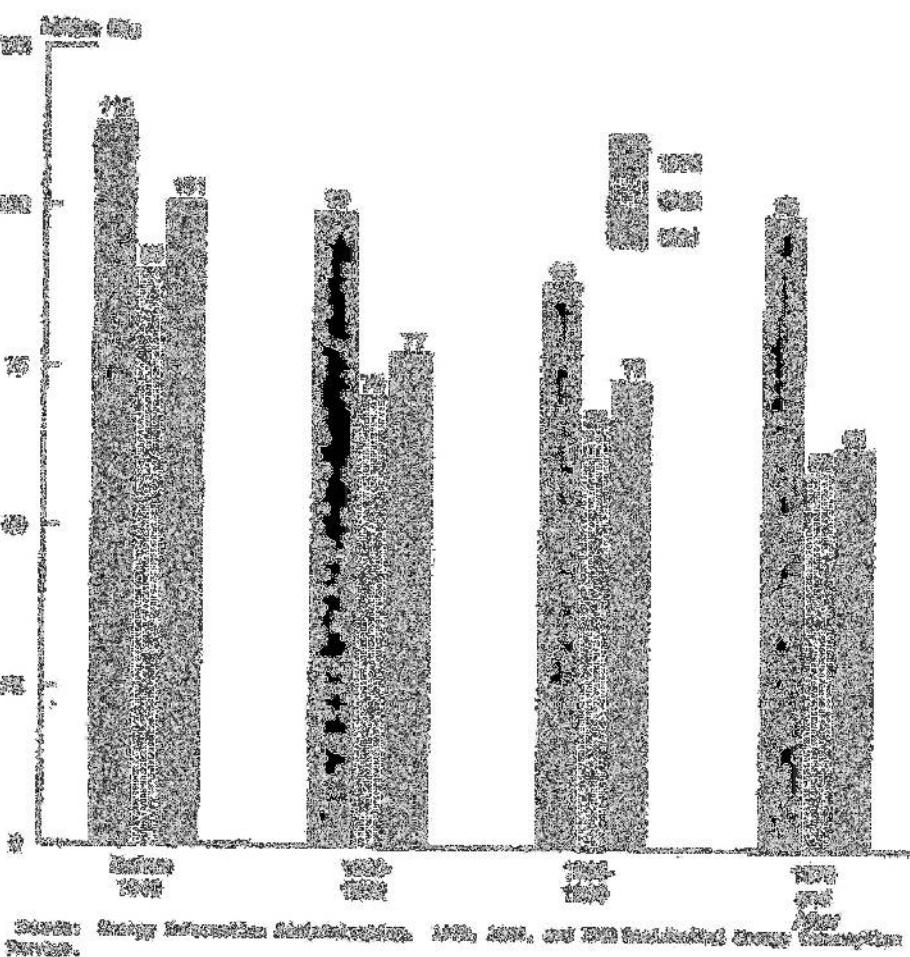
Figure 12. Average Natural Gas Consumption for Space Heating When Main Heating Fuel Is Natural Gas by Selected Year/House Who Said Natural Gas

Summary of Findings (Continued)

Using these households as the base when main heating fuel was natural gas, there was approximately a 74 (7) percent decrease in natural gas used for space heating from 1970 through 1981 compared with a 34 (4) percent decrease in the North Central region. (The 74 (7) percent decrease in the Northeast and the 11 (6) percent decrease in natural gas consumption in the South from 1970 through 1981 were not statistically significant.) However, in the Northeast between 1970 and 1981, there was a significant decline in natural gas consumed for space heating. Households in this region averaged, on the average, a 21 (2) percent decrease in consumption.

Between 1970 and 1981 households of 1,000 to 1,100 square feet and households of 2,000 or more square feet both experienced approximately the same percentage decrease (31 percent) in consumption for space heating.

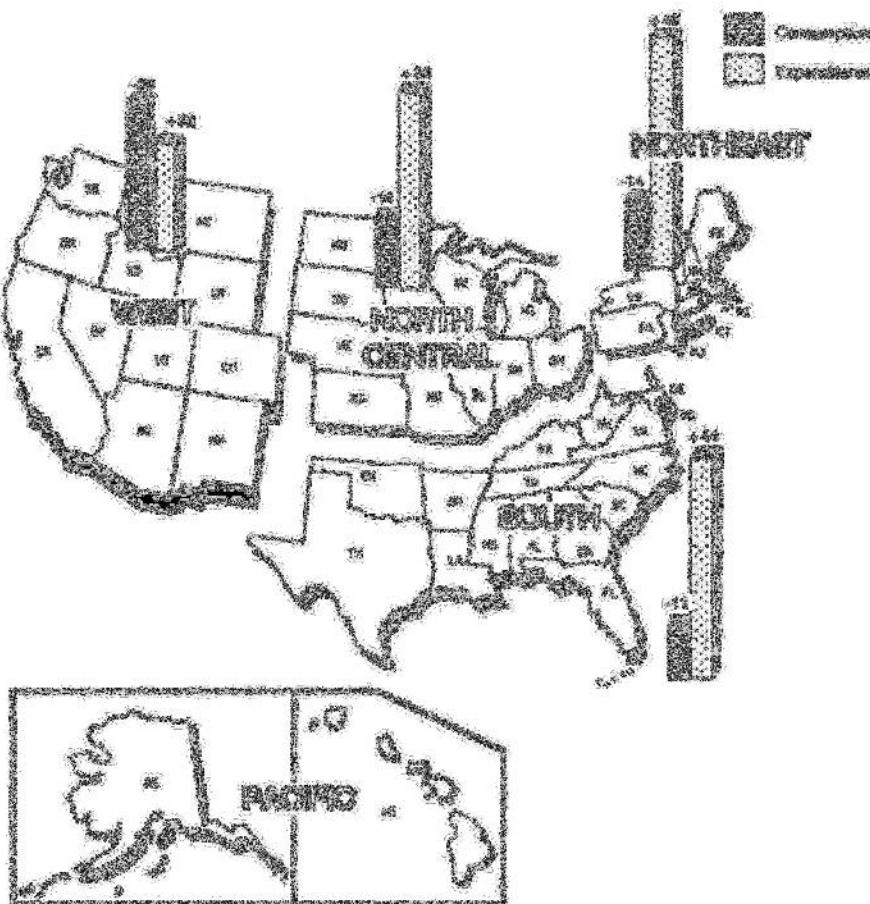
Energy consumption also varied by the age of the home. Figure 12 shows natural gas expenditures for space heating by the year the house was constructed. These households were 30% not heated by natural gas and 36 (2) percent less money in 1980 than they did in 1970; older houses (constructed before 1919) experienced a 17 (3) percent decrease in natural gas consumption.



Summary of Findings (Continued)

Figure 13. Percent Change Between 1978 and 1981 of Average Household Consumption and Expenditures for Space Heating When Main Heating Fuel Is Natural Gas by Region

Natural gas expenditures for space heating increased in all regions of the United States from 1978 through 1981. Households in the Northeast experienced a 46 (3) percent increase in space heating costs; the South, a 44 (4) percent increase; the North Central region, a 39 (3) percent increase; and the West, a 22 (6) percent increase. Figure 13 shows the percentage change between 1978 and 1981 in natural gas consumption and expenditures by region.



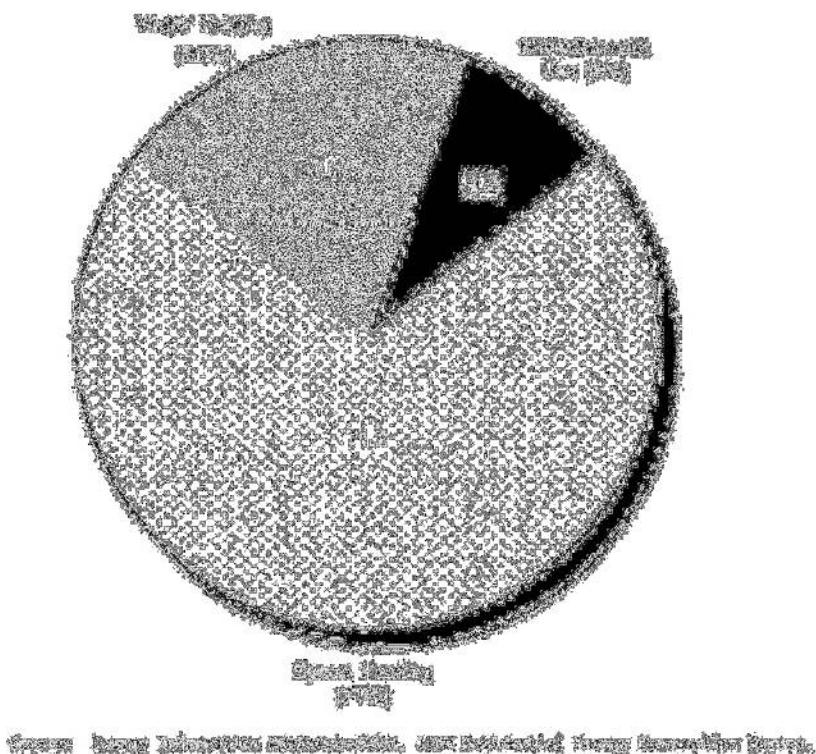
Note: Alaska and Hawaii were not included in the 1978 survey.

End Use

The distribution of natural gas usage varies by heating, water heating, and electric. Among the non-residential users surveyed, most natural gas heat did not necessarily have utility use and the household that used natural gas as the sole heating fuel, the availability of alternative sources between the two types of households was higher than households that used natural gas, and of the two fuels, heating fuel.

Figure 14 shows the structure of natural gas consumed for 1994, 1995, and 1996 among both those using heating fuel and non-fuel gas. In 1996, heating fuel use accounted for 51 percent of the energy used for heating, or about approximately 37.43 percent was used for space heating, 19.61 percent for water heating and 5.47 percent for alternative uses.

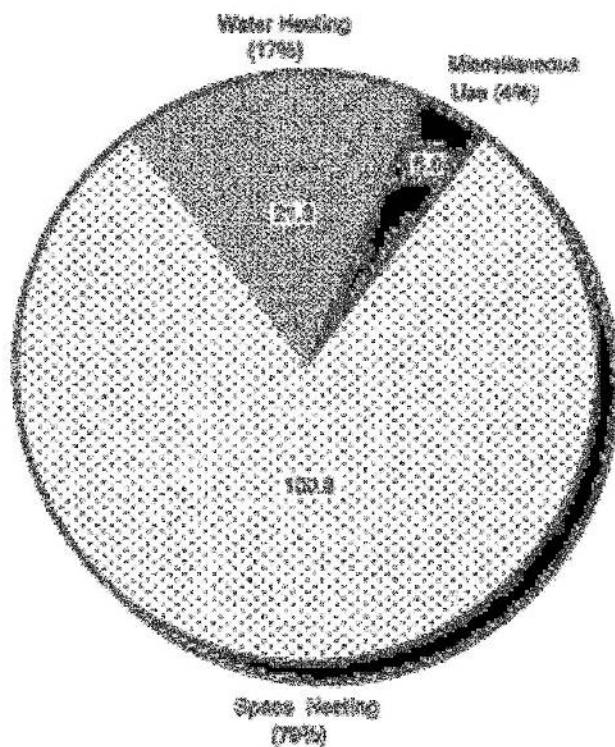
Figure 14. Average Household Natural Gas Consumption for All Households That Use Natural Gas by End Use for 1994, 1995, and 1996



CHAPTER 2

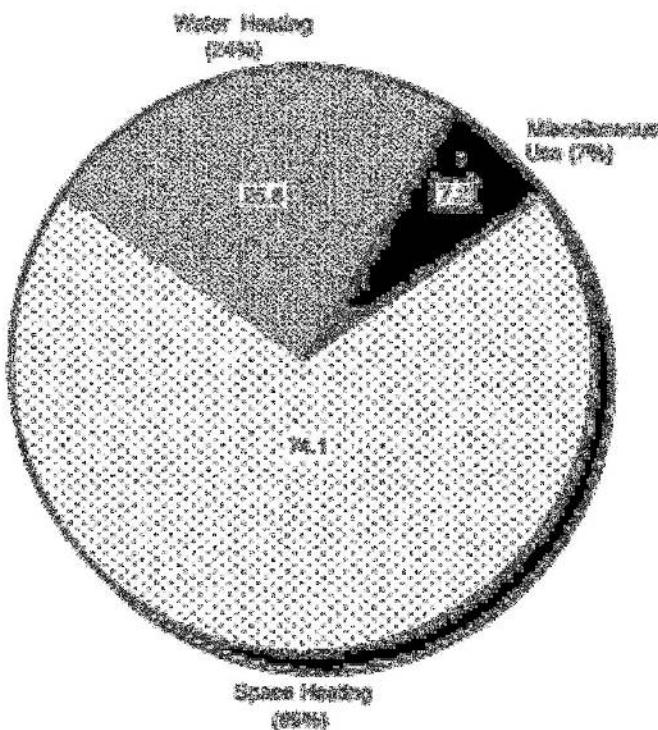
Summary of Findings (Continued)

Figure 15. Average Household Natural Gas Consumption When Main Heating Fuel Is Natural Gas by End Use for 1978 (Million Btu)



Source: Energy Information Administration, 1978 Residential Energy Consumption Survey.

Figure 16. Average Household Natural Gas Consumption When Main Heating Fuel Is Natural Gas by End Use for 1980 (Million Btu)

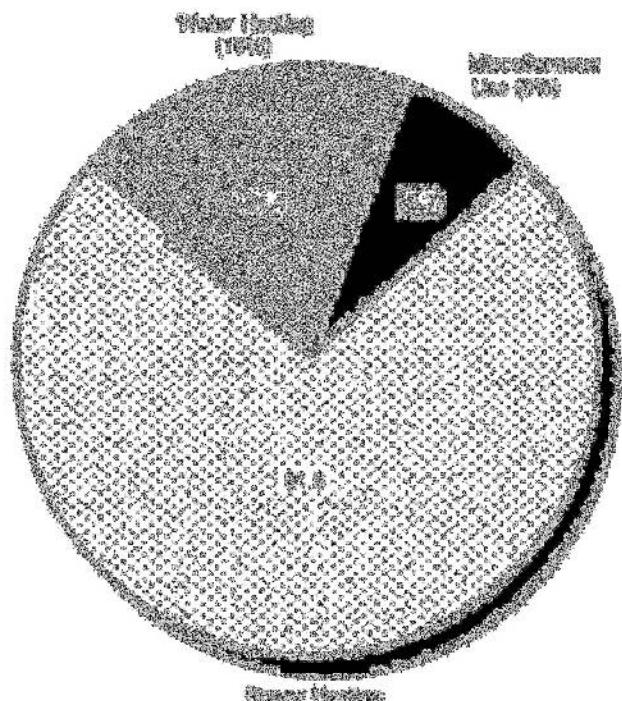


Source: Energy Information Administration, 1980 Residential Energy Consumption Survey.

CHAPTER 2

Summary of Findings (Continued)

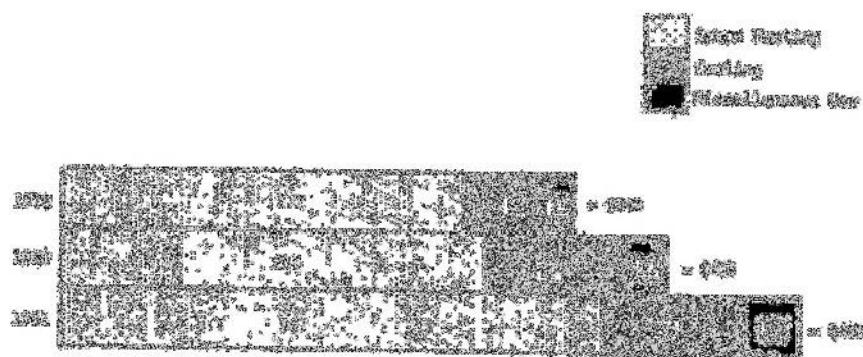
Figure 17. Average Household Natural Gas Consumption When Main Heating Fuel Is Natural Gas by End Use for 1991 (Billions Btu)



Source: Energy Information Administration, U.S. Residential Energy Consumption Survey.

Figure 18 shows the average household expenditures for general gas and over than the main heating fuel by natural gas for 1990, 1989, and 1981.

Figure 18. Average Household Natural Gas Expenditures When Main Heating Fuel Is Natural Gas by End Use for 1990, 1989, and 1981 (\$billions)



**Table 1. Average
Household Electricity
Consumption When
With Heating Fuel Is
Electricity by Fuel
Used by Selected
Households
(Estimated values for
1990)**

FUEL	ELECTRIC HEATING	NON-ELEC. HEATING			
		100% ELECTRIC HEATING	50% ELECTRIC HEATING	33% ELECTRIC HEATING	25% ELECTRIC HEATING
PETROLEUM	100.000	100.000	100.000	100.000	100.000
WOOD	100.000	100.000	100.000	100.000	100.000
LIQUID FUELS	100.000	100.000	100.000	100.000	100.000
COAL	100.000	100.000	100.000	100.000	100.000
NATURAL GAS	100.000	100.000	100.000	100.000	100.000
GEOTHERMAL	100.000	100.000	100.000	100.000	100.000
WIND	100.000	100.000	100.000	100.000	100.000
SOLAR	100.000	100.000	100.000	100.000	100.000
NUCLEAR	100.000	100.000	100.000	100.000	100.000
HYDRO	100.000	100.000	100.000	100.000	100.000

Note: - Data represent averages of a large number
of households by source, type of fuel used,
and type of heating system. The average is the average
of all households in the sample.



Summary of Findings (Continued)

Table 2. Average Household Electricity Consumption When Main Heating Fuel Is Electricity by End Use by Selected Socioeconomic Characteristics for 1978

Socioeconomic Characteristics	NUMBER OF HOMESHELD UNITS	END USE			
		SPACE HEATING (BILLION BTU)	COOKING (BILLION BTU)	WATER HEATING (BILLION BTU)	REFRIGERATION (BILLION BTU)
NATIONAL	12.1 12.31	32.6 ± 2.22	7.5 12.61	16.2 10.21	29.2 10.41
REGIONS AND SUBREGIONS					
NEW ENGLAND	2.3 10.31	22.6 ± 5.21	6.3 10.21	7.7 12.31	26.5 12.31
MID-ATLANTIC	3.1 10.21	25.5 ± 4.21	6.0 10.21	12.9 11.61	23.7 12.51
SOUTH	3.7 10.31	28.7 ± 3.21	8.2 10.31	9.7 10.71	29.6 13.31
WEST	3.6 10.31	31.6 ± 3.21	8.5 10.31	12.1 11.21	28.2 12.31
HEATING DEGREE DAYS					
0-3,000	2.7 10.71	21.7 ± 5.21	6.5 10.21	6.7 12.21	26.7 12.61
3,001-4,000	3.0 10.51	23.5 ± 3.21	10.6 13.51	9.6 13.31	26.5 12.41
4,001-5,000	2.6 10.41	25.0 ± 3.21	10.8 12.71	12.7 12.21	25.2 12.01
5,001-6,000	2.4 10.41	26.8 ± 3.21	8.8 11.41	10.9 12.01	25.8 12.21
6,001-6,999	2.2 10.31	28.2 ± 3.21	8.2 11.31	11.5 12.11	26.0 12.31
7,000-7,999	2.0 10.41	28.5 ± 2.91	8.8 10.81	11.7 12.41	25.4 12.71
8,000 OR MORE	0	0	0	0	0
INCOME					
LESS THAN \$2,000	3.2 10.31	25.6 ± 2.91	6.2 10.21	6.3 12.21	27.8 12.81
\$2,001-\$2,999	3.0 10.21	28.1 ± 3.21	6.5 12.71	8.0 13.71	26.9 12.21
\$3,000-\$3,999	2.7 10.31	25.8 ± 3.21	7.1 12.31	9.7 13.01	27.5 12.31
\$4,000-\$4,999	2.3 10.21	26.3 ± 3.21	7.6 12.51	11.2 13.41	25.8 12.41
\$5,000-\$5,999	2.0 10.41	28.0 ± 3.21	7.8 12.71	10.0 14.01	26.4 12.81
\$6,000-\$6,999	1.8 10.31	26.5 ± 3.21	9.0 12.61	10.9 13.81	26.7 12.91
\$7,000-\$7,999	1.6 10.31	26.8 ± 3.21	9.8 12.81	11.7 14.01	27.0 13.01
\$8,000 OR MORE	1.3 10.21	27.2 ± 2.91	10.2 12.81	10.5 13.61	26.3 12.71
NUMBER OF HOUSEHOLD MEMBERS					
ONE	2.0 10.31	25.8 ± 3.41	6.3 10.21	6.0 12.41	26.4 12.81
TWO	4.0 10.71	27.2 ± 3.61	9.1 12.41	7.8 13.61	26.3 12.21
THREE	2.1 10.21	26.7 ± 3.21	6.8 11.61	11.3 16.01	25.6 13.81
FOUR	1.9 10.31	26.8 ± 3.21	6.4 12.61	10.3 16.41	26.2 13.21
FIVE OR MORE	1.3 10.21	26.3 ± 2.91	7.7 13.61	11.0 17.31	26.0 13.81

*NOT A DATA RETURNED BECAUSE OF A LACK OF RESPONSE.

NOTE: BECAUSE OF INVERSION, DATA MAY NOT SUM TO TOTAL.

SOURCE: INVESTIGATIVE SURVEY OF RESIDENTIAL CONSUMPTION. SEE APPENDIX C FOR A DETAILED DESCRIPTION.

SOURCE: ENERGY INFORMATION ADMINISTRATION, OFFICE OF ENERGY MARKETS AND END USE. ENERGY USE DIVISION, THE 1978 RESIDENTIAL ENERGY CONSUMPTION SURVEY.



Summary of Findings (Continued)

Table 8. Average Household Natural Gas Consumption When Main Heating Fuel Is Natural Gas by End Use by Selected Housing Characteristics for 1978

Housing Characteristic	End Use			
	Number of Residential Units	Household Size	Total Heating	Total Residential End-Use Consumption
TOTAL	46,2 4,71	3,62 ± 0,01	30,5 16,71	62,7 10,31
HOUSING TYPE				
Single-family houses	46,2 4,71	3,62 ± 0,01	30,5 16,71	62,7 10,31
Two-family houses	2,1 0,11	3,62 ± 0,01	10,3 10,31	10,3 10,31
Mobile homes	1,3 0,07	3,62 ± 0,01	10,3 10,31	10,3 10,31
Other dwellings	1,3 0,07	3,62 ± 0,01	10,3 10,31	10,3 10,31
SIZE OF HOUSEHOLD				
One person	14,5 11,37	1,62 ± 0,01	10,3 10,31	10,3 10,31
Two persons	14,5 11,37	1,62 ± 0,01	10,3 10,31	10,3 10,31
Three persons	14,5 11,37	1,62 ± 0,01	10,3 10,31	10,3 10,31
Four or more persons	14,5 11,37	1,62 ± 0,01	10,3 10,31	10,3 10,31
EDUCATION LEVEL				
Less than high school	14,5 11,37	1,62 ± 0,01	10,3 10,31	10,3 10,31
High school graduate	14,5 11,37	1,62 ± 0,01	10,3 10,31	10,3 10,31
College graduate	14,5 11,37	1,62 ± 0,01	10,3 10,31	10,3 10,31
AGE OF HEAD OF HOUSEHOLD				
18 years and under	14,5 11,37	1,62 ± 0,01	10,3 10,31	10,3 10,31
19 to 24 years	14,5 11,37	1,62 ± 0,01	10,3 10,31	10,3 10,31
25 to 34 years	14,5 11,37	1,62 ± 0,01	10,3 10,31	10,3 10,31
35 to 44 years	14,5 11,37	1,62 ± 0,01	10,3 10,31	10,3 10,31
45 to 54 years	14,5 11,37	1,62 ± 0,01	10,3 10,31	10,3 10,31
55 years and over	14,5 11,37	1,62 ± 0,01	10,3 10,31	10,3 10,31
INCOME				
Below poverty level	14,5 11,37	1,62 ± 0,01	10,3 10,31	10,3 10,31
At or above poverty level	14,5 11,37	1,62 ± 0,01	10,3 10,31	10,3 10,31
RACE				
White	14,5 11,37	1,62 ± 0,01	10,3 10,31	10,3 10,31
Black	14,5 11,37	1,62 ± 0,01	10,3 10,31	10,3 10,31
SEX				
Male	14,5 11,37	1,62 ± 0,01	10,3 10,31	10,3 10,31
Female	14,5 11,37	1,62 ± 0,01	10,3 10,31	10,3 10,31

* = Data include members of a household.

± = Standard error of estimate, ± 1.96 SE units.

SE = Standard error of estimate. The standard error is equal to a standard deviation.

Source: U.S. Bureau of the Census, Current Population Survey, March 1979. Figures are based on 1978 data. Totals may not add up due to rounding.

Summary of Findings (Continued)

Table 4. Average Household Natural Gas Consumption When Main Heating Fuel Is Natural Gas by End Use by Selected Socio-demographic Characteristics for 1978

SOCIO-DEMOCRATIC CHARACTERISTICS	NUMBER OF HOMESHEADS EXCLUDING THOSE WITH NO HEATING	END USE		
		SPACE HEATING BILLION CUBIC FEET	WATER HEATING BILLION CUBIC FEET	COOKING BILLION CUBIC FEET
NATURAL GAS	43,3 (11.3)	301.3 ± 3.83	35.0 (5.73)	2.9 (0.3)
RESIDENTIAL HEATING				
NUMBER				
100% NATURAL GAS	7.3 (6.7)	157.4 ± 7.03	20.2 (22.81)	2.3 (2.6)
100% ELECTRIC	12.3 (23.3)	232.6 ± 3.33	25.3 (21.81)	2.1 (2.3)
GAS/ELECTRIC	15.3 (22.8)	254.6 ± 3.63	20.7 (21.81)	2.5 (2.6)
PROPS	9.6 (22.8)	170.0 ± 3.03	20.4 (22.11)	2.7 (2.3)
HEATING DEGREE DAYS				
NUMBER				
0-2,000	2.3 (2.7)	35.1 ± 2.03	25.7 (25.81)	2.0 (2.3)
2,001-2,500	2.0 (2.3)	35.9 ± 2.33	25.7 (25.81)	2.0 (2.3)
2,501-3,000	2.0 (2.3)	35.6 ± 2.63	25.2 (25.71)	2.5 (2.6)
3,001-3,500	2.0 (2.3)	35.1 (25.71)	25.7 (25.81)	3.0 (2.3)
3,501-4,000	2.0 (2.3)	35.3 ± 2.93	25.8 (25.81)	3.2 (2.3)
4,001-4,500	2.0 (2.3)	35.6 ± 3.23	25.8 (25.81)	3.4 (2.3)
4,501-5,000	2.0 (2.3)	35.2 ± 3.53	25.8 (25.81)	3.6 (2.3)
5,001-5,500	2.0 (2.3)	35.0 ± 3.83	25.8 (25.81)	3.8 (2.3)
5,501-6,000	2.0 (2.3)	35.2 ± 4.13	25.8 (25.81)	4.0 (2.3)
6,001 > 6,000	2.0 (2.3)	35.0 ± 4.43	25.8 (25.81)	4.2 (2.3)
INCOME				
NUMBER				
100% PROP. 20,000	4.4 (10.7)	79.7 ± 4.03	25.0 (21.81)	2.4 (2.3)
10,001-14,999	5.0 (12.5)	85.3 ± 5.33	25.3 (21.81)	2.5 (2.3)
15,000-19,999	7.0 (19.6)	91.5 ± 6.63	26.1 (21.81)	2.8 (2.3)
20,000-24,999	7.0 (19.6)	91.8 ± 7.93	27.3 (21.81)	3.1 (2.3)
25,000-29,999	6.8 (18.5)	111.8 ± 8.33	25.6 (21.81)	3.4 (2.3)
30,000-34,999	5.4 (16.5)	137.4 ± 9.63	25.3 (21.81)	3.6 (2.3)
35,000 > 35,000	2.0 (10.2)	200.7 (23.81)	26.0 (21.81)	3.3 (2.3)
NUMBER OF HOUSEHOLD MEMBERS				
NUMBER				
2	2.2 (10.7)	77.0 ± 4.63	25.3 (21.81)	2.4 (2.3)
3	2.4 (10.6)	92.8 ± 5.33	25.1 (21.81)	2.7 (2.3)
4	2.6 (10.5)	100.3 ± 6.03	25.3 (21.81)	2.6 (2.3)
5	2.6 (10.4)	110.4 ± 6.63	25.2 (21.81)	2.9 (2.3)
6+	2.0 (10.3)	212.0 ± 4.33	25.5 (21.81)	2.4 (2.3)

* = DATA EXCLUDED BECAUSE OF A LACK OF SURVEY.

NOTE: BECAUSE OF ROUNDING, DATA MAY NOT SUM TO TOTALS.

SOURCE IS DOCUMENTED THROUGH THE STANDARD METRIC. SEE APPENDIX B FOR A DETAILED DISCUSSION.

UNPUBLISHED WEIGHT INFORMATION FROM U.S. BUREAU OF THE CENSUS AND THE U.S. BUREAU OF THE CENSUS, THE 1978 RESIDENTIAL ENERGY CONSUMPTION SURVEY.



Summary of Findings (Continued)

Table 6. Average Household Fuel Oil or Kerosene Consumption When Main Heating Fuel Is Fuel Oil or Kerosene by End Use by Selected Housing Characteristics for 1978

Housing characteristic	Number of households	End use			%
		Gasoline consumption	Diesel consumption	Kerosene consumption	
TOTAL	16,4 031	200.7 7 486	94.9 455	0	
TYPE OF HOUSEHOLD					
Single-unit household	11,1 421	180.5 6 561	93.1 452	0	
Two or more units	5,3 610	20.2 1 925	6.7 3 137	0	
TYPE OF TENURE					
Rent	8,1 651	180.8 1 861	93.2 4 220	0	
Own	8,3 380	20.2 1 624	6.7 3 129	0	
TYPE OF FAMILY					
Family	10,7 381	180.5 6 561	93.1 452	0	
Nonfamily	5,7 650	20.2 1 925	6.7 3 137	0	
SEX OF HEAD					
Male	8,7 381	180.5 6 561	93.1 452	0	
Female	7,7 650	20.2 1 925	6.7 3 137	0	
EDUCATION					
Less than high school	7,1 469	180.5 6 561	93.1 452	0	
High school graduate	6,3 152	20.2 1 624	6.7 3 129	0	
More than high school	2,9 360	20.2 1 244	6.7 3 075	0	
INCOME					
Below poverty level	7,1 469	180.5 6 561	93.1 452	0	
Above poverty level	9,3 562	20.2 1 624	6.7 3 129	0	

1978 average monthly amount of a heating source.

200.7 = gasoline, 94.9 = kerosene, 0 = diesel.

Source: Energy Information Administration, 1978 Residential Energy Consumption Survey. Data are for households using fuel oil or kerosene as their main heating fuel.

Note: Households using both fuel oil and kerosene as their main heating fuel are counted twice. Diesel is not included in the total because it is not a heating fuel.

Table 6. Average Household Fuel Oil or Kerosene Consumption When Main Heating Fuel Is Fuel Oil or Kerosene by End Use by Selected Socio-Demographic Characteristics for 1978

SOCIO DEMOGRAPHIC CHARACTERISTICS	NUMBER OF HOUSEHOLDS (MILLIONS)	END USE		
		SPACE HEATING (MILLION BTU)	WATER HEATING (MILLION BTU)	RESIDUAL USE (MILLION BTU)
TOTAL	36.3 (2.3)	126.7 (3.8)	8.3 (0.9)	4
GEOPGRAPHIC REGION				
NORTHEAST	8.3 (0.8)	116.0 (3.3)	14.0 (2.1)	5
WEST CENTRAL	8.1 (0.7)	145.6 (3.2)	8.7 (1.1)	6
SOUTH	8.3 (0.7)	73.8 (1.6)	8.3 (0.8)	5
MOUNTAIN	8.0 (0.6)	105.4 (1.7)	8.1 (0.8)	4
HEATING DEGREE DAYS				
0-1,999	8.3 (0.7)	39.8 (1.4)	6.0 (0.7)	4
2,000-2,499	0	0	0	0
3,000-3,499	8.3 (0.7)	80.9 (3.1)	8.1 (1.0)	5
4,000-4,499	8.3 (0.7)	79.8 (1.6)	8.4 (1.1)	6
5,000-5,499	7.2 (1.2)	328.7 (1.8)	23.2 (2.2)	17
6,000-6,499	3.7 (1.0)	231.4 (1.7)	6.1 (0.4)	4
7,000-7,499	3.7 (1.0)	234.8 (2.0)	7.8 (0.7)	5
8,000 OR MORE	8.3 (0.7)	105.4 (1.7)	9.7 (1.1)	6
INCOME				
LESS THAN \$5,000	8.3 (0.7)	125.8 (3.8)	8.6 (1.0)	5
\$5,000-\$9,999	8.4 (0.6)	129.6 (3.0)	7.6 (0.9)	5
\$10,000-\$14,999	8.3 (0.7)	110.3 (2.2)	7.3 (0.7)	5
\$15,000-\$19,999	8.3 (0.7)	127.7 (1.7)	21.3 (2.0)	15
\$20,000-\$24,999	8.3 (0.7)	122.9 (1.7)	8.2 (1.0)	6
\$25,000-\$34,999	2.3 (0.3)	136.4 (1.8)	8.4 (1.1)	5
\$35,000 OR MORE	8.3 (0.7)	105.3 (1.7)	8.8 (1.0)	6
NUMBER OF HOUSEHOLDS HEATING				
ONE	8.3 (0.7)	116.2 (3.4)	5.3 (1.1)	5
TWO	8.3 (0.7)	123.4 (3.2)	8.7 (1.0)	6
THREE	8.3 (0.7)	118.6 (3.3)	8.3 (0.9)	5
FOUR	8.3 (0.7)	116.9 (1.7)	20.9 (2.2)	15
FIVE OR MORE	8.3 (0.7)	120.5 (3.8)	12.3 (1.6)	8

* = DATA WITHHELD BECAUSE OF A LARGE VARIANCE.

NOTE: BECAUSE OF ROUNDING, DATA MAY NOT SUM TO TOTALS.

RANGES IN PARANTHESES INDICATE ONE STANDARD DEVIATION. SEE APPENDIX B FOR A DETAILED EXPLANATION.

SOURCE: ENERGY INFORMATION ADMINISTRATION, OFFICE OF ENERGY MARKETS AND USE, ENERGY USE SURVEY, THE 1978 RESIDENTIAL ENERGY CONSUMPTION SURVEY.

CHAPTER 2

Summary of Findings (Continued)

Table 7. Average Household LPG Consumption When Main Heating Fuel Is LPG by End Use by Selected Housing Characteristics for 1978

Housing characteristic	Number of households included	End use		
		Space heating heating fuel	Water heating heating fuel	Residential use heating fuel
Overall	3,142,311	67.3 ± 4.61	7.9 ± 1.51	3.6 ± 0.47
Housing structure				
Single-family detached	1,910,311	74.3 ± 6.07	11.7 ± 2.27	3.2 ± 0.47
Single-family attached	9	8	8	8
Two to four units	9	8	8	8
Five or more units	9	8	8	8
Mobile home	9,315,211	65.6 ± 6.21	8.2 ± 1.73	3.6 ± 0.47
Year house built				
1950-1959	9,315,211	65.6 ± 6.21	8.2 ± 1.73	3.6 ± 0.47
1960-1969	9,315,211	75.7 ± 6.75	9.7 ± 2.47	3.7 ± 0.50
1970-1979	9,315,211	68.2 ± 6.21	8.7 ± 1.73	3.7 ± 0.50
1980-1989	9,315,211	60.8 ± 6.21	7.6 ± 1.73	3.6 ± 0.47
1990-1999	9,315,211	53.9 ± 6.21	7.1 ± 1.73	3.6 ± 0.47
1990 or later	9,315,211	50.2 ± 6.21	6.9 ± 1.73	3.7 ± 0.50
Resident source income				
\$100-\$149	9,315,211	65.6 ± 6.21	8.2 ± 1.73	3.6 ± 0.47
\$150-\$199	9,315,211	65.6 ± 6.21	8.2 ± 1.73	3.6 ± 0.47
\$200-\$249	9,315,211	65.6 ± 6.21	8.2 ± 1.73	3.6 ± 0.47
\$250-\$299	9,315,211	65.6 ± 6.21	8.2 ± 1.73	3.6 ± 0.47
\$300 or more	9,315,211	65.6 ± 6.21	8.2 ± 1.73	3.6 ± 0.47

Note: ± indicates estimate of a large variance.

Source: U.S. Bureau of the Census, 1978 Energy Use Survey.

Data are from household survey and reflect residential energy consumption.

Resident source income information, Office of Energy Analysis, U.S. Energy Information Agency.

Summary of Findings (Continued)

Table 8. Average Household LPG Consumption When Main Heating Fuel Is LPG by End Use by Selected Socio-Demographic Characteristics for 1970

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同时，通过观察和分析，我们发现，这些高风险的项目往往具有以下特征。

APPENDIX B FIVE A SETTING INDICATES ONE STRIKING DIFFERENCE.

參見第2章的討論。

Summary of Findings (Continued)

Table 8. Average
Household Energy
Expenditures by End
Use by Selected
Characteristics for
1990

Characteristic	Total	Residential	Nonresidential			
			Commercial	Industrial	Transportation	Other
Total households	\$1,712	\$1,426	\$201	\$102	\$102	\$102
Households by income						
Below poverty level	\$1,712	\$1,426	\$201	\$102	\$102	\$102
At or above poverty level	\$1,712	\$1,426	\$201	\$102	\$102	\$102
Households by race						
White	\$1,712	\$1,426	\$201	\$102	\$102	\$102
Black	\$1,712	\$1,426	\$201	\$102	\$102	\$102
Households by age						
18 years and younger	\$1,712	\$1,426	\$201	\$102	\$102	\$102
19 to 64 years	\$1,712	\$1,426	\$201	\$102	\$102	\$102
65 years and older	\$1,712	\$1,426	\$201	\$102	\$102	\$102
Households by sex						
Male	\$1,712	\$1,426	\$201	\$102	\$102	\$102
Female	\$1,712	\$1,426	\$201	\$102	\$102	\$102
Households by education						
No high school diploma	\$1,712	\$1,426	\$201	\$102	\$102	\$102
High school graduate or higher	\$1,712	\$1,426	\$201	\$102	\$102	\$102
Households by ethnicity						
White, non-Hispanic	\$1,712	\$1,426	\$201	\$102	\$102	\$102
White, Hispanic	\$1,712	\$1,426	\$201	\$102	\$102	\$102
Black, non-Hispanic	\$1,712	\$1,426	\$201	\$102	\$102	\$102
Black, Hispanic	\$1,712	\$1,426	\$201	\$102	\$102	\$102
Asian and Pacific Islander, non-Hispanic	\$1,712	\$1,426	\$201	\$102	\$102	\$102
Asian and Pacific Islander, Hispanic	\$1,712	\$1,426	\$201	\$102	\$102	\$102
American Indian, Alaskan Native, non-Hispanic	\$1,712	\$1,426	\$201	\$102	\$102	\$102
American Indian, Alaskan Native, Hispanic	\$1,712	\$1,426	\$201	\$102	\$102	\$102
Households by marital status						
Married couple	\$1,712	\$1,426	\$201	\$102	\$102	\$102
Other	\$1,712	\$1,426	\$201	\$102	\$102	\$102
Households by family size						
1 person	\$1,712	\$1,426	\$201	\$102	\$102	\$102
2 persons	\$1,712	\$1,426	\$201	\$102	\$102	\$102
3 or more persons	\$1,712	\$1,426	\$201	\$102	\$102	\$102

Note: Households are defined as families and nonfamilies (including roomers and boarders) living in occupied housing units. Households are grouped according to their total energy expenditures by end-use category. The average household energy expenditure for each group is weighted by the number of households in the group. The average household energy expenditure for all households is \$1,712.

Table 10. Average Household Energy Expenditures by End Use by Selected Socioeconomic Characteristics for 1978

Socioeconomic Characteristics	TOTAL EXPENDITURE (DOLLARS)	END USE			
		SPACE HEATING (DOLLARS)	COOLING (DOLLARS)	WATER HEATING (DOLLARS)	OTHER/HOUSEHOLD USE (DOLLARS)
NATIONAL	784 133	315 1 03	52 1 31	92 1 03	397 1 03
DEMOGRAPHIC REGION					
WESTERN	807 168	318 1 02	58 1 33	98 1 03	380 1 03
MOUNTAIN	821 129	317 1 03	48 1 33	99 1 03	386 1 03
SOUTH	826 119	319 1 03	58 1 31	99 1 03	386 1 03
LEAST	839 164	317 1 04	58 1 33	98 1 03	397 1 03
RESIDENCE OWNERSHIP					
OWNED	891 186	313 1 03	57 1 03	102 1 03	382 1 03
RENTED	852 191	325 1 03	78 1 03	78 1 03	328 1 03
AGE IN YEARS					
18-24	647 137	223 1 03	54 1 03	55 1 03	236 1 03
25-34	673 144	232 1 03	56 1 03	54 1 03	236 1 03
35-44	681 143	243 1 03	56 1 03	56 1 03	237 1 03
45-54	705 136	250 1 03	57 1 03	57 1 03	237 1 03
55-64	728 134	250 1 03	57 1 03	57 1 03	237 1 03
65-74	742 157	258 1 03	57 1 03	58 1 03	239 1 03
75 AND OVER	715 161	261 1 03	58 1 03	59 1 03	233 1 03
EDUCATION					
LESS THAN HIGH SCHOOL	892 183	304 1 03	56 1 03	98 1 03	384 1 03
HIGH SCHOOL	827 128	306 1 03	56 1 03	78 1 03	328 1 03
COLLEGE	659 117	288 1 03	46 1 03	58 1 03	243 1 03
HIGH SCHOOL OR COLLEGE	746 123	298 1 03	56 1 03	105 1 03	236 1 03
GRADUATE	830 129	306 1 03	70 1 03	102 1 03	237 1 03
COLLEGE OR GRADUATE	624 125	286 1 03	55 1 03	51 1 03	233 1 03
INCOME					
LESS THAN \$10,000	892 183	304 1 03	56 1 03	98 1 03	384 1 03
\$10,000-\$19,999	827 128	306 1 03	56 1 03	78 1 03	328 1 03
\$20,000-\$29,999	659 117	288 1 03	46 1 03	58 1 03	243 1 03
\$30,000-\$39,999	746 123	298 1 03	56 1 03	105 1 03	236 1 03
\$40,000-\$49,999	830 129	306 1 03	70 1 03	102 1 03	237 1 03
\$50,000-\$59,999	624 125	286 1 03	55 1 03	51 1 03	233 1 03
\$60,000 OR MORE	1047 193	405 1 03	110 1 03	102 1 03	346 1 03
NUMBER OF HOUSEHOLD MEMBERS					
ONE	807 162	318 1 03	58 1 31	97 1 03	382 1 03
TWO	827 129	315 1 03	52 1 31	69 1 03	364 1 03
THREE	778 129	313 1 03	52 1 31	100 1 03	286 1 03
FOUR	863 147	318 1 03	58 1 31	125 1 03	329 1 03
FIVE OR MORE	879 161	318 1 03	58 1 31	168 1 03	335 1 03

*N/A = DATA WITHHELD BECAUSE OF A LARGE VARIANCE.

NOTE: EXCLUSION OF STRATA ONE DATA MAY NOT ADD TO TOTALS.

CODES IN PARENTHESIS INDICATE THE ESTIMATING DEVIATION. SEE APPENDIX B FOR A DETAILED DISCUSSION.

SOURCE: ENERGY INFORMATION ADMINISTRATION, OFFICE OF ENERGY MARKETS AND END USE, 1978 END USE SURVEY, THE 1978 RESIDENTIAL ENERGY CONSUMPTION SURVEY.

Summary of Findings (Continued)

Table 11. Average Household Electricity Expenditures by Income Category by Family Type and Selected Household Characteristics, 1999

HISTOGRAM			
HISTOGRAM		HISTOGRAM	

故其子曰：「吾父之子，其名也。」

Summary of Findings (Continued)

Table 12. Average Household Energy Expenditures for Space Heating by Main Heating Fuel by Selected Socio-demographic Characteristics for 1978

SOCIO-DEMOCRATIC CHARACTERISTICS	MAIN HEATING FUEL		
	ELECTRICITY (DOLLARS)	NATURAL GAS (DOLLARS)	FUEL OIL OR WOOD (DOLLARS)
ALL HOUSEHOLDS	269 (181)	224 (171)	475 (372)
RESIDENTIAL REGION			
SOUTHEAST	267 (171)	269 (183)	461 (363)
WEST CENTRAL	262 (163)	235 (171)	368 (273)
MIDWEST	265 (170)	240 (187)	369 (307)
NEW ENGLAND	276 (171)	231 (158)	357 (263)
HOUSEHOLD SIZE			
1-2 PERSONS	277 (181)	224 (183)	478 (373)
3-4 PERSONS	258 (161)	238 (172)	356 (263)
5-6 PERSONS	266 (168)	239 (188)	363 (303)
7-8 PERSONS	262 (152)	239 (173)	354 (283)
9-10 PERSONS	264 (161)	232 (157)	352 (283)
11-12 PERSONS	257 (152)	232 (158)	352 (283)
13-14 PERSONS	263 (161)	242 (183)	352 (283)
15-16 PERSONS	263 (161)	242 (183)	352 (283)
17 AND OVER PERSONS	263 (161)	242 (183)	352 (283)
ALL HOUSEHOLDS	276 (171)	223 (161)	475 (371)
INCOME			
\$25,000 AND UP	276 (171)	223 (161)	475 (371)
\$15,000-\$24,999	264 (161)	236 (171)	431 (343)
\$12,000-\$14,999	257 (152)	229 (171)	426 (323)
\$10,000-\$11,999	256 (161)	230 (181)	425 (303)
\$8,000-\$9,999	251 (151)	236 (181)	420 (303)
\$6,000-\$7,999	251 (151)	236 (181)	420 (303)
\$4,000-\$5,999	259 (152)	231 (151)	425 (323)
\$2,000-\$3,999	259 (152)	231 (151)	425 (323)
\$1,000-\$1,999	253 (161)	235 (181)	420 (303)
LESS THAN \$1,000	253 (161)	235 (181)	420 (303)
NUMBER OF HOUSEHOLD MEMBERS			
ONE	269 (181)	220 (161)	456 (363)
TWO	267 (161)	226 (171)	428 (323)
THREE	266 (161)	228 (171)	426 (323)
FOUR	264 (161)	226 (171)	426 (323)
FIVE OR MORE	264 (171)	226 (171)	428 (323)

*NOT DATA WITHIN MEASURE OF A LARGE VARIANCE.

**NOTES: BECAUSE OF ROUNDING, DATA MAY NOT SUM TO TOTALS.

SECTION OF RESIDENCE INDICATES ONE STANDARD DEVIATION. THE ESTIMATE IS FOR A DETAILED ESTIMATE.

SOURCE: ENERGY INFORMATION ADMINISTRATION, OFFICE OF ENERGY EXPENDITURES AND USES (EIA), ENERGY USE SURVEY, FOR 1978 RESIDENTIAL ENERGY CONSUMPTION SURVEY.

CHINESE

Summary of Findings (Continued)

Table 12. Average Household Electricity Consumption When Using Fueling Fuel to Electricity by End Use by Definition

Category	Sub-Category	Performance Metrics				
		Mean	SD	Median	Min	Max
System A	Processor Performance	3.5	0.2	3.4	3.0	4.0
System A	Memory Bandwidth	12.0	0.5	11.8	11.0	13.0
System A	Storage Latency	15.0	1.0	14.8	13.5	17.0
System A	Network Throughput	20.0	0.8	19.8	18.5	21.5
System A	Total System Score	100.0	5.0	98.5	90.0	110.0
System B	Processor Performance	3.8	0.1	3.7	3.2	4.2
System B	Memory Bandwidth	12.5	0.4	12.3	11.5	13.5
System B	Storage Latency	14.5	0.9	14.3	12.5	16.0
System B	Network Throughput	19.5	0.7	19.3	17.5	21.0
System B	Total System Score	98.0	4.5	96.5	88.0	108.0
System C	Processor Performance	3.6	0.3	3.5	3.1	4.1
System C	Memory Bandwidth	11.8	0.6	11.6	10.5	12.8
System C	Storage Latency	16.0	1.2	15.8	14.0	18.0
System C	Network Throughput	18.0	0.9	17.8	16.5	19.5
System C	Total System Score	95.0	4.0	93.5	85.0	105.0
System D	Processor Performance	3.7	0.2	3.6	3.3	4.3
System D	Memory Bandwidth	12.2	0.5	12.0	11.0	13.2
System D	Storage Latency	14.8	0.8	14.6	12.5	16.5
System D	Network Throughput	19.0	0.6	18.8	17.5	20.5
System D	Total System Score	97.0	4.2	95.5	89.0	107.0

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新編 金華府志稿 金華縣 嘉慶重刊本

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Summary of Findings (Continued)

Table 14. Average Household Electricity Consumption When Main Heating Fuel Is Electricity by End Use by Selected Sociodemographic Characteristics for 1980

SOCIODEMOGRAPHIC CHARACTERISTICS	NUMBER OF HOUSEHOLD MILLIONS	END USE			
		SPACE HEATING (MILLION BTU)	Cooking (MILLION BTU)	WATER HEATING (MILLION BTU)	MISCELLANEOUS USE (MILLION BTU)
TOTAL	24.3 (11.6)	18.2 (8.6)	7.3 (3.5)	16.4 (8.4)	29.6 (13.6)
DEMOGRAPHIC REGION					
NORTHEAST	1.6 (0.8)	24.3 (12.9)	3.7 (1.7)	19.6 (9.7)	17.7 (8.3)
MIDWEST	2.1 (1.1)	24.5 (12.4)	4.1 (1.9)	21.3 (10.8)	29.4 (12.3)
SOUTH	7.7 (3.8)	24.9 (12.6)	3.0 (1.3)	20.9 (10.4)	28.6 (13.1)
WEST	8.7 (4.0)	27.8 (13.3)	3.8 (1.6)	20.2 (10.7)	28.7 (13.1)
HEATING DEGREE DAYS					
0-3,750	3.0 (1.3)	4.9 (2.0)	23.8 (11.8)	9.9 (4.6)	19.5 (8.3)
3,751-4,200	3.2 (1.3)	18.9 (11.8)	26.4 (12.8)	9.1 (4.2)	18.1 (8.0)
4,201-4,650	3.7 (1.8)	18.0 (12.0)	26.3 (12.8)	9.6 (4.6)	18.8 (8.6)
4,651-5,100	4.0 (1.8)	26.2 (11.8)	26.5 (11.8)	18.2 (8.0)	21.3 (11.3)
5,101-5,550	2.8 (1.3)	27.2 (10.8)	3.9 (1.6)	16.4 (8.7)	24.9 (10.5)
5,551-6,000	2.0 (0.9)	23.5 (13.7)	3.4 (1.7)	18.6 (11.2)	20.2 (12.2)
6,001-6,450	2.3 (1.0)	23.5 (13.7)	3.4 (1.7)	18.6 (11.2)	20.2 (12.2)
6,451-6,900	2.4 (1.0)	24.9 (14.8)	6.1 (2.6)	18.4 (12.8)	18.2 (10.3)
6,901-7,350	2.0 (0.9)	22.4 (10.9)	6.1 (2.6)	13.3 (6.9)	17.5 (8.2)
7,351-7,800	2.0 (0.9)	22.4 (10.9)	6.1 (2.6)	13.3 (6.9)	17.5 (8.2)
7,801-8,250	2.0 (0.9)	22.4 (10.9)	6.1 (2.6)	13.3 (6.9)	17.5 (8.2)
INCOME					
LESS THAN \$5,000	1.0 (0.3)	13.8 (6.2)	2.1 (0.8)	6.0 (2.1)	18.6 (8.1)
\$5,001-\$7,500	2.3 (1.0)	16.4 (7.3)	4.4 (1.8)	6.3 (2.6)	18.2 (8.0)
\$7,501-\$10,000	2.7 (1.2)	26.3 (12.8)	6.4 (2.6)	7.5 (3.1)	24.8 (11.2)
\$10,001-\$12,500	2.0 (0.9)	27.6 (13.2)	5.9 (2.4)	15.7 (6.6)	19.4 (8.3)
\$12,501-\$15,000	3.7 (1.6)	26.3 (12.8)	7.8 (3.2)	19.1 (8.1)	28.8 (13.3)
\$15,001-\$17,500	2.9 (1.3)	26.2 (12.8)	8.6 (3.5)	11.2 (4.6)	22.6 (13.3)
\$17,501-\$20,000	1.0 (0.4)	21.7 (12.6)	16.7 (7.1)	14.8 (6.0)	20.2 (11.6)
NUMBER OF HOUSEHOLD MEMBERS					
ONE	5.9 (2.6)	25.6 (11.4)	6.2 (2.8)	15.4 (8.4)	18.6 (8.0)
TWO	4.8 (2.0)	17.5 (8.0)	5.7 (2.4)	8.3 (3.4)	18.9 (10.0)
THREE	11.3 (5.2)	29.7 (13.4)	9.2 (3.9)	18.3 (8.7)	23.4 (11.6)
FOUR	5.0 (2.1)	23.8 (11.8)	10.4 (3.7)	18.3 (8.0)	23.3 (10.9)
FIVE OR MORE	3.7 (1.6)	28.3 (12.6)	9.6 (3.9)	18.4 (8.1)	27.9 (13.3)

Note: = DATA WITHIN ONE STANDARD DEVIATION.

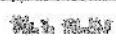
Note: Because of rounding, data may not sum to totals.

Source: U.S. Department of Energy, Residential Energy Consumption Survey, 1980. See Appendix B for a detailed discussion.

Editor: Energy Information Administration, Office of Energy Markets and Use, Survey and Use Division, U.S. Department of Energy, Washington, D.C. 20585.

Summary of Findings (Continued)

**Table 18. Average Household Material Status Characteristics When Right Housing
Food by Material Status
by End Year by
Number of Households
Established Since
1940**

SILICON		POLYIMIDE		COPOLYIMIDE		COPOLY(AMIDICONE)		COPOLY(AMIDOCONE)	
STRUCTURE	SYNTHESIS	STRUCTURE	SYNTHESIS	STRUCTURE	SYNTHESIS	STRUCTURE	SYNTHESIS	STRUCTURE	SYNTHESIS
									
CH ₂ -Si(CH ₃) ₂ -CH ₂	CH ₂ -Si(CH ₃) ₂ -CH ₂	CH ₂ -CO-NH-CO-CH ₂	CH ₂ -CO-NH-CO-CH ₂	CH ₂ -CO-NH-CO-CH ₂ -Si(CH ₃) ₂ -CH ₂	CH ₂ -CO-NH-CO-CH ₂ -Si(CH ₃) ₂ -CH ₂	CH ₂ -CONH-CO-CH ₂ -CH ₂ -Si(CH ₃) ₂ -CH ₂	CH ₂ -CONH-CO-CH ₂ -CH ₂ -Si(CH ₃) ₂ -CH ₂	CH ₂ -CONH-CO-CH ₂ -CH ₂ -Si(CH ₃) ₂ -CH ₂	CH ₂ -CONH-CO-CH ₂ -CH ₂ -Si(CH ₃) ₂ -CH ₂
CH ₂ -Si(CH ₃) ₂ -CH ₂	CH ₂ -Si(CH ₃) ₂ -CH ₂	CH ₂ -CO-NH-CO-CH ₂	CH ₂ -CO-NH-CO-CH ₂	CH ₂ -CO-NH-CO-CH ₂ -Si(CH ₃) ₂ -CH ₂	CH ₂ -CO-NH-CO-CH ₂ -Si(CH ₃) ₂ -CH ₂	CH ₂ -CONH-CO-CH ₂ -CH ₂ -Si(CH ₃) ₂ -CH ₂	CH ₂ -CONH-CO-CH ₂ -CH ₂ -Si(CH ₃) ₂ -CH ₂	CH ₂ -CONH-CO-CH ₂ -CH ₂ -Si(CH ₃) ₂ -CH ₂	CH ₂ -CONH-CO-CH ₂ -CH ₂ -Si(CH ₃) ₂ -CH ₂
CH ₂ -Si(CH ₃) ₂ -CH ₂	CH ₂ -Si(CH ₃) ₂ -CH ₂	CH ₂ -CO-NH-CO-CH ₂	CH ₂ -CO-NH-CO-CH ₂	CH ₂ -CO-NH-CO-CH ₂ -Si(CH ₃) ₂ -CH ₂	CH ₂ -CO-NH-CO-CH ₂ -Si(CH ₃) ₂ -CH ₂	CH ₂ -CONH-CO-CH ₂ -CH ₂ -Si(CH ₃) ₂ -CH ₂	CH ₂ -CONH-CO-CH ₂ -CH ₂ -Si(CH ₃) ₂ -CH ₂	CH ₂ -CONH-CO-CH ₂ -CH ₂ -Si(CH ₃) ₂ -CH ₂	CH ₂ -CONH-CO-CH ₂ -CH ₂ -Si(CH ₃) ₂ -CH ₂
CH ₂ -Si(CH ₃) ₂ -CH ₂	CH ₂ -Si(CH ₃) ₂ -CH ₂	CH ₂ -CO-NH-CO-CH ₂	CH ₂ -CO-NH-CO-CH ₂	CH ₂ -CO-NH-CO-CH ₂ -Si(CH ₃) ₂ -CH ₂	CH ₂ -CO-NH-CO-CH ₂ -Si(CH ₃) ₂ -CH ₂	CH ₂ -CONH-CO-CH ₂ -CH ₂ -Si(CH ₃) ₂ -CH ₂	CH ₂ -CONH-CO-CH ₂ -CH ₂ -Si(CH ₃) ₂ -CH ₂	CH ₂ -CONH-CO-CH ₂ -CH ₂ -Si(CH ₃) ₂ -CH ₂	CH ₂ -CONH-CO-CH ₂ -CH ₂ -Si(CH ₃) ₂ -CH ₂

在這裏，我們可以說，這就是「中國化」的「新儒學」。

RECOMMENDED APPROVAL OF THE PROPOSED OFFICE OF ENERGY SECURITY AND ENERGY INVESTIGATION



Summary of Findings (Continued)

Table 18. Average Household Natural Gas Consumption When Main Heating Fuel Is Natural Gas by End Use by Selected Socio-demographic Characteristics for 1980

Socio-demographic characteristic	NUMBER OF HOUSEHOLDS (MILLIONS)	END USE		
		SPACE HEATING (MILLION BTU)	WATER HEATING (MILLION BTU)	TOTAL CONSUMPTION (MILLION BTU)
NATIONAL	49.6 (11.83)	74.3 (11.53)	25.8 (6.51)	7.8 (1.94)
ECONOMIC STATUS				
INCOME	8.6 (8.71)	94.9 (22.93)	25.1 (6.71)	9.6 (2.51)
WHITE, MEDIUM.....	9.8 (8.61)	99.2 (22.23)	27.4 (6.61)	7.2 (1.41)
BROWN.....	11.8 (10.71)	97.0 (21.83)	26.5 (6.53)	7.6 (1.71)
BLACK.....	11.1 (10.61)	96.8 (21.51)	26.2 (6.41)	7.5 (1.61)
HEATING DEGREE DAYS				
0-1,499.....	8.8 (8.21)	27.8 (5.31)	8.8 (2.61)	3.8 (1.01)
1,500-2,299.....	8.8 (8.21)	46.4 (12.25)	18.7 (5.97)	9.6 (2.37)
2,300-3,299.....	8.0 (8.11)	38.8 (10.21)	18.8 (5.51)	9.5 (2.11)
3,300-4,299.....	3.3 (3.77)	60.3 (12.21)	22.6 (5.61)	5.1 (1.61)
4,300-5,299.....	8.1 (8.21)	39.4 (12.41)	18.5 (5.23)	7.0 (1.73)
5,300-6,299.....	25.1 (21.01)	109.4 (21.81)	37.1 (10.61)	17.5 (4.41)
7,300-7,999.....	6.5 (6.61)	181.2 (46.81)	56.7 (15.81)	5.7 (1.61)
8,000 OR MORE.....	3.8 (3.61)	167.1 (37.51)	52.3 (12.21)	5.4 (1.41)
EDUCATION				
LESS THAN HS.GRAD.....	8.5 (8.31)	60.9 (12.21)	22.5 (5.11)	5.9 (1.31)
HS.GRAD-12.YRS.....	7.2 (8.41)	61.7 (12.41)	23.1 (5.61)	6.4 (1.51)
12+YRS-14,YRS.....	8.7 (8.51)	60.4 (13.31)	23.8 (5.81)	6.7 (1.61)
15+YRS-17,YRS.....	6.8 (6.61)	70.1 (12.51)	25.8 (5.91)	8.0 (1.81)
18+YRS-22,YRS.....	8.8 (8.41)	79.5 (16.21)	29.4 (13.31)	7.3 (2.01)
23+YRS-26,YRS.....	8.7 (8.61)	76.1 (12.21)	28.3 (6.71)	7.9 (1.71)
27+YRS OR MORE.....	8.6 (10.61)	87.9 (18.61)	39.3 (13.21)	9.1 (2.21)
NUMBER OF HOUSEHOLD MEMBERS				
ONE.....	8.2 (8.61)	16.5 (4.81)	54.4 (10.81)	6.4 (1.61)
TWO.....	24.6 (26.61)	78.5 (18.81)	23.8 (6.81)	6.8 (1.71)
THREE.....	6.1 (6.51)	76.3 (18.81)	26.4 (6.71)	6.2 (1.61)
FOUR.....	7.7 (8.51)	82.2 (12.91)	33.0 (8.91)	7.6 (1.61)
FIVE OR MORE.....	8.9 (8.41)	80.8 (18.31)	33.9 (13.81)	8.8 (2.01)

*N = DATA WITHHELD BECAUSE OF A LARGE VARIANCE.

NOTE: SOURCE OF DATA: 1980. DATA MAY NOT ADD TO TOTALS.

FIGURES IN PARENTHESES INDICATE THE STANDARD DEVIATION. SEE APPENDIX D FOR A DETAILED DESCRIPTION.

SOURCE: ENERGY INFORMATION ADMINISTRATION, OFFICE OF ENERGY MARKETS AND END USE, ENERGY END USE SURVEY, THE 1980 RESIDENTIAL ENERGY CONSUMPTION SURVEY.

Summary of Findings (Continued)

Table 17. Average Household Fuel Oil or Kerosene Consumption When Main Heating Fuel Is Fuel Oil or Kerosene by End Use by Selected Housing Characteristics for 1980

Housing Characteristic	Average Fuel Oil Consumption (Millions of Gallons)	End Use			Number of Families
		Space Heating	Water Heating	Other Uses	
TOTAL					
HIGH INCOME GROUP	10.4 0.71	8.0 0.53	1.6 0.12	0	
MIDDLE-INCOME GROUP	2.8 0.20	2.0 0.15	0.8 0.06	0	
LOW-INCOME GROUP	1.6 0.12	1.2 0.09	0.2 0.02	0	
TYPE HOME OWNED					
OWNER OCCUPIED	0.2 0.01	0.2 0.01	0.0 0.00	0	
RENTED	2.6 0.19	2.4 0.18	0.2 0.01	0	
HOUSING TENURE					
OWNED	2.6 0.19	2.4 0.18	0.2 0.01	0	
RENTED	2.6 0.19	2.4 0.18	0.2 0.01	0	

*DOES NOT INCLUDE HOUSES OF A VALUE OVER \$100,000.

**DOES NOT INCLUDE FAMILIES NOT RELATED TO HOUSEHOLD.

***DOES NOT INCLUDE HOUSES OF A VALUE OVER \$100,000, NOR FAMILIES NOT RELATED TO HOUSEHOLD.

Summary of Findings (Continued)

Table 16. Average Household Fuel Oil or Kerosene Consumption When Main Heating Fuel Is Fuel Oil or Kerosene by End Use by Selected Socio-demographic Characteristics for 1980

Socio-demographic Characteristics	NUMBER OF HOUSEHOLDS INTERVIEWED	END USE		
		SPACE HEATING GALLONS DAY	WATER HEATING GALLONS DAY	MISCELLANEOUS USE (GALLONS DAY)
NEUTRAL	13,4 (8,7)	95.8 (8,3)	66.4 (3,2)	0
DISAPPROVING				
NORTHEAST	8.5 (6,2)	104.8 (2,7)	63.4 (6,6)	0
ROCKY MOUNTAIN	3.9 (3,2)	83.6 (4,3)	3.3 (2,3)	0
SOUTHEAST	3.3 (2,0)	76.3 (4,4)	2.9 (2,0)	0
WEST	2.5 (2,1)	65.3 (4,3)	2.2 (2,7)	0
HEATING DEGREE DAYS				
0-3,999	0	0	0	0
4,000-5,999	0	0	0	0
6,000-7,999	3.0 (26.3)	75.5 (26.6)	3.0 (2.2)	0
8,000-9,999	2.2 (20.0)	65.8 (26.7)	26.4 (25.9)	0
10,000-11,999	2.4 (28.7)	66.7 (26.1)	26.8 (28.6)	0
12,000-13,999	2.0 (28.5)	69.5 (24.9)	16.0 (26.2)	0
14,000-17,999	1.9 (28.2)	109.4 (26.3)	26.4 (22.6)	0
18,000 OR MORE	0.9 (28.5)	200.6 (27.4)	26.4 (22.6)	0
INCOME				
LESS THAN \$10,000	2.6 (28.2)	76.8 (28.4)	36.4 (26.2)	0
\$10,000-\$14,999	2.8 (28.2)	76.7 (26.9)	37.0 (28.9)	0
\$15,000-\$19,999	2.4 (28.2)	68.8 (26.0)	35.8 (22.6)	0
\$20,000-\$24,999	1.8 (28.2)	68.3 (26.3)	34.2 (22.8)	0
\$25,000-\$34,999	2.4 (28.2)	65.7 (26.3)	34.4 (22.6)	0
\$35,000-\$44,999	2.0 (28.2)	68.7 (26.7)	36.7 (22.6)	0
\$45,000 OR MORE	1.4 (28.2)	110.8 (26.2)	28.3 (22.3)	0
NUMBER OF HOUSEHOLD MEMBERS				
ONE	2.7 (28.3)	94.1 (27.1)	36.7 (26.8)	0
TWO	4.0 (28.2)	95.7 (25.6)	36.5 (26.6)	0
THREE	2.3 (28.2)	97.8 (26.9)	34.2 (22.6)	0
FOUR	2.0 (28.2)	91.7 (26.7)	32.0 (23.3)	0
FIVE OR MORE	0.4 (28.2)	189.5 (26.1)	35.3 (22.8)	0

NA = DATA REFERENCED BECAUSE OF A LARGE VARIANCE.

NOTE: BECAUSE OF HOUSEHOLD SIZE, DATA MAY NOT SUM TO TOTALS.

FIGURES IN PARENTHESES INDICATE ONE STANDARD DEVIATION. SEE APPENDIX B FOR A DETAILED DISCUSSION.

SOURCE: ENERGY INFORMATION ADMINISTRATION, OFFICE OF ENERGY MARKETS AND USE, ENERGY USE DIVISION, THE 1980 RESIDENTIAL ENERGY CONSUMPTION SURVEY.

Summary of Findings (Continued)

Telstra TEL, formerly
Southwicks LPG
Southwicks LPG
Twin Rivers LPG
LPG for the Way
Southwicks Hamptons
Gasworks, Telstra

	卷积层	池化层	全连接层	输出层
卷积层				
池化层				
全连接层				
输出层				

THE BOSTONIAN SOCIETY OF 1791 RECENTLY
REMOVED FROM THE STATE HOUSE TO NEW BOSTON,
WHICH IS NOW A MUSEUM.
THEIR LIBRARY IS LOCATED IN THE STATE HOUSE.

Summary of Findings (Continued)

Table 20. Average Household LPG Consumption When Main Heating Fuel Is LPG by End Use by Selected Socio-Demographic Characteristics for 1980

SOCIO-DEMOCRAPHIC CHARACTERISTICS	PERCENT OF HOUSEHOLDS CONSUMING	END USE		
		SPARE HEATING (MILLION BTU)	PATRON CONSUMPTION (MILLION BTU)	RESIDENTIAL USE (MILLION BTU)
MATERIALS	2.7 (9.4)	38.7 (3.4)	36.9 (2.2)	6.6 (0.5)
INDUSSTRY SECTOR				
MANUFACTURER	0.2 (0.2)	75.4 (20.2)	7.2 (2.2)	2.6 (1.4)
MINING, CONSTRUCTION	1.8 (0.6)	39.5 (8.6)	36.4 (6.9)	3.2 (1.5)
AGRICULTURE	0.9 (0.9)	35.9 (8.7)	34.8 (7.4)	0.7 (1.1)
HAZARDOUS WASTE	0.0 (0.0)	27.7 (8.7)	27.7 (12.7)	0.4 (1.5)
INDUSTRIAL SECTOR DATA				
0-1,000-5,000	0.5 (0.6)	38.9 (8.3)	7.1 (2.3)	26.6 (10.0)
5,000-10,000	0.4 (0.2)	35.7 (8.2)	37.2 (12.5)	6.2 (13.8)
10,000-50,000	0.3 (0.3)	32.9 (8.2)	7.7 (2.6)	37.7 (15.6)
50,000-100,000	0.2 (0.2)	67.6 (8.7)	20.1 (2.3)	2.8 (10.0)
100,000-500,000	0.1 (0.1)	28.7 (8.3)	32.8 (12.2)	0.7 (11.1)
500,000-1,000,000	0.1 (0.1)	79.2 (12.7)	18.0 (2.0)	0.3 (11.2)
1,000,000+	0.0 (0.0)	42.6 (12.7)	11.7 (1.3)	0.0 (1.1)
INDUSTRY				
LARGE TRADE BUSINESSES	0.5 (0.1)	38.4 (8.0)	30.7 (24.4)	6.7 (6.6)
SMALL TRADE BUSINESSES	0.3 (0.1)	35.9 (8.0)	35.8 (12.6)	2.6 (12.8)
MANUFACTURERS	0.3 (0.3)	39.3 (8.3)	11.2 (2.6)	4.5 (11.4)
MINING, CONSTRUCTION	0.2 (0.2)	41.2 (8.3)	8.9 (2.3)	5.7 (12.3)
AGRICULTURE	0.3 (0.3)	31.4 (12.7)	16.1 (12.7)	0.7 (11.7)
HAZARDOUS WASTE	0.2 (0.2)	36.6 (8.3)	16.8 (12.6)	2.4 (13.7)
NUMBER OF HOUSEHOLD MEMBERS				
ONE	0.4 (0.2)	38.0 (8.0)	25.2 (21.3)	3.5 (12.8)
TWO	0.2 (0.2)	32.8 (8.0)	32.2 (21.3)	2.7 (12.8)
THREE	0.3 (0.3)	36.7 (8.0)	27.7 (21.7)	3.2 (12.8)
FOUR	0.2 (0.2)	38.5 (8.0)	35.8 (21.7)	4.5 (12.8)
FIVE OR MORE	0.2 (0.2)	76.7 (22.2)	20.8 (21.3)	18.1 (13.8)

*NO DATA AVAILABLE BECAUSE OF A LARGE VARIANCE.

**DATA DUE TO LOW NUMBER, DATA MAY NOT ADD TO TOTAL.

***DATA IN PARENTHESES INDICATES THE STANDARD DEVIATION. SEE APPENDIX E FOR A DETAILED EXPLANATION.

SOURCE: ENERGY INFORMATION ADMINISTRATION, OFFICE OF FUEL USE AND USE PAT. ENERGY USE SURVEY, 1980 INDUSTRIAL ENERGY CONSUMPTION SURVEY.

CHARTBOOK

Summary of Findings (Continued)

Table 21. Average Household Energy Expenditures by End Use by Selected Housing Characteristics for 1990

Housing Characteristic	Total	End Use				
		Total Expenditure	Space Heating Expenditure	Electric Expenditure	Gas Expenditure	Other Expenditure
AVERAGE	\$1,140	\$674.90	\$674.90	\$674.90	\$674.90	\$674.90
OWNER OCCUPIED						
SINGLE-FAMILY OWNER OCCUPIED	\$1,140 (\$100)	\$674.90	\$674.90	\$674.90	\$674.90	\$674.90
MULTI-FAMILY OWNER OCCUPIED	\$1,140 (\$100)	\$674.90	\$674.90	\$674.90	\$674.90	\$674.90
TWO TO FIVE UNITS	\$1,140 (\$100)	\$674.90	\$674.90	\$674.90	\$674.90	\$674.90
SIX OR MORE UNITS	\$1,140 (\$100)	\$674.90	\$674.90	\$674.90	\$674.90	\$674.90
MOTEL ROOM	\$1,140 (\$100)	\$674.90	\$674.90	\$674.90	\$674.90	\$674.90
RENTED						
APARTMENT	\$1,140 (\$100)	\$674.90	\$674.90	\$674.90	\$674.90	\$674.90
DETACHED HOUSE	\$1,140 (\$100)	\$674.90	\$674.90	\$674.90	\$674.90	\$674.90
ROWHOUSE	\$1,140 (\$100)	\$674.90	\$674.90	\$674.90	\$674.90	\$674.90
MOBILE HOME	\$1,140 (\$100)	\$674.90	\$674.90	\$674.90	\$674.90	\$674.90
ROOM AND BOARD	\$1,140 (\$100)	\$674.90	\$674.90	\$674.90	\$674.90	\$674.90
OTHER RENTED	\$1,140 (\$100)	\$674.90	\$674.90	\$674.90	\$674.90	\$674.90
TOTAL RENTED	\$1,140 (\$100)	\$674.90	\$674.90	\$674.90	\$674.90	\$674.90

* An asterisk indicates rounded to a large number.
** Not seasonally adjusted; data may not sum to totals.

Note: Data are based on the 1990 Census of Population and Housing. The average is for all households. Space heating expenditures are for fuel oil, natural gas, propane, electricity, and wood.



Summary of Findings (Continued)

Table 22. Average Household Energy Expenditures by End Use by Selected Socio-demographic Characteristics for 1980

SOCIO-DEMOGRAPHIC CHARACTERISTICS	END USE				
	TOTAL EXPENDITURES (BILLIONS)	SPACE HEATING (BILLIONS)	COOKING (BILLIONS)	WATER HEATING (BILLIONS)	HEATING AND REFRIGERATION (BILLIONS)
					1980 (\$)
RESIDENTIAL ENERGY EXPENDITURES					
GENERAL REGION	1980 (\$)	1980 (%)	1980 (\$)	1980 (%)	1980 (\$)
NORTHEAST	1565 (12.8)	627 (39.1)	22 (1.4)	339 (21.3)	429 (26.8)
MIDWEST	913 (7.8)	358 (32.7)	39 (4.2)	164 (17.9)	284 (30.2)
SOUTHEAST	226 (1.9)	89 (39.6)	12 (5.3)	344 (15.3)	338 (14.9)
WEST	603 (5.1)	170 (28.2)	30 (5.0)	180 (30.1)	308 (51.4)
MEETING HOUSE DATA					
1,000-1,999	741 (10.7)	289 (38.7)	34 (4.6)	148 (19.7)	273 (36.6)
2,000-2,999	737 (10.1)	304 (40.1)	34 (4.6)	133 (17.8)	217 (28.1)
3,000-3,999	792 (10.5)	322 (41.7)	35 (4.7)	125 (15.3)	237 (28.0)
4,000-4,999	854 (10.3)	338 (40.1)	37 (4.3)	135 (15.1)	202 (23.8)
5,000-5,999	1079 (14.7)	405 (37.1)	50 (4.6)	164 (15.3)	308 (28.3)
6,000-6,999	998 (13.6)	357 (35.5)	34 (3.6)	148 (14.6)	279 (23.1)
7,000-7,999	2013 (13.9)	916 (45.3)	49 (2.5)	340 (16.5)	293 (13.7)
8,000 OR MORE	979 (10.7)	480 (49.0)	46 (4.8)	140 (13.7)	279 (22.1)
EDUCATION					
LESS THAN HIGH SCHOOL	785 (13.1)	247 (31.9)	29 (3.7)	126 (16.1)	252 (32.1)
HIGH SCHOOL	805 (12.7)	248 (31.1)	36 (4.7)	132 (16.3)	258 (31.3)
SOME COLLEGE	857 (12.6)	259 (30.1)	47 (5.4)	135 (16.1)	218 (25.7)
BACHELOR'S DEGREE	880 (12.3)	276 (31.4)	52 (5.9)	145 (15.3)	252 (31.1)
GRADUATE'S DEGREE	920 (11.9)	267 (28.1)	73 (8.0)	124 (13.1)	250 (27.1)
TOTAL BY EDUCATION	10260 (100)	3550 (35.0)	421 (4.1)	1374 (13.5)	2644 (26.1)
NUMBER OF HOUSEHOLD MEMBERS					
ONE	606 (10.9)	223 (36.7)	46 (7.9)	44 (7.4)	229 (39.7)
TWO	620 (12.0)	224 (36.7)	43 (7.1)	120 (21.1)	330 (46.7)
THREE	561 (10.1)	203 (36.1)	32 (5.7)	125 (22.3)	325 (46.0)
FOUR	1083 (10.8)	306 (28.1)	38 (3.5)	120 (11.1)	433 (39.8)
FIVE OR MORE	1273 (10.9)	305 (23.1)	43 (3.4)	124 (11.1)	409 (33.1)

*N = DATA INFERRED BECAUSE OF A LARGE VARIANCE.

NOTE: BECAUSE OF ROUNDING, TOTALS MAY NOT SUM TO TOTALS.

STANDARDS IN PARENTHESES INDICATE THE STANDARD DEVIATION. THE APPENDIX IS FOR A DETAILED EXPLANATION.

SOURCE: ENERGY INFORMATION ADMINISTRATION, OFFICE OF CONSUMERS MARKETS AND END USE, MIDYEAR 1980 ESTIMATE. THE 1980 ESTIMATE IS THE CONVENTIONAL SURVEY.

Summary of Findings (Continued)

Table 31. Average Household Energy Expenditure for Space Heating by Main Heating Fuel by Selected Housing Characteristics for 1990

Housing characteristic	Average heating fuel		
	RESIDENTIAL CENSUS	NONRESIDENTIAL CENSUS	NON-CEN. ESTIMATES
HOUSING TENURE			
OWNED HOME			
OWN-DEBT OWNERSHIP	\$66,000	\$26,700	\$20,100
OWN-DEBT ATTACHMENT	\$20,000	\$20,000	\$20,000
NO DEBT OWNERSHIP	\$20,000	\$20,000	\$20,000
NO DEBT ATTACHMENT	\$20,000	\$20,000	\$20,000
RENTED HOME			
RENT-DEBT OWNERSHIP	\$24,000	\$24,000	\$24,000
RENT-DEBT ATTACHMENT	\$24,000	\$24,000	\$24,000
NO DEBT OWNERSHIP	\$24,000	\$24,000	\$24,000
NO DEBT ATTACHMENT	\$24,000	\$24,000	\$24,000
HOUSING SIZE			
SMALL HOME			
ONE-BEDROOM	\$20,000	\$20,000	\$20,000
TWO-BEDROOM	\$20,000	\$20,000	\$20,000
THREE-BEDROOM	\$20,000	\$20,000	\$20,000
FOUR-BEDROOM	\$20,000	\$20,000	\$20,000
FIVE-BEDROOM	\$20,000	\$20,000	\$20,000
SIX-BEDROOM	\$20,000	\$20,000	\$20,000
MEDIUM HOME			
ONE-BEDROOM	\$20,000	\$20,000	\$20,000
TWO-BEDROOM	\$20,000	\$20,000	\$20,000
THREE-BEDROOM	\$20,000	\$20,000	\$20,000
FOUR-BEDROOM	\$20,000	\$20,000	\$20,000
LARGE HOME			
ONE-BEDROOM	\$20,000	\$20,000	\$20,000
TWO-BEDROOM	\$20,000	\$20,000	\$20,000
THREE-BEDROOM	\$20,000	\$20,000	\$20,000
FOUR-BEDROOM	\$20,000	\$20,000	\$20,000
FIVE-BEDROOM	\$20,000	\$20,000	\$20,000
SIX-BEDROOM	\$20,000	\$20,000	\$20,000

*CEN = DATA COLLECTED DURING A LATE VINTAGE.
 **CEN = CENSUS OF HOUSING, DATA NOT FOR THE WHOLE.
 ***CEN = CENSUS OF HOUSING AND BUILDINGS. THE APPENDIX IS FOR A DETAILED APPENDIX.
 ****CEN = CENSUS OF HOUSING AND BUILDINGS OF GREAT BRITAIN AND IRELAND. CEN = CENSUS OF THE UNITED KINGDOM. THE DATA ARE HOUSEHOLD ENERGY CONSUMPTION TOTAL.

Table 24. Average Household Energy Expenditures for Space Heating by Main Heating Fuel by Selected Socio-demographic Characteristics for 1980

SOCIO-DEMOCRATIC CHARACTERISTICS	MAIN HEATING FUEL		
	MUNICIPALITY TERRITORY	MUNICIPAL SIZE (ESTIMATE)	CITY, TOWNS, VILLAGES
			1980 \$ 1,000
GENERAL DEMO			
NET INCOME	426 ± 443	426 (198)	427 (192)
NET CREDIT	329 ± 421	329 (123)	328 (227)
SURVEY	329 ± 392	329 (120)	328 (231)
NET	186 ± 87	186 ± 87	178 (37)
HEATING SOURCE RATES			
0-3,299	36 ± 362	36 ± 63	37
3,300-4,999	124 ± 123	125 ± 63	44
5,000-6,999	224 ± 221	227 (227)	226 (227)
7,000-9,999	320 ± 323	325 (227)	318 (240)
10,000-12,999	320 ± 323	326 (226)	316 (223)
13,000-15,999	320 ± 323	326 (227)	313 (227)
16,000 OR MORE	320 (227)	322 (227)	317 (242)
INCOME			
LESS THAN \$0,000	229 ± 223	221 (217)	220 (220)
\$0-\$999-\$1,499	229 ± 227	223 (223)	224 (227)
\$10,000-\$14,999	222 ± 223	221 (223)	222 (223)
\$15,000-\$19,999	229 ± 223	226 (223)	226 (223)
\$20,000-\$24,999	224 ± 223	226 (224)	224 (223)
\$25,000-\$29,999	223 ± 223	225 (223)	227 (223)
\$30,000 OR MORE	227 ± 227	224 (227)	226 (223)
NUMBER OF RESIDENTS			
ONE	186 ± 87	186 (87)	184 (87)
TWO	322 ± 323	327 ± 67	323 (227)
THREE	261 ± 263	262 (223)	267 (221)
FOUR	279 ± 281	282 (221)	281 (220)
FIVE OR MORE	320 ± 420	327 (227)	322 (227)

*N/A DATA NOT USED BECAUSE OF A LARGE VARIANCE.

NOTE: NUMBER OF HOUSEHOLDS, DATA MAY NOT SUM TO TOTAL.

SOURCE: PERIODICALLY INDICATED ONE STANDARD ESTIMATION. SEE APPENDIX D FOR A DETAILED DESCRIPTION.

SOURCE: ENERGY INFORMATION ADMINISTRATION, SURVEY OF ENERGY USE IN THE HOME, 1980 AND USE PREVIOUS, THE 1980 RESIDENTIAL ENERGY CONSUMPTION SURVEY.

OUTCOMES

Summary of Findings (Continued)

Turley, M., & Jones, S. (2002). The relationship between organizational commitment and job satisfaction: When does it hold? *Journal of Business Ethics*, 39, 103-114.

	1	2	3	4	5	6
1	1	2	3	4	5	6
2	2	1	2	3	4	5
3	3	2	1	2	3	4
4	4	3	2	1	2	3
5	5	4	3	2	1	2
6	6	5	4	3	2	1

1. Job Satisfaction
2. Organizational Commitment
3. Job Satisfaction
4. Organizational Commitment
5. Job Satisfaction
6. Organizational Commitment



Summary of Findings (Continued)

Table 26. Average Household Electricity Consumption When Main Heating Fuel Is Electricity by End Use by Selected Sociodemographic Characteristics for 1981

SOCIODEMOGRAPHIC CHARACTERISTICS	NUMBER OF HOUSEHOLDS (MILLIONS)	END USE			
		SPACE HEATING (BILLION BTU)	COOKING (BILLION BTU)	WATER HEATING (BILLION BTU)	NONCILIATION (BILLION BTU)
MARITAL STATUS	19.8 (11.1)	29.5 (1.3)	6.6 (0.6)	28.6 (1.6)	37.2 (3.6)
Married.....	13.8 (10.2)	22.5 (1.8)	5.1 (0.4)	22.7 (2.4)	34.0 (3.4)
Divorced.....	2.8 (2.2)	26.2 (2.2)	2.4 (0.2)	25.9 (2.4)	34.7 (3.2)
Separated.....	2.7 (1.9)	23.5 (2.0)	2.4 (0.2)	24.2 (2.0)	34.2 (3.2)
Widowed.....	2.3 (1.8)	21.5 (2.0)	2.2 (0.2)	22.6 (2.2)	33.2 (3.2)
NEIGHBORHOOD INCOME					
\$1-2,999.....	3.6 (2.8)	4.3 (1.9)	1.2 (1.1)	4.2 (1.1)	36.7 (3.9)
\$3,000-\$3,999.....	3.7 (2.8)	3.2 (1.2)	1.3 (1.2)	3.2 (1.2)	36.1 (3.1)
\$4,000-\$4,999.....	3.1 (2.4)	3.8 (1.7)	0.8 (1.3)	3.4 (1.1)	35.8 (3.1)
\$5,000-\$5,999.....	2.8 (2.0)	3.9 (1.5)	0.8 (1.2)	3.1 (1.1)	35.2 (3.1)
\$6,000-\$6,999.....	2.6 (1.8)	3.4 (1.3)	1.7 (1.0)	2.9 (1.2)	34.4 (3.1)
\$7,000-\$7,999.....	2.4 (1.6)	3.6 (1.3)	1.8 (1.0)	2.8 (1.1)	33.6 (3.1)
\$8,000-\$8,999.....	2.2 (1.5)	3.0 (1.2)	0.2 (0.1)	2.7 (0.7)	32.7 (2.9)
\$9,000 or more.....	2.0 (1.2)	4.2 (1.8)	0.4 (0.2)	4.7 (1.2)	31.8 (3.1)
EDUCATION					
LESS THAN HIGH SCHOOL.....	2.9 (1.8)	34.8 (2.0)	4.9 (3.0)	32.2 (2.7)	31.7 (3.0)
HS GRAD-NO COLLEGE.....	2.2 (1.5)	32.5 (1.7)	4.5 (3.0)	32.8 (2.8)	31.8 (3.1)
HS GRAD-COLLEGE.....	2.2 (1.8)	17.7 (1.8)	4.8 (2.0)	26.9 (2.8)	30.4 (3.1)
BACHELOR'S DEGREE.....	2.1 (1.6)	33.3 (2.2)	4.8 (3.0)	33.2 (2.7)	37.3 (3.2)
GRADUATE DEGREE.....	2.0 (1.5)	30.0 (2.2)	3.2 (2.0)	32.0 (2.8)	36.5 (3.1)
AGE OF HOUSEHOLDER					
18-24.....	3.1 (0.3)	16.7 (1.0)	3.6 (0.3)	16.6 (0.7)	36.2 (0.7)
25-34.....	3.0 (0.3)	23.3 (1.1)	3.5 (0.3)	23.2 (1.0)	35.7 (0.6)
35-44.....	3.0 (0.2)	27.2 (1.0)	3.2 (0.3)	26.8 (0.6)	34.5 (0.7)
45-54.....	2.3 (0.2)	20.5 (1.0)	7.0 (1.0)	24.9 (0.6)	33.2 (0.7)
55-64.....	1.8 (0.1)	23.4 (1.2)	7.3 (1.2)	18.2 (1.1)	32.3 (1.1)

Note: Data represent means of a large number.

Note: Because of rounding, data may not sum to totals.

Dashes in parentheses indicate the standard deviation. See Appendix B for a detailed discussion.

Source: ENERGY INFORMATION ADMINISTRATION, OFFICE OF ENERGY POLICIES AND PROGRAMS, ENERGY USE AND EXPENDITURE, THE 1981 RESIDENTIAL ENERGY CONSUMPTION SURVEY.



Summary of Findings (Continued)

Table 5
Number of
Firms
with
More
than
Five
Employees
by
Type
of
Business
Activity

Business Activity	2007 Data			
	1-500 Firms	501-1,000 Firms	1,001-5,000 Firms	5,001+ Firms
Manufacturing	1,100	1,100	2,200	1,100
Trade, Accommodation, Food & Beverage Services	1,100	1,100	2,200	1,100
Information, Telecommunications, Professional, Scientific & Technical Services	1,100	1,100	2,200	1,100
Health Care & Social Assistance	1,100	1,100	2,200	1,100
Manufacturing	1,100	1,100	2,200	1,100
Trade, Accommodation, Food & Beverage Services	1,100	1,100	2,200	1,100
Information, Telecommunications, Professional, Scientific & Technical Services	1,100	1,100	2,200	1,100
Health Care & Social Assistance	1,100	1,100	2,200	1,100
Total	3,300	3,300	6,600	3,300

Source: 2007 Census of Population and Housing. Statistics Canada. Catalogue no. 92-602-X.

Summary of Findings (Continued)

Table 20. Average Household Natural Gas Consumption When Main Heating Fuel Is Natural Gas by End Use by Selected Socio-demographic Characteristics for 1981

SOCIO-DEMOCRATIC CHARACTERISTICS	NUMBER OF HOUSeHOLDs IN MILLIONS	END USE		
		SPACE HEATING BILLION BTU	WATER HEATING MILLION BTU	PETROLEUM USE BILLION BTU
ALL	46.2 (1.81)	42.6 (11.71)	32.6 (8.41)	8.7 (3.81)
DEMOGRAPHIC REGION				
NEW ENGLAND	7.0 (1.81)	107.5 (2.81)	38.4 (8.81)	8.4 (3.81)
SOUTHERN NEW ENGLAND	22.4 (6.01)	125.9 (3.13)	32.4 (8.01)	8.2 (3.01)
NEW YORK	10.2 (2.81)	80.9 (2.21)	29.8 (8.01)	8.5 (3.72)
UPSTATE NEW YORK	10.0 (1.61)	81.6 (2.11)	30.1 (8.71)	7.2 (3.21)
MIDWEST	10.0 (2.81)	102.8 (2.71)	32.8 (8.81)	8.7 (3.81)
UPSTATE MIDWEST	10.0 (1.61)	103.6 (2.61)	32.1 (8.71)	8.5 (3.71)
WEST	10.0 (2.81)	102.8 (2.71)	32.8 (8.81)	8.7 (3.81)
UPSTATE WEST	10.0 (1.61)	103.6 (2.61)	32.1 (8.71)	8.5 (3.71)
REGIONS (CONT'D.)				
NEW ENGLAND	7.0 (1.81)	32.6 (8.81)	38.4 (8.81)	8.4 (3.81)
UPSTATE NEW ENGLAND	22.4 (6.01)	45.9 (12.12)	32.7 (8.01)	8.2 (3.21)
NEW YORK	10.2 (2.81)	92.3 (23.83)	27.8 (8.01)	8.6 (3.01)
UPSTATE NEW YORK	10.0 (1.61)	94.3 (23.43)	30.4 (8.71)	7.6 (3.21)
MIDWEST	10.0 (2.81)	74.2 (19.81)	29.8 (8.81)	8.7 (3.81)
UPSTATE MIDWEST	10.0 (1.61)	75.0 (19.41)	30.1 (8.71)	8.5 (3.71)
WEST	10.0 (2.81)	81.6 (21.61)	32.8 (8.81)	8.7 (3.81)
UPSTATE WEST	10.0 (1.61)	82.4 (21.21)	32.1 (8.71)	8.5 (3.71)
REGIONS (CONT'D.)				
NEW YORK STATE	8.1 (2.01)	70.5 (15.81)	32.3 (8.01)	7.5 (3.71)
UPSTATE NEW YORK STATE	3.2 (0.81)	35.4 (8.61)	37.5 (12.21)	7.2 (3.01)
DOWNSTATE NEW YORK STATE	5.0 (1.21)	35.2 (8.41)	34.3 (10.71)	7.3 (3.31)
UPSTATE NEW YORK CITY	2.6 (0.61)	32.3 (8.11)	34.8 (11.21)	7.5 (3.51)
DOWNSTATE NEW YORK CITY	2.5 (0.61)	32.3 (8.11)	32.6 (10.91)	7.3 (3.31)
UPSTATE NEW YORK CITY	2.5 (0.61)	32.3 (8.11)	34.8 (11.21)	7.5 (3.51)
REGIONS (CONT'D.)				
NUMBER OF HOUSEHOLD MEMBERS				
ONE	8.5 (2.01)	70.4 (15.81)	32.3 (8.01)	7.5 (3.71)
TWO	16.9 (4.01)	80.2 (18.81)	32.6 (8.41)	8.2 (3.71)
THREE	16.5 (4.01)	80.2 (18.81)	32.6 (8.41)	8.2 (3.71)
FOUR	8.1 (2.01)	80.2 (18.81)	32.6 (8.41)	7.5 (3.51)
FIVE OR MORE	8.1 (2.01)	80.2 (18.81)	32.6 (8.41)	8.2 (3.71)

* = DATA NOTWITHSTANDING THE LARGE VARIANCE.

NOTE: BECAUSE OF ROUNDING, DATA MAY NOT ADD TO TOTAL.

FIGURES IN PARENTHESES INDICATE ONE STANDARD DEVIATION. SEE APPENDIX B FOR A DETAILED DESCRIPTION.

SOURCE: ENERGY INFORMATION ADMINISTRATION, OFFICE OF CONSUMER AFFAIRS AND USE, ENERGY USE SURVEY, THE 1981 RESIDENTIAL ENERGY CONSUMPTION SURVEY.

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Summary of Findings (continued)

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• 100%	• 100%	• 100%	• 100%	• 100%

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CONTINUUM

Summary of Findings (Continued)

Table 30. Average Household Fuel Oil or Kerosene Consumption When Main Heating Fuel Is Fuel Oil or Kerosene by End Use by Selected Socio-demographic Characteristics for 1981

Socio-demographic characteristic	NUMBER OF HOUSEHOLDS (THOUSANDS)	END USE		
		SPACE HEATING (MILLION BTU)	WATER HEATING (MILLION BTU)	MISCELLANEOUS USE (MILLION BTU)
NATIONAL	12.2 (4.6)	87.9 (2.8)	15.3 (1.2)	0
EDUCATIONAL LEVEL				
HIGH SCHOOL OR LESS	7.9 (3.6)	76.4 (3.9)	12.7 (1.4)	0
HIGH SCHOOL GRADUATE	2.7 (1.2)	26.2 (1.4)	8.7 (0.7)	0
SOME COLLEGE	2.2 (1.0)	32.7 (2.0)	8.4 (0.5)	0
COLLEGE GRADUATE	0.4 (0.1)	37.7 (2.0)	0	0
HEATING SOURCE SIZE				
1-4,999 BTU/HOUR	8.4 (3.3)	35.8 (2.0)	8.5 (1.1)	0
5,000-9,999	0	0	0	0
10,000-19,999	6.6 (3.2)	87.6 (3.6)	0	0
20,000-29,999	2.3 (1.0)	26.8 (1.2)	8.4 (0.7)	0
30,000-39,999	4.9 (2.1)	33.8 (1.6)	8.5 (0.5)	0
40,000-49,999	2.6 (1.1)	26.4 (1.2)	7.5 (0.5)	0
50,000-79,999	2.1 (0.9)	29.7 (1.3)	14.3 (1.0)	0
80,000 OR MORE	1.8 (0.8)	32.8 (1.2)	9.0 (0.8)	0
INCOME				
LESS THAN \$5,000	1.9 (0.7)	29.7 (1.0)	11.1 (1.1)	0
\$5,000-\$9,999	5.3 (2.3)	83.3 (3.5)	15.0 (1.2)	0
\$10,000-\$14,999	2.1 (0.8)	29.9 (1.2)	14.8 (1.0)	0
\$15,000-\$19,999	1.8 (0.7)	31.5 (1.5)	15.5 (1.3)	0
\$20,000-\$24,999	2.4 (1.0)	37.0 (1.6)	15.4 (1.3)	0
\$25,000-\$29,999	2.0 (0.8)	36.0 (1.6)	15.2 (1.2)	0
\$30,000 OR MORE	1.8 (0.7)	33.3 (1.5)	15.3 (1.3)	0
NUMBER OF RESIDENTS				
ONE	8.6 (3.3)	87.7 (3.8)	7.0 (1.3)	0
TWO	4.2 (1.8)	39.7 (1.4)	13.4 (1.3)	0
THREE	2.1 (0.8)	22.6 (1.0)	10.8 (1.0)	0
FOUR	1.7 (0.6)	28.4 (1.0)	12.0 (1.0)	0
FIVE OR MORE	1.0 (0.4)	30.0 (1.0)	12.8 (1.0)	0

*BTU = DATA MARKED BECAUSE OF A LARGE VARIANCE.

NOTE: BECAUSE OF Rounding, Data May Not Sum To Totals.

BASED ON PARALLELISTIC INDIVIDUAL USE STANDARD DEVIATION. SEE APPENDIX 2 FOR A DETAILED DESCRIPTION.

SOURCE: ENERGY INFORMATION ADMINISTRATION, OFFICE OF ENERGY ANALYSIS AND USE, ENERGY USE DIVISION, THE 1981 RESIDENTIAL ENERGY CONSUMPTION SURVEY.



Summary of Findings (Continued)

Table B1. Average Household LPG Consumption When Main Heating Fuel Is LPG by End Use by Selected Housing Characteristics for 1994

Housing characteristic	Average consumption (MMBtu)	End use		
		Water heating (MMBtu)	Space heating (MMBtu)	Other uses (MMBtu)
Total	1.9 (1.6)	0.9 (0.8)	0.7 (0.6)	0.3 (0.3)
Urban areas	1.6 (1.5)	0.7 (0.6)	0.6 (0.5)	0.3 (0.3)
Rural areas	2.1 (1.8)	1.0 (0.9)	0.8 (0.7)	0.3 (0.3)
Single-unit dwellings	1.8 (1.6)	0.9 (0.8)	0.7 (0.6)	0.3 (0.3)
Multifamily dwellings	2.0 (1.8)	1.0 (0.9)	0.8 (0.7)	0.3 (0.3)
Mobile homes	2.0 (1.8)	1.0 (0.9)	0.8 (0.7)	0.3 (0.3)
Single detached houses	1.8 (1.6)	0.9 (0.8)	0.7 (0.6)	0.3 (0.3)
Single attached houses	2.0 (1.8)	1.0 (0.9)	0.8 (0.7)	0.3 (0.3)
Condominiums	2.0 (1.8)	1.0 (0.9)	0.8 (0.7)	0.3 (0.3)
Two-unit dwellings	2.0 (1.8)	1.0 (0.9)	0.8 (0.7)	0.3 (0.3)
Three-unit dwellings	2.0 (1.8)	1.0 (0.9)	0.8 (0.7)	0.3 (0.3)
Four-unit dwellings	2.0 (1.8)	1.0 (0.9)	0.8 (0.7)	0.3 (0.3)
Five or more-unit dwellings	2.0 (1.8)	1.0 (0.9)	0.8 (0.7)	0.3 (0.3)
Single detached houses, no garage	1.8 (1.6)	0.9 (0.8)	0.7 (0.6)	0.3 (0.3)
Single attached houses, no garage	2.0 (1.8)	1.0 (0.9)	0.8 (0.7)	0.3 (0.3)
Condominiums, no garage	2.0 (1.8)	1.0 (0.9)	0.8 (0.7)	0.3 (0.3)
Two-unit dwellings, no garage	2.0 (1.8)	1.0 (0.9)	0.8 (0.7)	0.3 (0.3)
Three-unit dwellings, no garage	2.0 (1.8)	1.0 (0.9)	0.8 (0.7)	0.3 (0.3)
Four-unit dwellings, no garage	2.0 (1.8)	1.0 (0.9)	0.8 (0.7)	0.3 (0.3)
Five or more-unit dwellings, no garage	2.0 (1.8)	1.0 (0.9)	0.8 (0.7)	0.3 (0.3)

Note: * Data represent average of a three-year period.

Source: U.S. Energy Information Agency, Residential Energy Consumption Survey.

Table B1 shows average consumption when main heating fuel is LPG by end use by selected housing characteristics for 1994.

Table B1 shows average consumption when main heating fuel is LPG by end use by selected housing characteristics for 1994.

Summary of Findings (Continued)

Table 32. Average Household LPG Consumption When Main Heating Fuel Is LPG by End Use by Selected Socio-demographic Characteristics for 1989

SOCIO-DEMOCRATIC CHARACTERISTICS	NUMBER OF HOUSEHOLDS (MILLION)	END USE		
		SOLID HEATING FUEL (TEN THOUSAND BTU)	Liquid Heating Oil (TEN THOUSAND BTU)	Miscellaneous Gas (TEN THOUSAND BTU)
TOTAL	2.7 (2.9)	30.2 (34.8)	8.2 (8.0)	3.2 (3.3)
REGIONS				
NORTHEAST	0.3 (0.3)	95.9 (137.3)	11.6 (16.7)	4.6 (3.6)
MIDWEST	1.0 (1.1)	86.7 (116.3)	21.2 (22.3)	2.8 (2.8)
SOUTHEAST	0.3 (0.4)	37.0 (47.4)	8.0 (11.0)	3.3 (3.6)
WEST	0.4 (0.4)	37.7 (43.8)	10.7 (13.8)	3.0 (3.0)
HEATING SOURCE DATA				
0-3,799	0.7 (0.7)	22.6 (36.2)	5.2 (11.3)	4.0 (4.4)
3,800-7,799	0.9 (0.9)	35.8 (56.3)	8.9 (12.3)	2.0 (2.1)
7,800-11,799	0.8 (0.8)	48.3 (61.3)	8.7 (12.6)	3.0 (3.3)
11,800-15,799	0.4 (0.4)	59.5 (76.4)	6.0 (13.3)	3.4 (3.3)
15,800-19,799	0.3 (0.3)	58.5 (76.3)	12.6 (12.3)	3.3 (3.3)
19,800-23,799	0.3 (0.3)	22.5 (26.3)	7.0 (14.3)	3.2 (3.3)
23,800-27,799	0.3 (0.3)	90.8 (114.3)	10.0 (14.3)	3.1 (3.3)
27,800-31,799	0.3 (0.3)	28.1 (31.3)	14.0 (17.3)	3.3 (3.3)
INCOME				
LESS THAN \$5,000	0.6 (0.5)	42.5 (61.3)	6.0 (12.3)	3.4 (3.6)
\$5,000-\$7,499	0.7 (0.8)	35.4 (56.3)	8.2 (12.3)	3.0 (3.3)
\$7,500-\$11,799	0.4 (0.4)	52.6 (68.3)	7.8 (12.3)	3.0 (3.3)
\$11,800-\$15,799	0.6 (0.6)	78.7 (111.3)	16.3 (22.3)	3.3 (3.3)
\$15,800-\$19,799	0.5 (0.5)	52.0 (68.3)	9.0 (12.3)	3.2 (3.3)
\$19,800-\$23,799	0.4 (0.4)	51.2 (68.3)	7.4 (12.3)	3.0 (3.3)
\$23,800 OR MORE	0.4 (0.4)	78.3 (112.3)	16.8 (22.3)	3.3 (3.3)
NUMBER OF SPANNING HOUSEHOLDS				
ONE	0.6 (0.5)	30.7 (36.3)	8.0 (12.3)	3.3 (3.6)
Two	0.6 (0.5)	31.9 (46.3)	8.0 (12.3)	3.3 (3.6)
Three	0.3 (0.3)	26.4 (36.3)	9.2 (13.3)	3.2 (3.3)
Four	0.3 (0.3)	37.3 (43.3)	9.8 (12.3)	3.2 (3.3)
FIVE OR MORE	0.4 (0.4)	64.3 (86.3)	14.2 (16.3)	3.3 (3.3)

* = DATA PERTAINING BECAUSE OF A LARGE RESIDENCE.

NOTE: BECAUSE OF ROUNDED DATA, NOT ADD UP TO TOTALS.

FIGURES IN PARENTHESES INDICATE THE STANDARD DEFINITION. SEE APPENDIX C FOR A DETAILED DESCRIPTION.

SOURCE: ENERGY INFORMATION ADMINISTRATION, REPORT OF ENERGY SUPPLIES AND USE, ENERGY INFORMATION ADMINISTRATION, THE 1989 Residential Energy Consumption Survey.

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Summary of Findings (continued)

Table 1
Number of
Years of
Experience
of Respondents

Year 2000					
1995	1996	1997	1998	1999	2000
0-10	11-20	21-30	31-40	41-50	51+
1	1	1	1	1	1
2	1	1	1	1	1
3	1	1	1	1	1
4	1	1	1	1	1
5	1	1	1	1	1
6	1	1	1	1	1
7	1	1	1	1	1
8	1	1	1	1	1
9	1	1	1	1	1
10	1	1	1	1	1
11	1	1	1	1	1
12	1	1	1	1	1
13	1	1	1	1	1
14	1	1	1	1	1
15	1	1	1	1	1
16	1	1	1	1	1
17	1	1	1	1	1
18	1	1	1	1	1
19	1	1	1	1	1
20	1	1	1	1	1
21	1	1	1	1	1
22	1	1	1	1	1
23	1	1	1	1	1
24	1	1	1	1	1
25	1	1	1	1	1
26	1	1	1	1	1
27	1	1	1	1	1
28	1	1	1	1	1
29	1	1	1	1	1
30	1	1	1	1	1
31	1	1	1	1	1
32	1	1	1	1	1
33	1	1	1	1	1
34	1	1	1	1	1
35	1	1	1	1	1
36	1	1	1	1	1
37	1	1	1	1	1
38	1	1	1	1	1
39	1	1	1	1	1
40	1	1	1	1	1
41	1	1	1	1	1
42	1	1	1	1	1
43	1	1	1	1	1
44	1	1	1	1	1
45	1	1	1	1	1
46	1	1	1	1	1
47	1	1	1	1	1
48	1	1	1	1	1
49	1	1	1	1	1
50	1	1	1	1	1
51+	1	1	1	1	1

Source: U.S. Bureau of the Census, 2000 Census of Population and Housing.

CHAPTER 7

Summary of Findings (Continued)

Table 34. Average Household Energy Expenditures by End Use by Selected Socioeconomic Characteristics for 1981

SOCIOECONOMIC CHARACTERISTICS	TOTAL EXPENDITURES (DOLLARS)	END USE			
		SPACE HEATING (DOLLARS)	COOKING (DOLLARS)	WATER HEATING (DOLLARS)	MISCELLANEOUS USE (DOLLARS)
HAZARDOUS	1,092 ± 121	403 ± 81	72 ± 8	186 ± 37	378 ± 77
NONHAZARDOUS	1,028 ± 120	478 ± 91	76 ± 8	210 ± 61	367 ± 73
HAZARDOUS	1,042 ± 121	465 ± 81	62 ± 6	187 ± 42	367 ± 69
NONHAZARDOUS	971 ± 101	530 ± 79	56 ± 5	180 ± 37	367 ± 67
HAZARDOUS	729 ± 82	288 ± 61	31 ± 5	113 ± 41	358 ± 51
NONHAZARDOUS	702 ± 77	378 ± 61	22 ± 4	105 ± 33	358 ± 51
GEOPOLITICAL REGION					
NORTHEAST	1,028 ± 120	478 ± 91	76 ± 8	210 ± 61	367 ± 73
SOUTHEAST	1,042 ± 121	465 ± 81	62 ± 6	187 ± 42	367 ± 69
MIDWEST	971 ± 101	530 ± 79	56 ± 5	180 ± 37	367 ± 67
WEST	729 ± 82	288 ± 61	31 ± 5	113 ± 41	358 ± 51
HEATING DEGREE DAYS					
0-3,750	988 ± 127	378 ± 61	56 ± 10	187 ± 63	371 ± 77
3,751-6,250	758 ± 126	186 ± 43	36 ± 9	112 ± 41	379 ± 64
6,251-8,750	830 ± 119	382 ± 61	60 ± 6	142 ± 41	342 ± 61
8,751-11,250	738 ± 101	345 ± 51	72 ± 10	146 ± 33	346 ± 23
11,251-13,750	1,057 ± 151	518 ± 61	42 ± 6	176 ± 73	469 ± 23
13,751-16,250	1,258 ± 161	554 ± 61	25 ± 8	183 ± 63	412 ± 61
16,251-18,750	1,128 ± 162	528 ± 61	36 ± 8	146 ± 101	404 ± 61
18,751-21,250	1,029 ± 151	501 ± 61	7 ± 8	358 ± 51	368 ± 51
INCOME					
<25,000 THRU <30,000	765 ± 691	330 ± 23	36 ± 6	180 ± 61	361 ± 21
30,001-35,000	708 ± 127	316 ± 23	47 ± 8	127 ± 23	339 ± 121
35,001-40,000	957 ± 101	397 ± 23	55 ± 8	140 ± 43	366 ± 101
40,001-45,000	928 ± 121	376 ± 23	50 ± 8	136 ± 43	363 ± 91
45,001-50,000	1,043 ± 121	379 ± 23	72 ± 10	181 ± 61	424 ± 121
50,001-55,000	1,246 ± 161	399 ± 23	66 ± 7	166 ± 63	454 ± 121
55,001 OR MORE	1,029 ± 151	503 ± 23	141 ± 13	125 ± 63	378 ± 151
PERCENT OF HAZARDOUS					
0%	767 ± 121	298 ± 23	40 ± 8	37 ± 8	366 ± 121
1%	758 ± 121	481 ± 23	74 ± 8	128 ± 37	359 ± 61
2%	1,028 ± 120	426 ± 123	65 ± 6	184 ± 43	438 ± 61
3%	1,117 ± 121	376 ± 23	26 ± 13	203 ± 63	477 ± 61
4%	1,027 ± 121	430 ± 121	38 ± 7	210 ± 91	351 ± 121

"N" = DATA WITHHELD BECAUSE OF A LARGE VARIANCE.

NOTE: BREAKDOWN OF HAZARDOUS. DATA MAY NOT SUM TO TOTALS.

STAND. DEV.: STANDARDS INDICATED BY STANDARD DEVIATION. SEE APPENDIX B FOR A DETAILED DISCUSSION.

SOURCE: ENERGY INFORMATION ADMINISTRATION, OFFICE OF ENERGY MARKETS AND USE, CONSUMPTION AND USE SURVEY: THE 1981 RESIDENTIAL ENERGY CONSUMPTION SURVEY.

Summary of Findings (Continued)

Table 6. *Summary of Findings*
by Type of Intervention
and Findings from
the Trial Comparison

Type of intervention	Findings from trials		
	No RCTs	Number of trials	No. of RCTs
Interventions to reduce the risk of falls in people with dementia	15	29	15
Interventions to reduce the risk of falls in people with cognitive impairment without dementia	12	17	12
Interventions to reduce the risk of falls in people with no cognitive impairment	1	1	1

Summary of Findings (Continued)

Table 35. Average Household Energy Expenditures for Space Heating by Main Heating Fuel by Selected Socio-demographic Characteristics for 1981

SOCIODEMOGRAPHIC CHARACTERISTICS	MAIN HEATING FUEL		
	ELECTRICITY (DOLLARS)	NATURAL GAS (DOLLARS)	FUEL OIL OR KEROSENE (DOLLARS)
TOTAL	\$29.1 283	\$27.4 71	\$29.4 283
EDUCATIONAL LEVEL			
NO GRADE	\$26.5 223	\$26.1 222	\$26.5 223
HIGH SCHOOL	\$22.5 263	\$21.6 253	\$22.5 263
SOME COLLEGE	\$22.5 253	\$22.7 183	\$22.5 253
BACHELOR	\$23.5 253	\$23.6 183	\$23.5 253
HEATING SYSTEM TYPE			
0-2,000	\$27.0 223	\$26.0 113	\$28.1 263
2,001-2,500	\$28.1 263	\$28.1 163	\$27.1 253
3,001-3,500	\$29.0 223	\$29.0 1263	\$27.1 253
4,001-4,500	\$29.5 223	\$29.5 1323	\$29.1 173
5,001-5,500	\$29.5 223	\$29.5 1183	\$29.1 173
6,001-6,500	\$29.5 223	\$29.5 1173	\$29.1 173
7,001-7,500	\$29.5 223	\$27.1 1233	\$29.1 173
8,000 AND UP	\$29.5 223	\$29.5 1233	\$29.1 173
INCOME			
\$10,000-\$14,999	\$27.5 223	\$22.0 1043	\$28.2 263
\$15,000-\$19,999	\$27.5 223	\$22.0 1183	\$28.2 263
\$20,000-\$24,999	\$27.5 223	\$22.0 1133	\$28.2 263
\$25,000-\$29,999	\$28.0 223	\$22.0 1033	\$27.1 253
\$30,000-\$34,999	\$27.5 223	\$22.0 1183	\$27.1 253
\$35,000-\$39,999	\$27.5 223	\$22.0 1233	\$27.1 253
\$40,000 AND UP	\$27.5 223	\$22.0 1233	\$27.1 253
NUMBER OF HOUSEHOLD MEMBERS			
ONE	\$28.5 223	\$22.0 1233	\$28.1 263
THREE	\$27.5 223	\$22.0 1183	\$28.2 263
FOUR	\$27.5 223	\$27.5 1173	\$27.4 253
FIVE	\$28.5 223	\$27.5 1163	\$27.4 253
SIX OR MORE	\$28.5 223	\$28.5 1263	\$28.1 263

"X" = DATA NOT PUBLISHED BECAUSE OF A LOW NUMBER.

"...X" BECAUSE OF ROUNDING. DATA MAY NOT SUM TO TOTALS.

UNPUBLISHED INFORMATION CONTAINED IN THIS DOCUMENT IS UNCLASSIFIED. SEE APPENDIX B FOR A DETAILED DISCUSSION.

SOURCE: ENERGY INFORMATION ADMINISTRATION, OFFICE OF CONSUMER MARKETS AND ENERGY USE, ENERGY AND THE ENVIRONMENT, THE LONG RESIDENTIAL ENERGY CONSUMPTION SURVEY.

Summary of Findings (Continued)

Table 32. Percentage of Average Household Electricity Consumption Used for Space Heating, Water Heating, Food Preparation, Selected Household Activities, and Total, 1980, 1990

Category	Percent of Electricity Used for Space Heating		
	1980	1990	Total
Space heating	42.45%	38.13%	40.12%
Water heating	20.55%	17.61%	18.16%
Food preparation	12.51%	13.31%	12.91%
Total	75.51%	70.05%	71.20%

The above table shows the percentage of electricity used for space heating, water heating, food preparation, selected household activities, and total for the years 1980, 1990, and Total.

Table 34. Percent of Average Household Electricity Consumption When Main Heating Fuel Is Electricity by Selected Socio-demographic Characteristics for 1978, 1980, and 1981

SOCIO DEMOGRAPHIC CHARACTERISTICS	PERCENT OF ELECTRICITY USED FOR SPACE HEATING BY YEAR		
	1978	1980	1981
ALL U.S.	36 12.61	35 12.62	36 12.61
EDUCATION LEVEL			
ELEMENTARY SCHOOL	36 12.61	35 12.62	36 12.61
HIGH SCHOOL	35 12.61	35 12.62	35 12.61
COLLEGE	35 12.61	35 12.62	35 12.61
HEATED HOME SIZE			
0-1,000 SQ. FEET	34 12.57	32 12.62	36 12.61
2,000-2,700	35 12.61	33 12.62	36 12.61
2,800-3,500	35 12.61	33 12.62	36 12.61
3,600-4,300	35 12.61	33 12.62	36 12.61
4,400-5,200	35 12.61	33 12.62	36 12.61
5,300-6,100	35 12.61	33 12.62	36 12.61
6,200-7,000	35 12.61	33 12.62	36 12.61
7,000-7,800	35 12.61	33 12.62	36 12.61
8,000 OR MORE	34	35 12.61	36 12.61
INCOME			
LESS THAN \$5,000	36 12.61	35 12.62	36 12.61
\$5,000-\$7,499	35 12.61	36 12.62	36 12.61
\$7,500-\$9,999	35 12.61	33 12.62	36 12.61
\$10,000-\$14,999	35 12.61	33 12.62	36 12.61
\$15,000-\$24,999	35 12.61	33 12.62	36 12.61
\$25,000-\$34,999	35 12.61	33 12.62	36 12.61
\$35,000 OR MORE	35 12.61	33 12.62	36 12.61
NUMBER OF INHABITANT MEMBERS			
ONE	36 12.61	37 12.62	36 12.61
TWO	35 12.61	35 12.62	35 12.61
THREE	35 12.61	35 12.62	35 12.61
FOUR	35 12.61	35 12.62	35 12.61
FIVE OR MORE	35 12.61	35 12.62	35 12.61

*THE * DATA INDICATE INCIDENCE OF A LARGE VARIANCE.
BUSES: INDICATION OF BOUNDING, RATE MAY NOT BE TO SCALE.
FIGURES IN PARENTHESIS INDICATE ONE STANDARD DEVIATION. SEE APPENDIX B FOR A
DETAILED EXPLANATION.

SOURCE: ENERGY INFORMATION ADMINISTRATION, OFFICE OF ENERGY MONITOR AND THE
U.S. BUREAU OF THE CENSUS, THE 1978, 1980, AND 1981 RESIDENTIAL ENERGY
CONSUMPTION SURVEY.

Summary of Findings (Continued)

**Table 35. Percent of
Average Household
Natural Gas
Consumption Spent
for Energy Needs
When Main Heating
Fuel Is Natural Gas
by Selected Household
Characteristics for
1970, 1980, 1987**

Characteristic	PERCENT OF HOUSEHOLD NATURAL GAS CONSUMPTION SPENT FOR ENERGY NEEDS		
	1970	1980	1987
Total	39.4%	38.1%	38.4%
Households with children under 18 years old	40.2%	38.9%	38.6%
Households with no children under 18 years old	38.6%	37.4%	38.0%
Households with one or more persons 65 years old and older	38.8%	37.8%	38.2%
Households with no persons 65 years old and older	39.0%	38.2%	38.5%
Households with one or more persons 18 years old and older	39.2%	38.3%	38.7%
Households with no persons 18 years old and older	39.0%	38.1%	38.4%
Households with one or more persons 65 years old and older and no persons 18 years old and older	39.4%	38.5%	38.8%
Households with no persons 65 years old and older and one or more persons 18 years old and older	38.8%	37.6%	38.1%
Households with no persons 65 years old and older and no persons 18 years old and older	38.6%	37.4%	37.9%

Note: Households are classified on a three-point scale according to the percentage of their total natural gas consumption spent for energy needs. Households are considered to have spent a large amount if they spent 40 percent or more of their total natural gas consumption for energy needs; those spending less than 40 percent are considered to have spent a small amount.

Summary of Findings (Continued)

Table 40. Percent of Average Household Natural Gas Consumption Used for Space Heating When Main Heating Fuel Is Natural Gas by Selected Socio-demographic Characteristics for 1972, 1980, 1981

SOCIODEMOGRAPHIC CHARACTERISTICS	PERCENT OF NATURAL GAS USED FOR SPACE HEATING BY YEAR		
	1972	1980	1981
NATIONAL	74 18.41	67 18.42	72 18.51
EDUCATION LEVEL			
NORTHWEST	81 12.81	79 13.62	76 10.41
NORTH CENTRAL	82 12.81	78 13.43	79 10.43
SOUTH	71 12.91	62 13.92	67 13.91
WEST	77 12.81	80 13.62	63 13.61
HEATING DEGREE DAYS			
0-1,000	86 15.81	83 13.81	82 15.81
1,001-2,000	67 13.81	70 13.82	64 13.81
2,001-3,000	76 13.81	66 13.81	72 13.81
3,001-4,000	80 12.81	75 13.81	73 13.81
4,001-5,000	83 12.81	72 13.81	77 13.81
5,001-6,000	83 12.81	78 13.81	79 13.81
6,001-7,000	86 12.81	77 13.81	76 13.81
7,001 OR MORE	86 12.81	79 13.81	83 13.81
INCOME			
LESS THAN \$5,000	83 12.81	72 13.81	76 13.81
\$5,001-\$10,000	79 12.81	78 13.81	77 13.81
\$10,001-\$14,000	79 12.81	78 13.81	78 13.81
\$14,001-\$24,000	78 12.81	80 13.81	75 13.81
\$24,001-\$32,000	78 12.81	69 13.81	79 13.81
\$32,001-\$42,000	78 12.81	68 13.81	76 13.81
\$42,001 OR MORE	82 12.81	76 13.81	83 13.81
NUMBER OF HOUSEHOLD MEMBERS			
ONE	80 12.81	78 13.81	83 13.81
TWO	87 12.81	78 13.81	76 13.81
THREE	79 12.81	68 13.81	72 13.81
FOUR	78 12.81	64 13.81	68 13.81
FIVE OR MORE	78 12.81	63 13.81	64 13.81

*NOT DATA SYSTEMATIC BECAUSE OF LARGE VARIANCE.

NOTE: BECAUSE OF MISSING DATA NOT SHOWN AS TOTALS.

NUMBER IN PARENTHESES INDICATES THE NUMBER REVISED. SEE APPENDIX A FOR A DETAILED DISCUSSION.

SOURCE: ENERGY INFORMATION ADMINISTRATION, OFFICE OF ENERGY MARKETS AND USE (EOM) ENERGY USE SURVEY: THE 1972, 1980, 1981 RESIDENTIAL ENERGY CONSUMPTION SURVEY.



Summary of Findings (Continued)

**Table 42. Percent of
Average Household
Fuel Oil or Kerosene
Consumption Used
for House Heating
When Main Heating
Fuel Is Fuel Oil or
Kerosene by Household
Characteristics for
1971, 1972, 1973**

Characteristic	Percent of Total Oil or Kerosene Used for House Heating		
	1971	1972	1973
Total population	31.70	30.51	29.50
Urban population	31.61	30.31	29.50
Rural population	31.71	30.81	30.10
Population below poverty line	31.61	30.31	29.50
Population above poverty line	31.71	30.81	30.10
Population in rural areas	31.71	30.81	30.10
Population in urban areas	31.61	30.31	29.50
Population in rural households	31.71	30.81	30.10
Population in urban households	31.61	30.31	29.50

Note: = Data are based on a 100% sample.
Source: = Sample survey data for 1971, 1972 and 1973, and the 1971-72 and 1972-73 household surveys. The estimates are for a population aged 16 years and above.

Table 42. Percent of Average Household Fuel Oil or Kerosene Consumption Used for Space Heating When Main Heating Fuel Is Fuel Oil or Kerosene by Selected Socioeconomic Characteristics for 1970, 1980, and 1990

Socioeconomic characteristic	Percent of fuel oil or kerosene used for space heating by year		
	1970	1980	1990
SEX			
MALE	49 12.81	49 13.31	49 12.31
FEMALE	49 12.51	49 11.41	49 12.61
RACE			
WHITE	49 12.01	49 11.49	49 12.01
BLACK	49 12.01	49 12.01	49 12.01
ASIAN	49 16.21	49 11.01	49 10.01
HEATING SOURCE			
Electric	49 12.61	49 12.61	49 12.61
Gas	49 12.61	49 12.61	49 12.61
Oil	49 12.61	49 12.61	49 12.61
Kerosene	49 12.61	49 12.61	49 12.61
Wood	49 12.61	49 12.61	49 12.61
Other	49 12.61	49 12.61	49 12.61
EDUCATION			
Less than 9th grade	49 12.81	49 13.61	49 16.01
9th-11th grade	49 12.81	49 12.81	49 12.81
12th grade	49 12.81	49 12.81	49 12.81
Some college	49 12.81	49 12.81	49 12.81
College graduate	49 12.81	49 12.81	49 12.81
INCOME			
\$0-\$9,999	49 12.81	49 12.81	49 12.81
\$10,000-\$14,999	49 12.81	49 12.81	49 12.81
\$15,000-\$19,999	49 12.81	49 12.81	49 12.81
\$20,000-\$24,999	49 12.81	49 12.81	49 12.81
\$25,000-\$29,999	49 12.81	49 12.81	49 12.81
\$30,000-\$34,999	49 12.81	49 12.81	49 12.81
\$35,000-\$39,999	49 12.81	49 12.81	49 12.81
\$40,000-\$44,999	49 12.81	49 12.81	49 12.81
\$45,000-\$49,999	49 12.81	49 12.81	49 12.81
\$50,000 or more	49 12.81	49 12.81	49 12.81
NUMBER OF HOUSEHOLD MEMBERS			
One	49 12.81	49 12.81	49 12.81
Two	49 12.81	49 12.81	49 12.81
Three	49 12.81	49 12.81	49 12.81
Four	49 12.81	49 12.81	49 12.81
Five or more	49 12.81	49 12.81	49 12.81

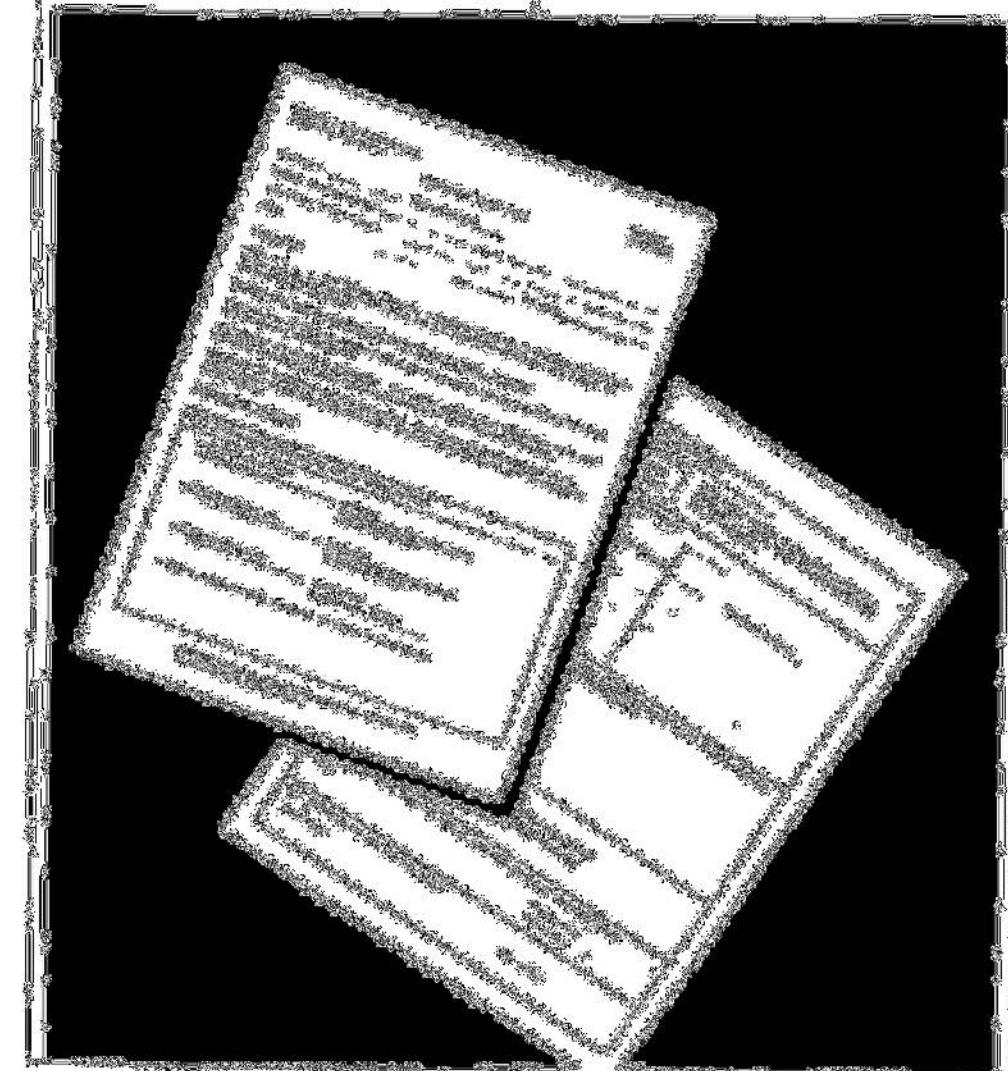
* NOT A BASE SUBTOTAL BECAUSE OF A LARGER SOURCE.

** NOT A BASELINE OF RECORDING, WHICH MAY NOT EQUAL TO TOTAL.

RECORDS IN PARENTHESES INDICATE THE GRANULAR RECORDING. SEE APPENDIX B FOR A DETAILED EXPLANATION.

SOURCE: ENERGY INFORMATION ADMINISTRATION, OFFICE OF ENERGY MONITORING AND ANALYSIS, ANNUAL SURVEY OF ENERGY USE, THE 1970, 1980, AND 1990 RESIDENTIAL ENERGY CONSUMPTION SURVEY.

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Appendix A

The data contained in this report were from three residential energy consumption and expenditure surveys conducted by the Energy Information Administration, U.S. Department of Energy. The information was collected from a sample of households during 1979, 1980, and 1981. Households were selected using a multiple stage probability sampling design.

The housing characteristics information was collected in personal interviews with adult residents of a representative national sample of households. Figures on actual total consumption and expenditures were derived from the household's trial supplies. Residential fire and non-fire data are presented under their individual data.

Although the three surveys were very similar in questionnaire development and data collection, there were significant, several differences. Table A1 highlights these differences.

Table A1.
Comparison of Three
Residential Energy
Consumption and
Expenditure Surveys

	1979 DATA ¹	1980 DATA ¹	1981 DATA ¹
Sample design type:	specifically created for EIA's needs. Based on a multi-stage, all purpose design.	Sample design retained for collection of residential energy consumption and related housing characteristics.	Same as 1980
Target population:	Data are available households in Alaska, Hawaii, or on U.S. military bases.	Target population includes all households in the United States, including Alaska, Hawaii, and U.S. military bases.	Same as 1980
User estimator's estimate of open house for dwelling:	User estimator's assumption of open house for dwelling.	User estimator's assumption of open house for dwelling.	Same as 1980
Housing degree-days calculated using a base 50° F.	Housing degree-days calculated using a base 50° F through 50° F.	Housing degree-days calculated using a base 50° F through 50° F.	Same as 1980
Weather data obtained using long-term average collected by Energy Watch for April 1979 through March 1980.	Weather data obtained using monthly daily high and low in the National Climatic and Atmospheric Administration's Global Historical Weather Database.	Weather data obtained using monthly daily high and low in the National Climatic and Atmospheric Administration's Global Historical Weather Database.	Same as 1980
Geographic units with four source regions: Northeast, North Central, South, West.	The four geographic regions were further divided into sixteen source districts.	The four geographic regions were further divided into sixteen source districts.	Same as 1980
1. Residential Energy Consumption Survey, Residential Expenditure Survey, Residential Fire Survey, Residential Non-Fire Survey.			

Appendix A (Continued)

Table A2. Number of Households by Main Heating Fuel by Survey Year (Million Households)

Main Heating Fuel	1978	1980	1981
All Households	76.6 (0)	81.6 (0)	83.1 (0)
Households Where Main Heating Fuel is Electricity	12.1(1.2)	14.3(1.0)	14.2(1.1)
Households Where Main Heating Fuel is Natural Gas	41.6(1.9)	44.6(1.5)	46.2(1.5)
Households Where Main Heating Fuel is Fuel Oil or Kerosene	16.9(1.3)	13.4(0.7)	12.2(0.6)
Households Where Main Heating Fuel is LPG	3.1(0.5)	3.7(0.4)	3.7(0.4)

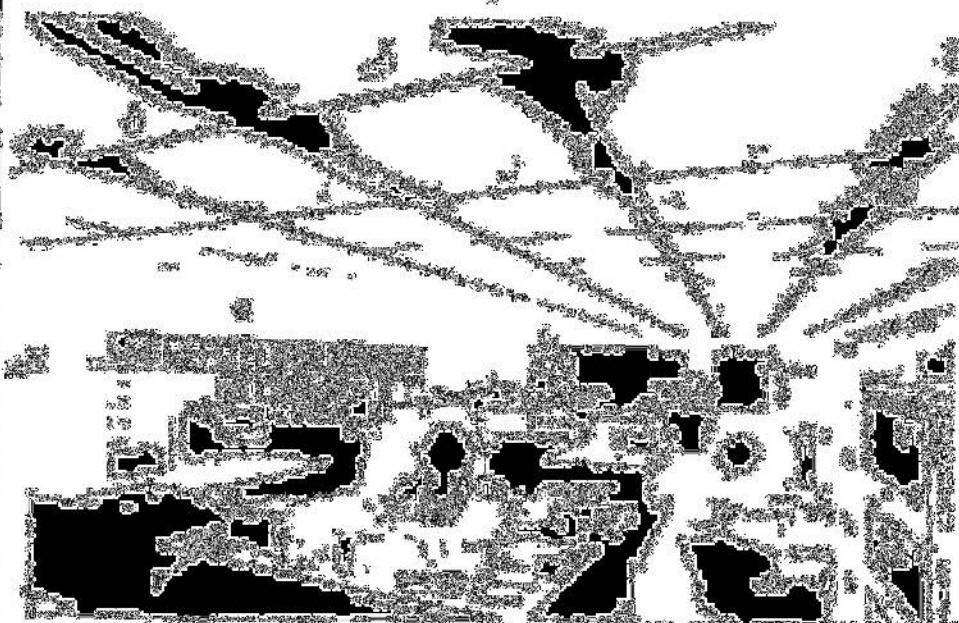
Household consumption data for natural gas, electricity, fuel oil/kerosene, and liquefied petroleum gas (LPG) were collected from the suppliers. Kerosene was combined with fuel oil. Figures for natural gas and electricity were based on actual consumption, while fuel oil/kerosene and LPG figures were based on the amounts delivered to households rather than on the amounts consumed. Both consumption and expenditure information for the three surveys was annualized for April 1978 through March 1979, April 1980 through March 1981, and April 1981 through March 1982. In this report, consumption figures are reported in million Btu except when consumption is adjusted for heating degree-days (HDD). These figures are reported in thousand Btu. Expenditure figures are reported in dollars.

Fuel and uses were examined: space heating, water heating, cooling², and miscellaneous use. Miscellaneous use includes cooking, lighting, dishwashing, clothes drying, pool heating, and other uses. Consumption and expenditure estimates for the fuel and uses were addressed in terms of selected housing characteristics and selected socioeconomic characteristics. Housing characteristics included dwelling structure, the age of the structure, and heated square footage of the dwelling. Socioeconomic characteristics included the geographic region, number of heating degree-days, income, and number of household members. The base for the number of heating degree-days was 65 degrees Fahrenheit. Income refers to family income immediately before the survey year.

²Cooling applies only to electricity consumption. The small amount of natural gas used for air-conditioning was included in the miscellaneous use for natural gas.

Appendix E

References



Appendix B

The analysis of residential energy consumption and expenditure by household income for each state. The study also used three different regression techniques to predict a dependent variable that includes income, consumption, and expenditure were evaluated based on the results of the study.

Testing functional form was discussed. For each of the three series, a quadratic function was developed for each of the four main factors: electricity, natural gas, fuel oil, and kerosene. In most cases, the quadratic resulted best from estimation from April 1st through the beginning year. This is the case with electric, natural gas, fuel oil, and kerosene. For the April 2000 to April 2001 for the fuel oil series, consumption from April 2000 to March 2001, and no fourth.

The electricity, the independent model that was used for all categories was:

$$\text{Electricity} = \text{base} + \text{Residential Consumption} + \text{Water Heating} + \text{Space Heating} + \text{Cooling} + \text{Other Residential} + \text{Food Services}$$

The space heating component consisted of all electricity used to operate space heaters, central air heat pumps and fireplaces. The consumption consisted of fuel oil, propane gas, natural gas, electric water heating equipment and electric space heating equipment. The water heating component consisted of all water used for residential purposes. One of the other two uses, the food services was included separately, heating, lighting, entertainment, other devices as well as food preparation, food storage, food preparation, food storage.

It is clear that there are many and for many varied reasons why during the winter will contribute to the space heating requirement. The other three major sources of residential consumption are electric water heating equipment and fuel oil. These two components will need to be analyzed for the month of April 2000 to April 2001. The first one to analyze is the electric water heating equipment.

The independent variables used in the regression equation were income, consumption, and expenditure corresponding to the consumption. The consumption can be defined as total consumption less consumption derived from the residential sector. The consumption was used to determine consumption.

This is how detailed explanation of the regression program can be found
in the following section. The following section is the regression analysis.

Appendix B (Continued)

Many of the independent variables were multiple interaction terms. For instance, in the 1980 survey, the equation for the space heating component of the natural gas model contained an independent variable that was the product of an indicator variable for natural gas main space heating, times the heated square footage of the dwelling, times the heating degree-days. The water heating component of the electricity model for the 1981 survey contained an independent variable that was the product of an indicator variable for electric water heating, times the number of household members.

All independent variables involved indicator variables for a type of equipment or appliance except some of the variables used in the miscellaneous component for electricity. The use of electricity for small appliances, lighting, and various other small uses was represented by independent variables such as heated square footage, number of household members, and number of rooms.

The sets of independent variables that were used varied from survey to survey. For a given survey, they varied from fuel to fuel. Some appliances only used electricity, hence, the indicator variable for that appliance was only used in the electricity component. Even if the differences between the indicator variables for electric main space heating and the ones for natural gas, fuel oil, and LPG main space heating are discounted, the independent variables used in the space heating components were still different. Some of this difference is due to the type of equipment used with the different fuels and some is due to the differences in the populations of households that used the different fuels. Additionally, more households used natural gas for space heating than used electricity, fuel oil, or LPG (Table A). Hence, it was possible to use more independent variables when fitting the space heating component for natural gas.

Only a few independent variables were used in the water heating component for any fuel. In addition, relatively few households used fuel oil or LPG as their water heating fuel. Therefore, the accuracy of the estimated water heating component for fuel oil and LPG may be limited.

One reason that the set of independent variables varied from survey to survey was that the amount and type of information changed from survey to survey. For instance, a reliable estimate of the square footage was not available for the 1978 survey; more accurate weather data was available for the 1980 and 1981 surveys; and the questions concerning appliance stock, heating equipment, and insulation characteristics were changed for each survey.

We did not attempt to interpret the coefficients of the independent variables in the regression equation. The fact that the set of independent variables changed from survey to survey would prevent any comparisons between surveys. Additionally, many of the independent variables were highly collinear. An example of this is the set of interaction terms used in the natural gas space heating component for the 1981 survey. This set included three interaction terms involving an indicator variable for natural gas main space heating, multiplied by different measures of dwelling sizes. These measures were heated square footage, number of rooms, number of doors and windows. Hence, the effect of dwelling size on the space heating component of the natural gas component was divided between several of the independent variables.

As previously outlined, the fitted regression equations were split into components. The component represent end-use categories that were easily interpreted. The problem of collinearity is greatly reduced by including terms that were highly collinear.

Appendix B (Continued)

The second step in calculating variance components consisted of using the proportion estimates in previous sections together with the individual responses for each household. The individual responses were summed so that the sum of the column estimates was equal to the value in the total utility estimation. In a similar, the individual weights were used only to calculate the proportion of responses by age and sex. The individual utility proportions were obtained by summing the proportion of children aged 0-10 and 11-19 and the same as the proportion of young and old. This estimation approach was used at the country level responses.

The third step in the analysis, consisted of predicting responses estimates for selected households based on demographic characteristics and housing characteristics. Tables and Figures in this report describe estimates of the average household household education, ownership and expenditures from nationally and the selected subgroups. The estimates are weighted by the number of households in the subpopulations that the sample represents. Unweighted averages are given in the first and unadjusted figures and given in Table 13. Adjusted figures for Table 13 have been adjusted for cluster. In this instance, the weight given to each observation of each household was divided by the household's overall value of having degree days over the degree threshold. The values in Table 13 are the average values of the index of expenditure per heating degree-day.

The estimates for the selected groups were clustered using a k-means hierarchical clustering technique.¹ The technique was used to partition an estimate of the potential clustered under which addition and subtraction of variables of the variables studied using only the household size, energy consumption was not applied using a hierarchical scheme. The technique resulted with one household by the adjustment required using the k-means technique of clustered around every five applied to all households. The quantification, the only using household size, consumption was not found in a regression analysis and both the households with highest consumption values and low consumption for information about the relationship between house consumption and the variable influenced by them.

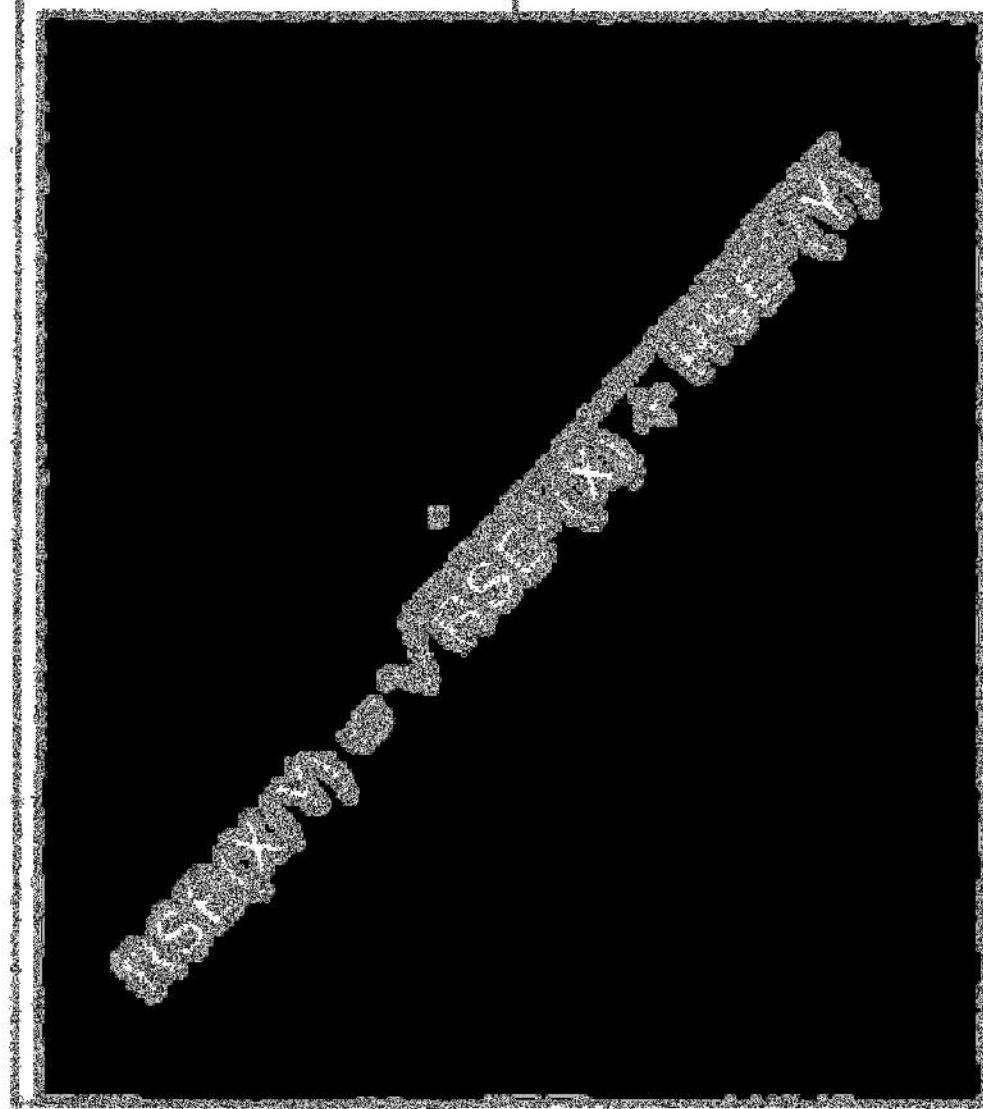
In calculating standard errors the proportion change, the following approximation was used. Let \hat{e} be the percentage change from \hat{e}_1 to \hat{e}_2 then $\hat{e} = \hat{e}_2 - \hat{e}_1/\hat{e}_1 \times 100\%$. Thus, the standard error of a sample size when the observed mean is \hat{e}_1 , the expected mean the \hat{e}_2 are calculated using the approximation $\hat{e}_2 - \hat{e}_1/\hat{e}_1 \times 100\% \approx \hat{e}_1 \hat{e}_2$, where \hat{e}_1 is the estimated standard error. The approximation for small change is good to the approximation. This would be true since it is not far from zero from the true average. All of the percentage changes cited in this report should always include this concept.

The second step involved calculating the proportion of the total consumption that is generated by each respondent. The original data of these estimates were collected differently using the self-reporting approach. The direct approach was not used.

The same type were the percentages in the tables and each one was weighted equally.

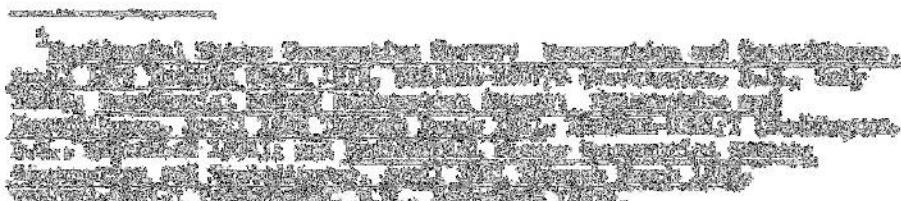
Appendix C

Limitations of the Data



The distribution of the data on the spatial map shows that there was little conflict over ownership and registration since most of the various entities were largely owned, registered with the appropriate technology, and directly affiliated with the relevant national agency.

The outcome continues even deeper by examining the spatial distribution and ownership data. The distribution of the spatial entities was roughly equal among the different categories. The results of household data was much less, and the proportion of areas where the spatial entities were found were mostly overlapping with areas of population centers. While it shows the nature of geographic in the sample that are such that they show the majority of households with ownership entities based upon results from the study itself by looking back at the 2000 Census. One reason that the other entities were similar to the spatial entities was due to government entities that are part of the same. Other than residential entities do not fall into either of the two, resulting in ownership and registration figures.



APPENDIX C

Appendix C (Continued)

Table C1. Number of Sample Households That Use Each Fuel and Percent of Households with Usable* Fuel Records by Fuel Used and by Type of Housing Structure^b

Type of Fuel Use	Total Households Using the Fuel	Total Units Using the Fuel	Mobile Units	Single- Family	Units in Buildings With One to Four or More Units	Units in Buildings With Five or More Units
Electricity						
Number of Households	6,261	393	4,363	127	823	
Percent with Usable Fuel Records	80.8	80.8	80.8	87.3	52.1	
Natural Gas						
Number of Households	3,830	118	2,650	344	537	
Percent with Usable Fuel Records	71.7	69.7	69.2	58.5	13.0	
Fuel Oil or Kerosene						
Number of Households	1,132	70	724	159	366	
Percent with Usable Fuel Records	48.7	37.1	44.2	30.7	0	
LPG						
Number of Households	67	144	462	16	2	
Percent with Usable Fuel Record	61.3	55.8	62.8	56.3	23.6	

*Data were unusable for electricity and natural gas if the records covered less than 3 months and for fuel oil, kerosene, and LPG if the records covered less than 1 year.

^bResidential Energy Consumption Survey: Consumption and Expenditures, April 1978 through March 1980, Part I, National Level, U.S. Energy Administration, Washington, D.C., Table A1.

For those households whose annual energy consumption data were missing or unusable, the consumption amounts were imputed. The imputation procedure for the 1978 and 1980 surveys assumes that the regression equations developed from data on households with usable data can also be used to predict the energy consumption for households whose consumption needs to be imputed. In particular, this assumes that the results on fuel oil consumption for units in buildings with five or more units will not be drastically different from the results for the other housing types. If this assumption is not valid, then the resulting annual consumption estimates and end-use consumption estimates will be biased.

Appendix C (Continued)

beginning with the 1970 census, information was made to the population percentage for residential and non-residential buildings. These adjustments take into account some development because energy consumption increases due to residential buildings to expand nonresidential buildings and those having no buildings and residential areas. Future surveys will expand and refine these adjustments.

Differences exist with the annual data that was used to know the current definitions for transportation and nonresidential. The annual estimates are derived within the methodology that the transportation and nonresidential definitions have similar energy characteristics. While there may be differences between transportation, residential, and nonresidential because nonresidential components and transportation will result in leased vehicles.

The 1970 data did not cover enough cities and counties to allow geographical analysis. This prevents an assessment of the total energy used in the residential sector. The reason is that, except when available for energy related discrepancies only for residential building structures. If the recent gains and losses were more detailed for the example, then it is expected that the results would be better.

The sample design for the 1970 census did not cover Alaska, Hawaii, and nonresidential building units in military bases. The 1980 and 1990 survey did cover these residential areas. However, in military bases were not classified as residential units. The results for the 1970 survey were biased by this undercoverage. This affects comparisons between the 1970 results and the results for 1980 and 1990.

The effects of not covering Alaska and Hawaii in the 1970 survey was removed by applying the results for the 1980 and 1990 surveys. The effects of the sample design are added back during 1970 and 1980 which becomes the average percentage discrepancy for the total energy usage by approximately 0 percent, because the average increase was compensated by approximately 1 percent. Because the average fuel use and biomass production by approximately 0 percent, and because the average SED conversion is approximately 6 percent. The effects on the national averages were approximately ± 1 percent change, ± 2 percent biomass, ± 1 percent fuel use, and ± 1 percent biomass for residential, national avg, fuel, biomass, and SED, respectively.

In comparing the results for 2 years, the changes in the population will affect the interpretation of the results. For instance, when comparing the results across surveys for years before 1970, the population in 1970 builds units built in 1970 through the year of 1980. The population in 1980 builds units built in 1970 through the year of 1980, or the year of units built in 1980 through the year of 1989 from the year of units built from the year of 1980 through the year of 1989, then the change in residential building characteristics will give an interpretation of any changes in energy consumption between the 1970 census and the 1980 census.

The disaggregation technique used the regression model to estimate only the percentage of each fuel consumed by each fuel type. Typically, in this industry are the advantages that of a household uses more fuel oil than fuel oil for storage for one and two. It will be as the oil and used by the same household. For example, all a household consumes the electricity will be used by the household residing in the trailer. Thus during the winter, the household will have also consumed the excess of oil production. The percentage of the household used/used from the year for both fuel types. In the changes

Appendix C (Continued)

that many household did not conform to this behavior pattern. If there were systematic deviations from this pattern, the results given in this report will be biased. In future studies, EIA plans to use billing period data to help overcome this problem.

The regression equations for the components were developed using only the households with usable consumption data. The results are applied to all households. This carries with it the assumption that the population of households with and without usable consumption data conformed to the same linear regression model. The assumption was most tenable when applying the results to fuel oil consumption for households living in buildings with five or more units. If this assumption was not valid, then end-use estimates could be biased, even if the total consumption estimate was not biased.

The end-use estimates for expenditures were calculated by applying the same percentages to expenditures as were applied to consumption. This assumes that the average cost per unit of energy does not vary from billing period to billing period. If the utility rate structure is such that the average cost is lower for bills with large consumption amounts than it is for bills with small consumption amounts, then the cost of heating or cooling may be overestimated. If the rate structure has the opposite effect, then the cost of heating or cooling may be underestimated. In the future, incorporating the billing period data into the estimation procedure will help alleviate this problem.

Additional biases in the end-use estimates can result from the choice of independent variables used in the regression procedure. The components where the regression technique was the least subject to these potential biases were the space heating component for all fuels and the appliance component for electricity. The regression technique most subject to the potential biases was the water heating and appliance components for fuel oil/kerosene and LPG.

The questionnaire has been improved with each survey. Consequently, the data available to use in constructing independent variables has been improved. Hence, the end-use estimates should be more accurate for the 1981 survey than for the 1980 survey which, in turn, should be more accurate than the estimates for the 1978 survey.

An example of improved data is the square footage data. The data for the 1978 survey was an estimate provided by the respondent. These estimates were not used in the regression procedure because of inaccuracy in reporting by the respondent. The square footage data for the 1980 and 1981 surveys were based on measurements taken by the interviewers.

Only limited weather data was available for the 1978 survey. The question on the fuel used for air conditioning was improved for the 1981 survey. Questions on the number and types of appliances have been improved with each survey.

The listed standard errors reflect only the sampling variation and the number of households with usable utility data. They did not take into account errors made in disaggregating the annual energy consumption for individual households. One way to account for the disaggregation errors, is to perform a separate regression analysis for each half-sample using only the observations that fall in the half-sample. The end-use estimates for each half-sample would then be based on the regression for that half-sample. This would involve a considerable amount of work.

Appendix C (continued)

As a result of the effects of the organizational survey, separate analyses were conducted for each technique used separately for the respective samples for the three groups. The sample sizes of the various groups depend on the three test techniques for the individual, group, and the mixed for each group. However, the overall scores using the separate technique analysis for each technique were higher than the overall scores when the mixed and single techniques were found on the total sample irrespective analysis. Standard errors were, in the overall, 3.0 greater than for the mixed technique, 3.0 greater than for the single technique, and 3.0 greater than for the single technique.

In the experimental level of the results of the last study, it is the intention of the authors to be the first experiment, that the performance of the mixed group was poorer than the outcomes from the unstructured procedure yet the latter probably different. Thus, the unstructured group will be superior for the older learning compared the total and the mixed, respectively. The unstructured group will be smaller for the young learners compared the old, middle and middle for the older learners respectively. Additionally, the students' scores of the unstructured group will be higher compared to those from the other two groups. One can also find some additional properties of knowledge and related information, such as the fact, continue to learn better.

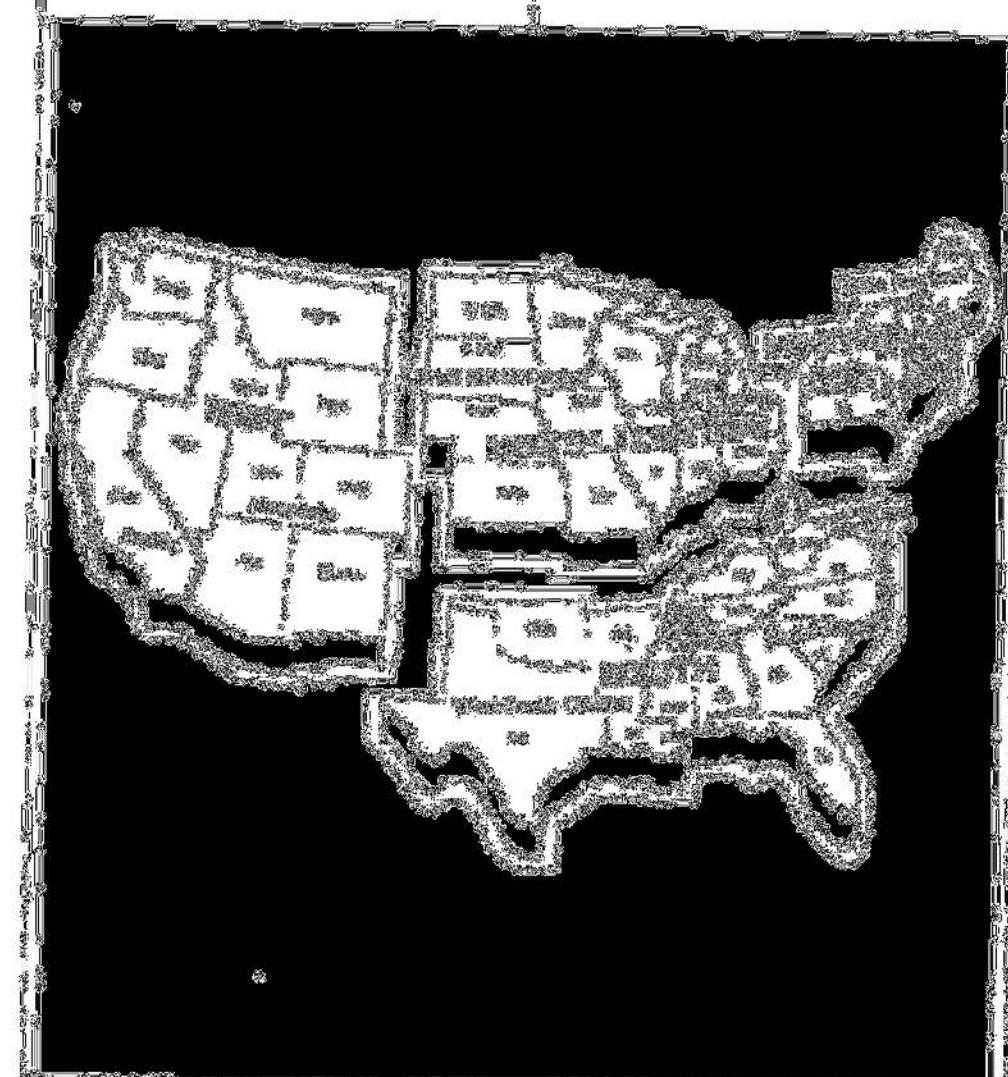
The procedure for evaluating the older subjects has been discussed with such groups. Thus, it can be assumed that the older subjects' scores for the total group will be higher than the unstructured group than the mixed group related to the total and total groups.

Supplementary D

U.S.

Central Region

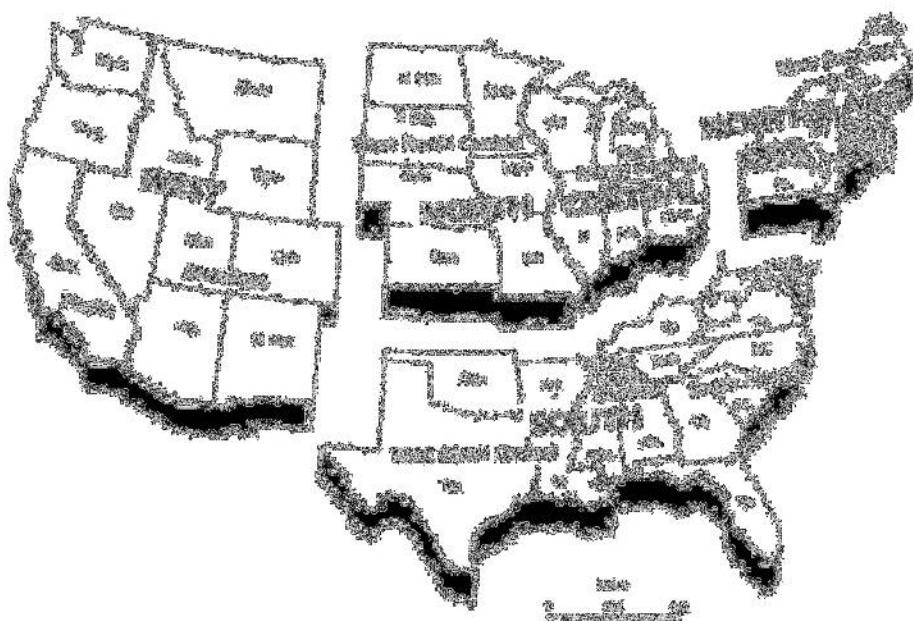
and Divisions



APPENDIX D

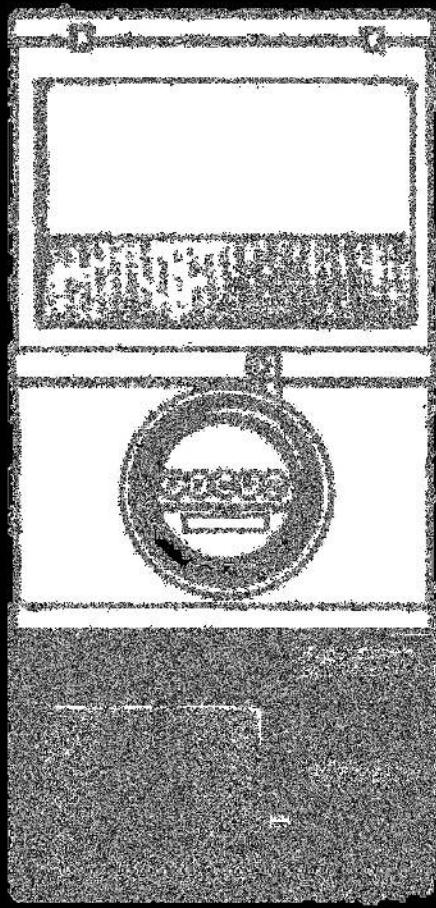
Appendix D

U.S. General Plan and Development



Resident Survey Questionnaire and Reportants by State for Total, West and East Coast Residential Areas

Glossary



Glossary

Air circulation: Moving air by a mechanical unit, this does not include fans. However, we sometimes specify whether we are interested in a recirculating unit. A recirculating unit is one that has been specifically for reusing conditioned air that has been used, but are in place in the heating units, and therefore for this reason.

"**Amber of smoke**" that you can see through windows or the outside of houses the air-conditioning equipment is capable of making them the equipment to heat. Question is "the smoke in your house transient and could be circulating" refers to smoke that would be caused by the air-conditioning equipment while heat. These other substances, we cause in the house as a household with the conditioning equipment that could also smoke.

"**All rooms air-conditioned**" means that 100 percent of the house air conditioned. Some houses air-conditioned mean there more than 100 percent are the conditioned.

"**Amperes** short-circuited, ground" refers to a circuit that short-circuited a number of times for a time. See also Ground, Short for the definition. For a definition of volt, see Volt at Home.

Amperage limit: Most electricals have limits. Many heating, hot water, water heating may be used for auxiliary heating or other purposes.

Amperage limit: Appliances powered and used by the household, appliances purchased by the household but not used are the exempt. Air-conditioning units are an exception. The conditioning is exempt to prevent heating or use in the case. See Electricity for the definition. Leased in the household the electric services are not included. Appliances temporarily used in the rental residence but operated and by the household are included only if a regular service has been called on the appliance for more than 60 days. Residing guest household applies only to residing people that are for the residence use of the heating unit. Residing people in separate buildings, residential, or commercial sites are the use of their residence responsible who are responsible. Heat includes heating and cooling source, but there are separate heating source. The responsible source heat cooling is an air-conditioning unit that uses oil gas water, and air for conditioning the air with other ways. (See also Appliance.)

Amplified heat heat loss: The heat loss calculated value is a 100-day period beginning as soon as possible on April 1. For natural gas and electricity, the actual heating time for a household any day does not 1 do either heating by central units depending on the household's heating system. We find all of heat and hot water heating time in days until 1, but the months represented different weather to the household during the 100-day period, not giving amount the temperature the fuel oil or hot water and the responsible organization, for the amount of heat delivered to the heat, not the amount of people resided. (See Appliance.)

Annex: An enclosed space in which a garage and walls right across the part of the building. A "small room" is the space between the garage and the slab at a house. An "annex" room over the garage means that the ceilings of the rooms between the walls of the space present to face the garage. A small room "over" the garage is separated from surrounding the house and house is not covered by a single or double. We mean that at least that ceiling spans the width of the garage.

GLOSSARY

Glossary (Continued)

Bathrooms: 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 Unit): A Btu is the amount of energy required to raise the temperature of 1 pound of water 1 degree Fahrenheit at or near 59.3 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	1,023 Btu/cubic foot
Fuel Oil No. 1	115,000 Btu/gallon
Kerosene	123,400 Btu/gallon
Fuel Oil No. 2	128,500 Btu/gallon
LPG (propane)	21,540 Btu/pound
	91,330 Btu/gallon
Wood	1,310 Btu/cubic foot
	35,640 Btu/cubic meter
	20 million Btu/cord

Other conversion factors used include:

$$\begin{aligned}1 \text{ therm} &= 100,000 \text{ Btu} \\1 \text{ barrel} &= 42 \text{ gallons}\end{aligned}$$

Almost all LPG reported by the fuel suppliers was propane. Hence, the LPG conversion factors are those for propane.

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.

Central System for the Building: A central system serving one or more buildings or two or more heating 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 Furnaces: 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 passes through ducts and the cold air falls through ducts that return it to the furnace to be reheated. This completes the circulation cycle.

consumption. Is the amount of electricity or natural gas used by the household during the 30-day period. For fuel oil, kerosene, and both the quantity requirement and purchased, and fuel required. If the level of fuel at the start was the same at the beginning and end of the annual period, then the quantity consumed would be the same as the quantity purchased. Discrepancies in respect of the level of fuel to the next year are included in the total utilization.

Building 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 outside average daily temperature is below 65 degrees. Building degree-days are calculated by subtracting the base of 65 from the daily average temperature. For example, a day with an average temperature of 65 degrees has 0 building degree-days ($65 - 65 = 0$). While not exact as average temperatures of 65 degrees is lower than 65. The average daily temperature is the sum of the maximum and minimum temperatures for a 24-hour period. The resulting degree-days for each household in the 48 hours and the number of households were analyzed according to the 1980 Standard of living each household was located from 1980 Population. Building degree-days analysis for electric and natural gas utilization were assigned by appropriate nearby weather stations.

House. (Household name) go from a heated zone in the country as by an unheated area, such as a porch or garage, goes to a heated hallway in an apartment building, down permanently except stairs, and down to an unheated area or basement zone not required because there does not run centrally through with space above. The kitchen surface except those in an unheated areas as bedrooms. But this rule will not follow in the same manner. House names were omitted at one time. A pair of children places down you expect no less than the other person. A pair of children places down you expect no less than the other person. Standard house electric supply with and without glass panels.

Electrification: See "Fuels."

Fuel Tax: Refers to the cost of energy used for space heating, space cooling, water heating, and transportation use. Discrepancies are included energy used for lighting, cooking and appliances.

Estimated Totals: Are calculated by the fuel supplier after the start of the year. The amounts are to based on the use of the following: September first usage, usage by similar households, and another form.

Householdings: Refers to the cost for electrification of natural gas consumed during the 30-day period. Expenditures include state and local taxes, but exclude corporation, wages, or special service charges. For households on a heating plan, the expenditures are for the actual consumption. Fuel oil, kerosene and LP expenditures are for the amount of fuel purchased which may differ from the amount of fuel received (see Purchased). For households that do not pay directly to utility fuel supplier, the expenditures for fuels are estimated and included in the totals.

The reader should also be aware that the consumption and expenditure data include households that do not pay directly for the energy cost.



Glossary (Continued)

Family Income: Is the total combined income for the calendar year prior to the survey 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 during the calendar year prior to the survey, 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.

Fireplace: Is any masonry or prebuilt installed fireplace. Fireplaces in mobile homes are included. A fireplace must have a permanent chimney built into the wall of the house. 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.

Fuel: Refers to the primary fuel 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.

"Gas" includes coke.

"Electricity" refers to netted 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 (0.417 Btu per kilowatt-hour). 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 in a kerosene attack to assure that heavier grades of fuel flow under severe cold weather conditions. No. 1 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. 1 and No. 2 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.



Glossary (Continued)

"Barge oil" refers to a distilled product of oil or coal with the specific name "kerosene." Kerosene is similar to fuel oil obtained from oil and is used for space heating or water heating or lighting equipment using water. It is sometimes sold under the name "range oil" or "kerosene."

"Gas or liquid petroleum gas" refers to any fluid 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 has the highest energy liquidified petroleum gas supplied in 1000 liter tanks. Household use of LPG today for cooking and heating is now considered sufficient use to merit the exemption as of this year.

"Natural gas" is utility gas supplied by independent pipelines to individual heating units by a natural utility company. It has no color and odor is generally added by the distributor.

Wetday degree-days: The number of degrees per day the daily average temperature is below 65 degrees Fahrenheit. Usually, heating is not required in a building until the outdoor average daily temperature is about 65 degrees. Heating degree-days are determined by subtracting the average daily temperatures below 65 degrees from the base of. 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 is neither hot nor cold. The average daily temperature for the rest of the summer and autumn temperature for a 30-degree period.

The heating degree-days for 1984 household in the A8 Station and the number of heating years assigned according to the base station to which each household is located. See **HEAT DEGREE-DAY**. Heating degree-days for Alaska and Hawaii households were assigned by appropriate monthly weather stations.

Year-Round Heating/Cooling System: A year-round heating/cooling system in which refrigeration equipment supplies both heating and cooling through direct heating or indirect water. It generally consists of a compressor, heat exchanger and water coils, and a thermostat.

When the heat pump is attached to a central furnace, the heat pump is called the heat or heating heating equipment depending on how often the heat pump operates. If it operates for a short time and then the furnace turns on, the heat pump is auxiliary (or additional heating equipment). If the heat pump is sufficient to provide the desired warmth, the heat pump is the main heating equipment.

Year-Round Indication: A procedure by which the household site is tested by certain factors to see whether there is a heating year. A household is then selected that has the same value on the heating variables, and this "target" household supplies the values for the heating sites. (See **Exemption**).

Household: A group of up to 10 persons occupying the same dwelling unit. "Occupied" means the building with the person's usual or permanent place of residence at the time of the survey field contact. The household includes babies, Indians, Indians, employed persons who live in the dwelling unit, and persons who usually live in the dwelling unit but are away traveling or at a hospital. The household does not include persons who are normally members of the household but who may have left or college students or residents of the armed forces at the time of the survey.

Glossary (Continued)

Household: 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 in other dwellings; domestic employees or other persons employed by the household who do not sleep in the same dwelling unit, or persons who are former members of the household, but have since become inmates of correctional 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 dwelling 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 (semi-detached), 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, dormitories and suites, 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 dorms 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

Glossary (Continued)

Grounding. When no net material flow, when players require the majority of the marking and the referee enforces, under the rule of best lines to the advantage or best gain from the markings. The four forms of grounding, illustrated as a drawing shown in parentheses, are listed below:

"Players on touch"—ambil et placez of foundation that are called at signal because the referee or wall judge (boxer). It is usually made of fibreglass or mesh wire.

"Leave portion or leave tape"—leave foundation made of a bag and its ground between jockey (boxer). Leave foundation can also be blem. Auto racing option. Name will can be given other, preferred choice, utilization often, no negotiable.

"Tire legs or tire plastic"—rigid bands (such as styrofoam) that can be cut to size and either glued, nailed, or glued into place.

"Opposition scratch line" is not shown separately as a category because the foundation used by the entry was non-existent. Because there is not supposed to be any in contact with their marked area may be broken apart by the force of the opposing scratch. The more general category of "scratches line" will be used in the future to include all types of such foundation.

"Floor foundation" is foundation between the floor floor and the vehicle's bottom in mind space. Supporting or supporting pads are not foundation.

Non-building Rule: In the center of the question "Building is all the different ways of getting from here, building outside is the same, in a garage, and with small adjustments, which just is not noisy?"

Non-Building Equipment: Non description of specific building equipment; Non building equipment, if necessarily out of order, is referred to the non building equipment. If two types of building equipment are held, the one equipment is the one held order. If both the same quality, the one equipment is the one that appears first on the list is the question.

Non-Building Rule: The rule contained by the question is negative to the question "Not in the main fuel and the building this house (question)?"

Number Methods: The method used to utilize resources (e.g., electricity and natural gas) to measure the total volume of energy used by several individual consumers collectively.

NHANES: The National Health and Nutrition Examination Survey, the first developmental survey in the planned series of National Health Examination Survey. The NHANES measured 4,000 households in October and November 1971. NHANES provides data on consumption and expenditures for the period April 1970 through March 1971.

NRCC Divisions: One of the 34 county districts designated by the National Oceanic and Atmospheric Administration (NOAA) managing the 44 contiguous States. These divisions usually follow county boundaries to encompass counties with similar climate conditions. The NRCC division that the Bellville county belongs to weather conditions very consistently within a radius such as to likely to happen that the county borders the system to continuous high temperature. A state contains an average of seven NRCC divisions a NRCC division contains an average of nine counties.



Glossary (Continued)

Nominal Dollars: Is the value of dollars for the year specified. Sometimes called "current dollars," nominal dollars have not been adjusted to remove the effects of inflation.

Rooms of Units: Usable 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. Bathrooms, halls, foyers or vestibules, balconies, closets, pantries, strip or pullman kitchens, laundry or furnace rooms, unfinished attics or basements, open porches, and unfinished spaces 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.

Rooms are counted as year-round living space if they are completely enclosed with permanently installed walls, windows, and a roof and can be heated.

Occupied Housing Units: A unit someone uses living in as his or her usual or permanent place of residence at the time of the first field contact.

Owning/Renting: 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 alliance or favor from a relative or friend not living in the unit. "Rent free" also includes occupants who pay only for utilities. Households shown separately, "rent free" households are grouped together with "renters."

Quadrillion: Equals 1,000,000,000,000,000 or 10^{15} .

Regions: The States are divided into 10 groups as follows:

Region	States
Northeast	Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut, New York, New Jersey
North Central	Ohio, Indiana, Illinois, Michigan, Wisconsin, Minnesota, Iowa, Missouri, North Dakota, South Dakota, Nebraska, Kansas
South	Delaware, Pennsylvania, Maryland, Virginia, West Virginia, District of Columbia, Kentucky, Tennessee, North Carolina, South Carolina, Georgia, Alabama, Mississippi, Florida
West	Colorado, Utah, Wyoming, Montana, Idaho, New Mexico, Hawaii, Arizona, California, Nevada, Alaska, Oregon, Washington

Glossary (Continued)

Residential: Refers to occupied housing units including mobile homes, single-family housing units (detached and attached), and apartments. The definition of housing units is the same as that used by the U.S. Bureau of the Census. (See **Household** and **Residence Unit** for further definitions.)

Residential Energy Consumption Survey (RECS) 1980, 1981: The Residential Energy Consumption Survey that estimated 5,401 households in 1980 and 6,103 households in 1981. This survey provided data on consumption and expenditures for the period April 1980 through March 1981 and April 1981 through March 1982.

Ridge: (See **Ridge or Ridgepole**.)

Ridgepole: Wall or rafter members are included in the non-residential category. "Ridge-poles" mean that these do not hold up all the weight of the gables section or the roof section.

Roof, Roofs: Roofing, Roof, RCL, Roofs: Are covering materials, insulation, radiant gas blanket, vapor barrier, or other insulating roof features that may or may not be contained in a floor, wall, or ceiling.

Reserve Survey: The Residential Energy Consumption Survey that encompassed 6,103 households in October and November 1981. This survey provided data on consumption and expenditures for the period April 1981 through March 1982. This survey was used for household income figures because it was used to select households for participation in the Household Transportation Panel.

Secondary Heating Equipment: Equipment used in addition to the main equipment. Installation of the secondary heating equipment is the same as for the main heating equipment.

Square Foot: The floor area of the heating unit that is enclosed from the exterior. Garages are included whether or not they contain finished space. Garages are counted if they have a wall in common with the house. Areas that have finished space and areas that have non-finished space are included. Non-finished areas are not included even if they are enclosed from the exterior. Sheds and other buildings that are not attached to the house are not included. "Enclosed" spaces does not mean that the measurement of the dimensions of the room did not apply as the respondent's response has was an actual measurement by the interviewer using a collapsible, retractable, 10-foot tape measure.

"Spaced square foot" are those portions of the measured square foot that is heated during most of the season. Areas that are unheated during the heating season to some or full use are not counted as heated square footage. Attached garages that are enclosed and heated since its construction and which are not counted as heated square feet.

Steam or Hot Water System with Radiators or Convections: 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 equivalent that are part of a central heating/cooling or heating/air-conditioning system. This category also includes radiant heating through hot water pipes buried in a concrete slab floor.

Storm Doors and Windows: Storm doors made of double or insulating glass and are thermostatic. Glass or plastic glazing placed over a window frame but no either the exterior or interior is counted as a storm door. A plastic sheet covering the door is not counted as a storm door.



Glossary (Continued)

Storm windows are made of double or laminating glass, such as Monopane. Glass or plastic placed over windows on either the interior or exterior side are counted as storm windows. Plastic sheets covering windows are not counted.

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 she did not know if it had attic insulation, was counted in the "have one or two of these" category.

Bather-Heating Fuel: The answer to the question, "Which fuel is used most for heating water?" Respondents that did not have running water in their home were also asked this question. The fuel is used for heating water for bathing and washing. 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 those 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.

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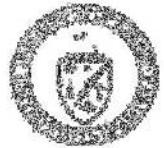


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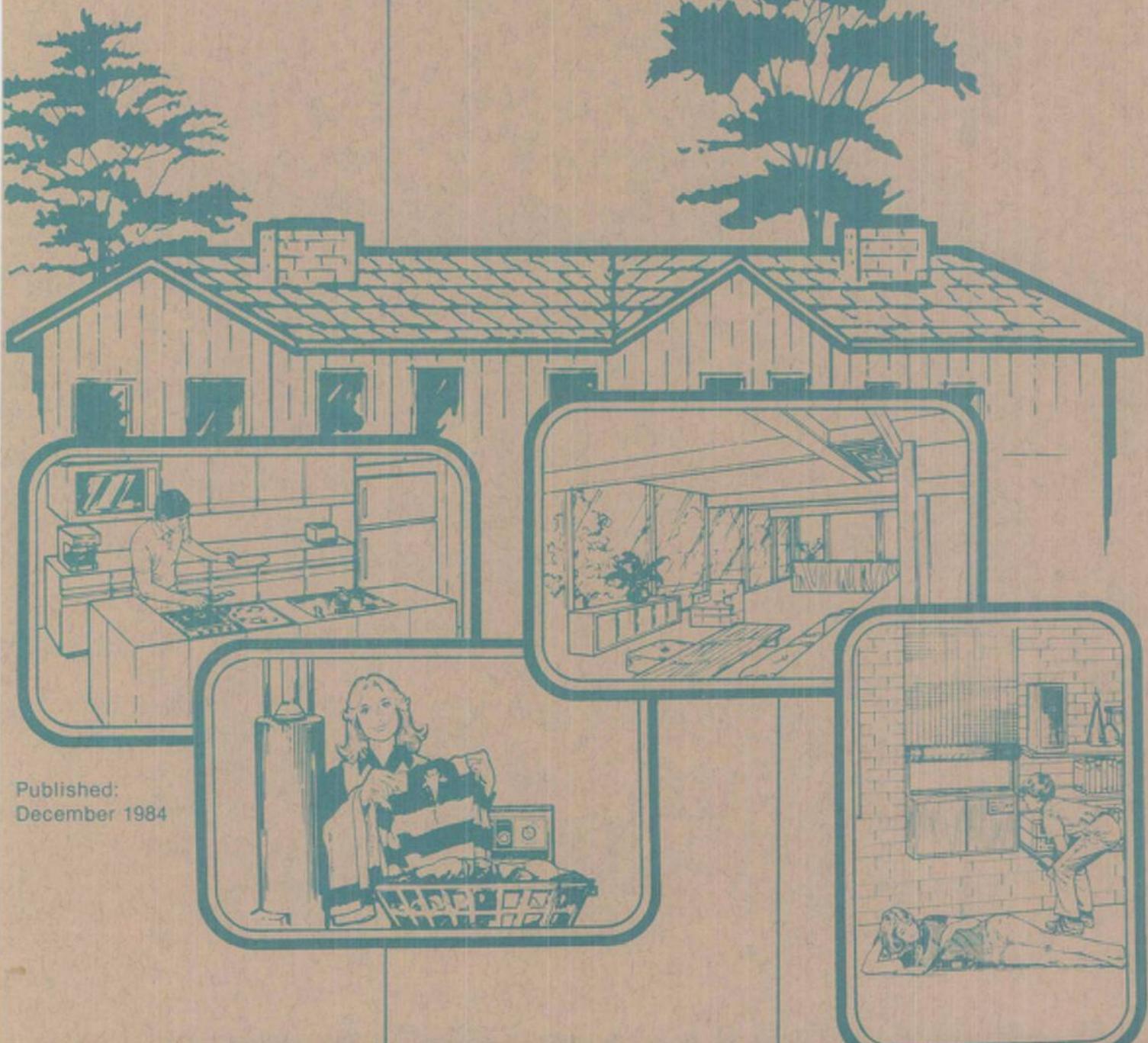
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Residential Energy Consumption and Expenditures by End Use for 1978, 1980, and 1981

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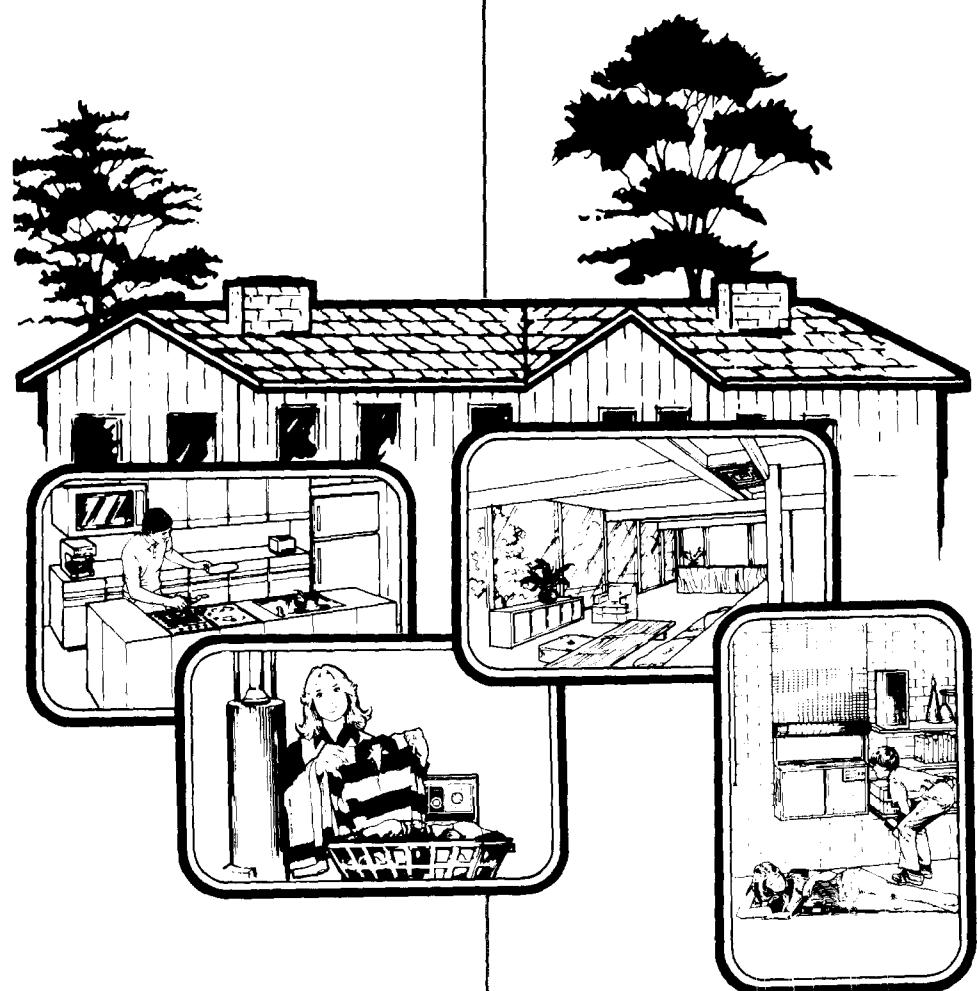
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Prepared by:
Martha Johnson

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Contacts

General information about Energy Information Administration data on energy consumption may be obtained from W. David Montgomery, Director, Office of Energy Markets and End Use (202-252-1617) and Lynda T. Carlson, Director of the Energy End Use Division (202-252-1112). Specific information regarding the contents or preparation of this publication may be obtained from Nancy L. Leach, Chief of the Residential and Commercial Branch (202-252-1114); Wendel Thompson, Project Manager for the Residential Energy Consumption Surveys (202-252-1119); and Martha M. Johnson, principal author (202-252-1137). Questions concerning the methodology and sampling errors can be answered by Robert B. Latta (202-252-1385). The data collection agent for the report was Response Analysis Corporation, Princeton, New Jersey.



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Summary of Findings

Introduction

There is an increasing interest in information on the amount and cost of residential energy that is used for space heating, air conditioning, water heating, and appliance use. This report, an elaboration of a previous report,¹ is the first to examine trends in average household energy usage by end use.

The end-use estimates of the average household consumption and expenditures are statistical estimates based on the 1978, 1980, and 1981 Residential Energy Consumption Surveys (RECS)² conducted by the Energy Information Administration (EIA) rather than on metered observations. The end-use estimates were obtained by developing a set of equations that predict the percentage of energy used for each broad end-use category. The equations were applied separately to each household and to each fuel. The resulting household end-use estimates were averaged to produce estimates of the average end-use consumption and expenditures on a national and regional basis. (Households in Alaska and Hawaii were included in the 1981 survey but not included in the 1978 survey, resulting in a change in sample population in the West from 1978 through 1981.) The accuracy and potential biases of these end-use estimates vary depending on the fuel type, on the year of the survey, and on the type of end use.

The three RECS surveys were cross sectional surveys, thus, they did not have any households in common. Because households were not followed over time, only comparisons of the average consumption and expenditures for similar populations at different times can be made. One problem with this approach is that the population is changing over time. This is particularly true when considering only households living in dwellings that have been built since 1975. The reader should be cautioned that throughout this report 1978 refers to the period April 1978 through March 1979; 1980 refers to April 1980 through March 1981; and 1981 refers to April 1981 through March 1982. Data for April 1979 through March 1980 were not included in this report because there was an insufficient listing of appliances.

The figures and tables presented show the amount and the type of energy consumed, plus the cost of this energy. National averages are given as well as averages for various categories including region, size and age of dwelling, number of heating degree-days, and income. The majority of the report focuses on the amount and the cost of natural gas and electricity used for space heating. However, data on other end uses and fuels are also presented.

The first section of this report discusses some of the significant findings. The second section discusses energy trends by end use for all fuels used in the home for 1978, 1980, and 1981. The third and fourth sections concentrate on electricity consumption and expenditures and natural gas consumption and expenditures, respectively.³

¹ Residential Energy Consumption Survey: Regression Analysis of Energy Consumption by End Use, DOE/EIA-0431 (Washington, D.C., October 1983).

² Residential Energy Consumption Surveys: April 1978 through March 1979; April 1980 through March 1981; April 1981 through March 1982. It is important to note that the surveys are cross sectional and not longitudinal; thus, there are different sets of households in each survey.

³ See Appendix B, "Limitations of Data" for further discussion of sampling and nonsampling errors.

⁴ Standard errors for the statistics in the significant findings section can be found in sections two through four of this report and in the Residential Energy Consumption Surveys 1978 through 1981. For a discussion on the computation of the standard error of the percent change, See Appendix B.



Significant Findings

Summary of Findings (Continued)

The average U.S. energy consumption per household for all fuels used in the home declined 24 million Btu from 138 million Btu in 1978 to 114 million Btu in 1981. The primary cause of the decline in overall energy consumption was the amount of energy used for space heating. Although consumption for all fuels declined during this period, the drop was particularly evident from 1978 through 1980.

From 1978 through 1981, households experienced, on the average, a 28 percent decline in the amount of energy used to heat their homes. Even after adjusting for a difference in weather, space heating consumption still declined, on the average, 17 percent for natural gas heated homes and 31 percent for electrically heated homes. The largest decline in space heating consumption was among households that heated with electricity. These households experienced, on the average, a 39 percent decline from 31.6 million Btu in 1978 to 19.2 million Btu in 1981. The second largest decline, 27 percent, occurred among homes that heated with fuel oil. Among natural gas heated homes, there was, on an average, a 27 percent decline in space heating consumption from 1978 through 1980. Approximately a 10 percent increase then occurred from 1980 through 1981, giving an overall decline of about 19 percent from 1978 through 1981. The cost of space heating, however, increased from 1978 through 1981. Among households whose main heating fuel was natural gas, the cost of space heating increased, on the average, by 35 percent, while the cost among households heating with electricity only increased, on the average, by 7 percent. The largest increase in space heating costs occurred among homes where the main heating fuel was fuel oil. The following table shows that fuel oil costs increased by \$305 from 1978 through 1981.

Table S1. Average Household Consumption and Expenditures for Space Heating by Main Heating Fuel

	Consumption (in million Btu)			Expenditures (in Dollars)		
	1978	1980	1981	1978	1980	1981
Electricity	32(2.2)	18(1.6)	19(1.3)	269(18)	241(24)	289(20)
Natural Gas	101(3.4)	74(1.3)	82(1.7)	272 (7)	285 (5)	367 (7)
Fuel Oil/ Kerosene	121(4.8)	96(2.5)	88(2.8)	475(19)	773(20)	780(26)

Note: The value in parenthesis represents one standard error of the statistic.

Source: Tables 1, 3, 5, 11, 13, 15, 17, 23, 25, 27, 29, 35.

From 1978 through 1981, electrically heated households in the West¹ experienced the largest decline in space heating consumption with, on the average, a 58 percent decrease in electricity. However, it is important to note that there was not a steady decline. From 1978 through 1980, there was a 66 percent decrease in electricity consumption, then from 1980 through 1981, consumption increased by 21 percent. Homes heated by natural gas in the West reduced their space heating consumption by 30 percent from 1978 through 1981. In 1981, homes in the Northeast heated by electricity used 35 percent more Btu for space heating than

¹ Appendix D shows the States by region.



Summary of Findings (Continued)

electrically heated homes in the West and spent, on the average, \$411 more for electricity than households in the West. Households in the Northeast, heated by natural gas used, on the average, 50 percent more natural gas for heating than households in the West. The cost for this heating was approximately \$360 more in the Northeast than in the West.

Natural gas heated homes constructed after 1974 used 36 percent fewer Btu for space heating in 1981 than were used in 1978, compared with a 17 percent decrease in Btu consumption in homes constructed before 1975.²

Average household energy expenditures also varied by size of home, age of home, and income. For example, Table S2 shows that the average household's cost for space heating did not vary greatly by income except at the highest income level. However, the cost for water heating, cooling, and miscellaneous use consistently increased as income increased.

In 1981, among households whose main heating fuel was natural gas, on the average, 73 percent was used for space heating, 19 percent was used for water heating, and 8 percent was used for miscellaneous purposes. Among households whose main heating fuel was electricity, 36 percent of electricity was used for space heating, 32 percent was used for miscellaneous purposes, 19 percent was used for water heating, and 12 percent was used for cooling.

Table S2. Average Household Energy Expenditures by End Use by Income for 1981 (Dollars)

Income	Space Heating	Cooling	Water Heating	Miscellaneous Use
Less Than \$5,000	335(22)	39 (6)	109(6)	281(12)
5,000 - 9,999	396(25)	47 (5)	129(7)	335(10)
10,000 - 14,999	399(19)	55 (5)	140(4)	366(11)
15,000 - 19,999	395(23)	54 (5)	154(6)	383 (9)
20,000 - 24,999	396(23)	73 (3)	161(6)	413(11)
25,000 - 34,999	399(23)	85 (7)	168(6)	454(11)
35,000 or More	483(28)	141(11)	195(8)	514(19)

Note: The value in parenthesis represents one standard error of the statistic.

Source: Table 34.

²Homes built after 1978 were not included in the 1978 survey; consequently, the changes in the average energy consumption from 1978 through 1981 may be heavily influenced by the post-1978 survey construction. For a discussion on the implications of this difference in populations, see Appendix C "Limitations of the Data."

Miscellaneous use refers to other uses such as lighting, cooking, appliance use.



Summary of Findings (Continued)

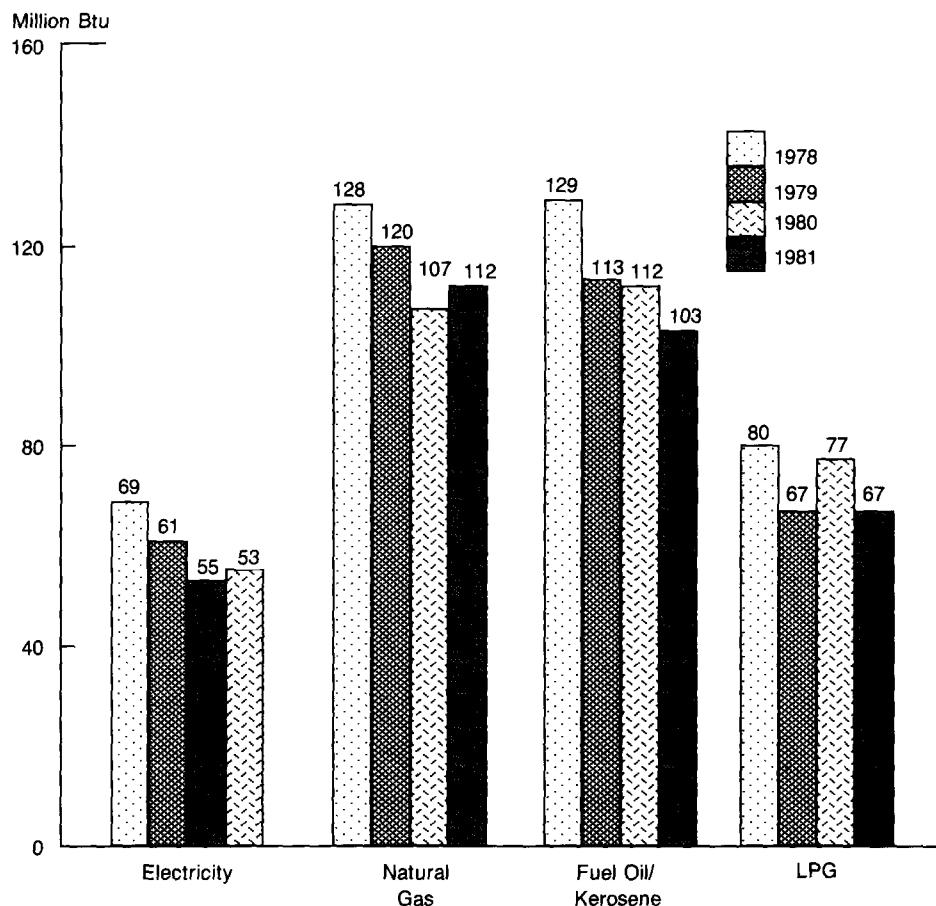
Energy End Use Trends

Average Household Consumption

Figure 1. Average Household Energy Consumption by Main Heating Fuel 1978, 1979, 1980, and 1981 (Million Btu)

The average energy consumption per household decreased from 1978 through 1981 by 17 (3) percent, while average energy expenditures during the same period increased by 41 (2) percent. Although all fuels showed a decline in consumption from 1978 through 1981, the largest decrease was in electricity consumption.

Figure 1 shows that among households whose main heating fuel was electricity there was, on the average, a 23 (5) percent decline in total electricity consumption from 1978 through 1981. During the same time, the average total consumption of natural gas among households heated by natural gas declined by 12 (3) percent, while average consumption for fuel oil in those households heated by fuel oil declined by 20 (4) percent.



Source: Energy Information Administration, 1978, 1979, 1980, and 1981 Residential Energy Consumption Surveys.

Note: Energy consumption pertains to electricity consumption for households whose main heating fuel is electricity, natural gas for households whose main heating fuel is natural gas, and so forth.

¹The value in parenthesis represents one standard error of the statistic. The standard error is measure of the variability of an estimate.

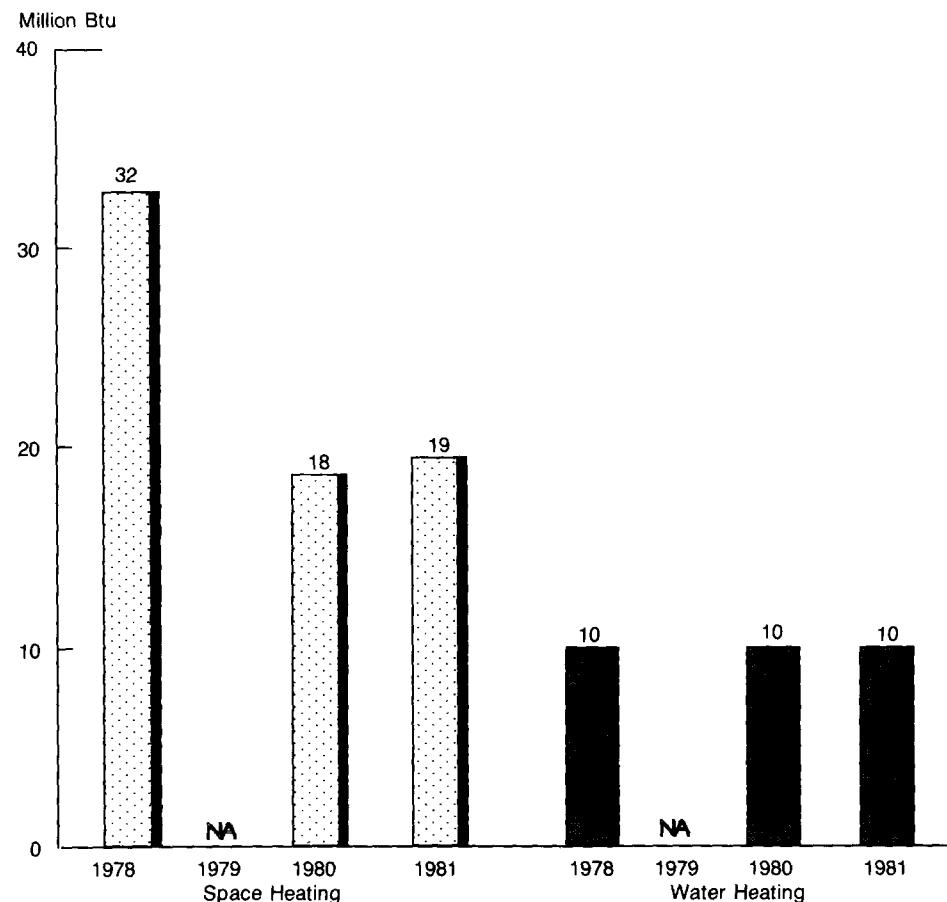


Summary of Findings (Continued)

Space Heating Consumption

The decrease in consumption from 1978 through 1981 is primarily attributed to a decline in the amount of energy used for space heating, rather than a change in the amount of energy used for other end uses such as cooling, water heating, and miscellaneous use.² Additionally, it appears that the greatest portion of this decline occurred from 1978 through 1980. Figure 2 shows that from 1978 through 1981, there was approximately a 40 (6) percent decrease in electricity used for space heating among homes heated by electricity, while during this same time, there was no significant change in the amount of electricity used for water heating.

Figure 2. Average Household Electricity Consumption for Space Heating and Water Heating When Main Heating Fuel is Electricity (Million Btu)



Source: Energy Information Administration, 1978, 1979, 1980, and 1981 Residential Energy Consumption Surveys.

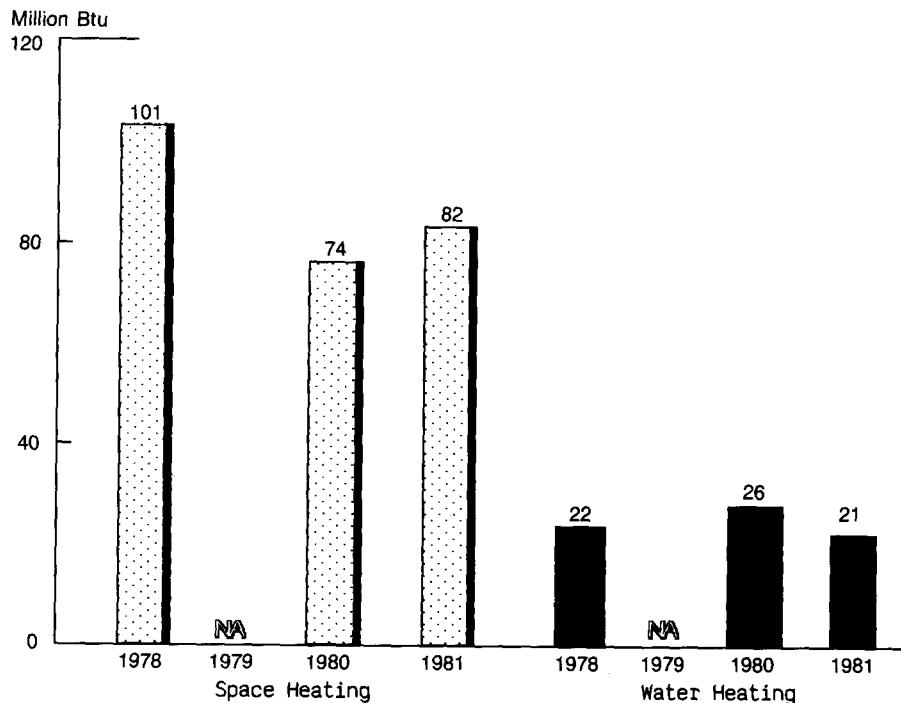
² Miscellaneous use refers to other uses such as lighting, cooking, appliance use.



Summary of Findings (Continued)

Among homes heated by natural gas, approximately 101 (3.4) million Btu of natural gas was used for space heating in 1978. Figure 3 shows that like electricity, the largest decrease in gas consumption was in space heating with a 19 (3) percent decline from 1978 through 1981. However, unlike electricity, the estimated amount of natural gas used for water heating did not remain stable. From 1978 through 1980, water heating consumption increased by approximately 18 (3) percent and then decreased by approximately 17 (2) percent from 1980 through 1981. The average consumption for household's heated with

Figure 3. Average Household Natural Gas Consumption for Space Heating and Water Heating When Main Heating Fuel is Natural Gas (Million Btu)



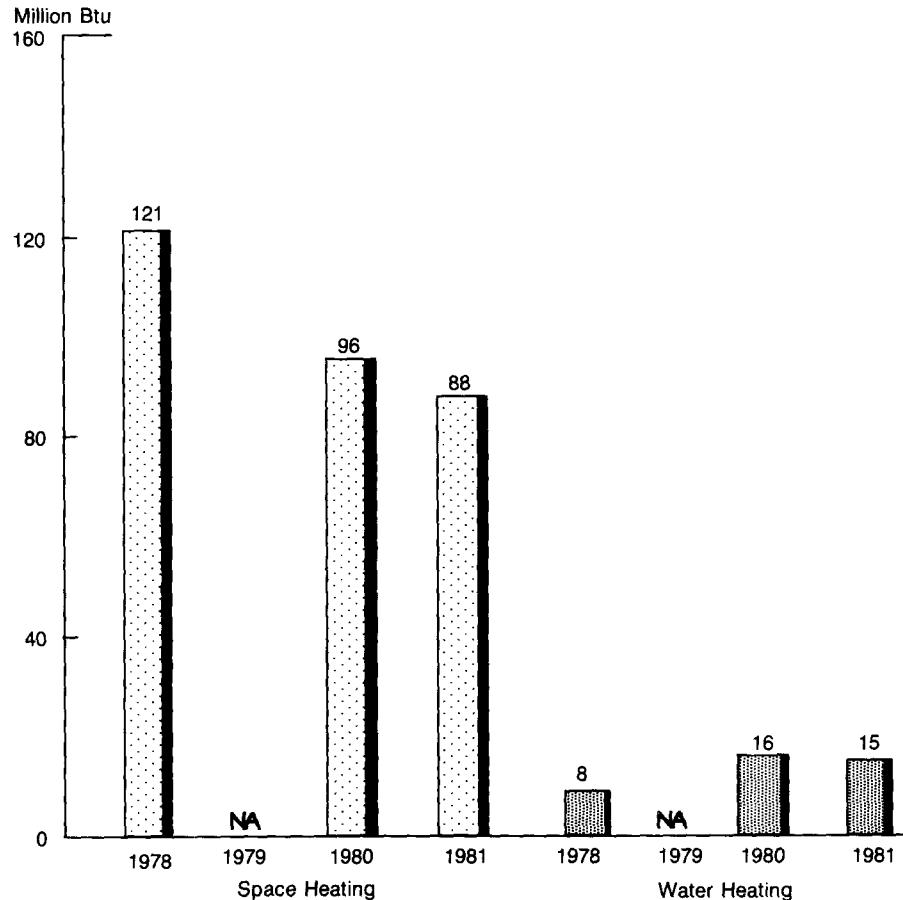
Source: Energy Information Administration, 1978, 1979, 1980, and 1981 Residential Energy Consumption Surveys.

³See Appendix C "Limitations of the Data" for a discussion on the variability of the amount of natural gas consumed for water heating.



Summary of Findings (Continued)

Figure 4. Average Household Fuel Oil or Kerosene Consumption for Space Heating and Water Heating When Main Heating Fuel is Fuel Oil or Kerosene (Million Btu)



Source: Energy Information Administration, 1978, 1979, 1980, and 1981 Residential Energy Consumption Surveys.

The difference in the number of heating degree-days for 1978, 1980, and 1981 may have influenced energy consumption levels particularly for space heating. The following table shows average household consumption for space heating per heating degree-days.⁴ The data suggest that even after controlling for the weather, electricity consumption still declined by 31 (5) percent, natural gas consumption declined by 17 (3) percent, and fuel oil or kerosene consumption declined by 26 (6) percent. This suggests that factors other than weather may have also influenced the decreases in consumption from 1978 through 1981.

⁴Heating degree-days are base 65 degrees Fahrenheit. See Appendix B, "Methodology" for a discussion on how consumption was adjusted for heating degree-days.



Summary of Findings (Continued)

Table T1. Average Household Energy Consumption for Space Heating per Heating Degree-Day by Main Heating Fuel (Thousand Btu)

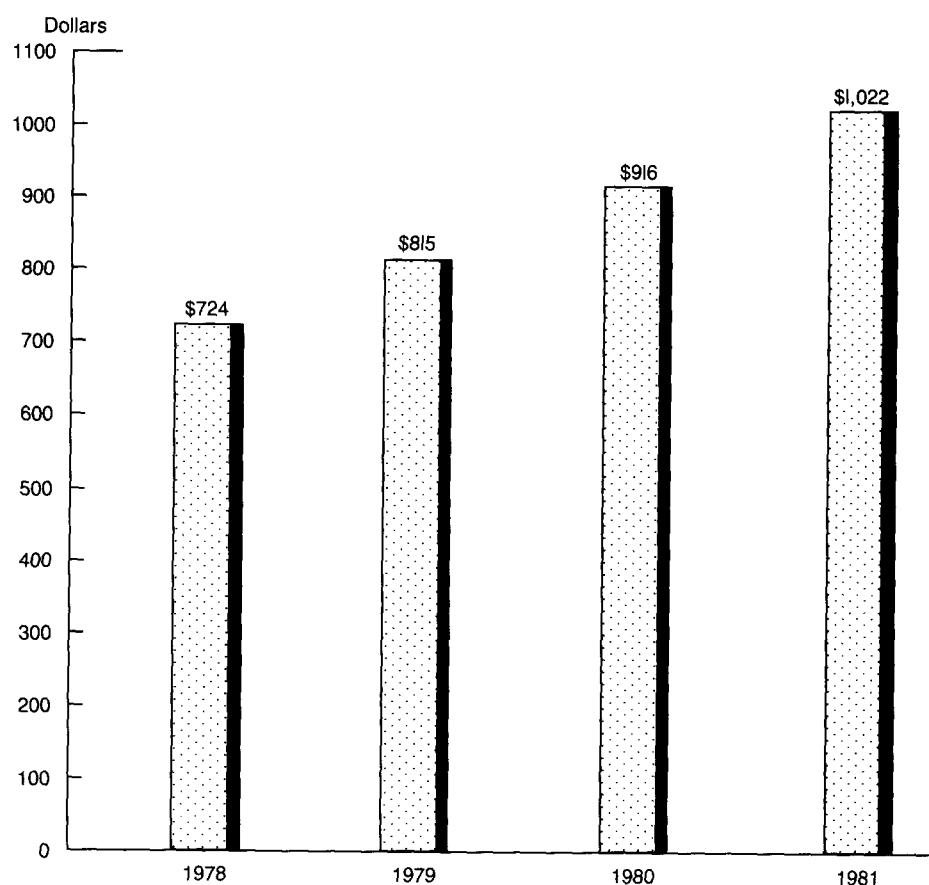
Year	Electricity	Natural Gas	Fuel Oil/Kerosene
1978	7.5 (.4)	20.4 (.5)	22.7 (.7)
1980	4.6 (.2)	15.6 (.2)	17.6 (.4)
1981	5.2 (.2)	17.0 (.3)	16.7 (1.0)

Note: The value in parenthesis represents one standard error of the statistic.

Source: Energy Information Administration, 1978, 1980, 1981, Residential Energy Consumption Surveys.

Average Household Expenditures

Figure 5. Average Household Energy Expenditures for 1978, 1979, 1980, and 1981 (Dollars)



Source: Energy Information Administration, 1978, 1979, 1980, and 1981 Residential Energy Consumption Surveys.

Note: 1979 figures are included in the overall energy expenditures. The data, however, were incomplete for accurate end-use estimates.



Summary of Findings (Continued)

Among homes that were heated by natural gas, the average cost for space heating increased by approximately 35 (4) percent, from \$272 (7) in 1978 to \$367 (7) in 1981. The greatest proportion of this increase occurred from 1980 through 1981. The average electricity cost for space heating among homes heated by electricity increased by 7 (8) percent from \$269 (18) in 1978 to \$289 (20) in 1981. (This increase was not statistically significant.) The largest increase in costs occurred among homes heated by fuel oil or kerosene. In these homes, the average household's space heating expenditures increased 64 (2) percent from \$475 (19) in 1978 to \$780 (26) in 1981. This increase occurred primarily from 1978 through 1980 (Table T2).

Table T2. Average Household Consumption and Expenditures for Space Heating by Main Heating Fuel (Percent Differences 1978-1981, 1978-1980, 1980-1981)

	Consumption (Percent Differences)			Expenditures (Percent Differences)		
	1978-1981	1978-1980	1980-1981	1978-1981	1978-1980	1980-1981
Electricity	-39(6)	-42(6)	+05(10)	+7(8)	-10(10)	+20(9)
Natural Gas	-19(3)	-27(3)	+10 (3)	+35(4)	+5 (3)	+29(2)
Fuel Oil/ Kerosene	-27(3)	-20(3)	-08 (3)	+64(2)	+63 (2)	+0.9(3)

Note: The value in parenthesis represents one standard error of the statistic.

Source: Tables 1, 3, 5, 11, 13, 15, 17, 23, 25, 27, 29, 35.

Electricity Consumption and Expenditures

Space Heating

From 1978 through 1981, there was approximately a 58 (3) percent decline in electricity consumption for space heating in the West among households where the main heating fuel was electricity. This decline occurred from 1978 through 1980 with a 66 (3) percent reduction in consumption. Then, from 1980 through 1981, electricity used for space heating increased by approximately 22 (9) percent. Table E1 shows that during the same period (1978 through 1981) there was about a 37 (9) percent decrease in the amount of electricity consumed for space heating in the North Central region and a 38 (11) percent decrease in the South. Electricity consumption for space heating did not significantly change in the Northeast from 1978 through 1981.

Table E1. Average Household Electricity Consumption and Expenditures for Space Heating When Main Heating Fuel is Electricity by Region

	Consumption (Million Btu)			Expenditures (Dollars)		
	1978	1980	1981	1978	1980	1981
Northeast	33 (5.4)	24 (2.0)	33 (2.8)	347 (57)	426 (44)	644 (81)
North Central	46 (4.1)	27 (2.4)	29 (4.3)	492 (43)	359 (42)	442 (71)
South	21 (2.1)	15 (2.6)	13 (2.0)	215 (20)	205 (34)	212 (32)
West	52 (1.9)	18 (1.5)	22 (1.8)	272 (31)	150 (8)	233 (15)

Note: The value in parenthesis represents one standard error of the statistic.

Source: Tables 2, 12, 14, 24, 26, 36.



Summary of Findings (Continued)

Table E2 shows that in the 1978, 1980, and 1981 surveys, electricity consumption for space heating consistently increased as the heated square footage of the house increased. Additionally, from 1978 through 1981 in all size categories, there was a decrease in consumption. However, Table E2 shows that there was no consistent trend by dwelling size in the percent of change for electricity. The statistically significant change in the amount of electricity used for space heating ranged from 31 (10) percent to 52 (19) percent.

Table E2. Average Household Electricity Consumption for Space Heating When Main Heating Fuel is Electricity, by Square Footage of Home (Million Btu)

Square Feet	1978	1980	1981	Percent Change Between 1978-1981
1-799	20.3 (2.9)	11.8 (1.5)	15.7 (1.4)	23 (12)
800-999	26.7 (2.7)	14.5 (1.3)	15.9 (1.4)	40 (8)
1,000-1,199	28.3 (3.2)	16.0 (2.0)	19.0 (1.4)	33 (3)
1,200-1,399	29.6 (4.2)	19.4 (2.6)	17.2 (2.2)	42 (11)
1,400-1,799	39.4 (3.2)	19.9 (2.4)	18.9 (3.5)	52 (19)
1,800-2,399	40.5 (4.7)	26.6 (1.7)	28.0 (2.6)	31 (10)
2,400 or More	60.9 (6.5)	27.6 (2.3)	32.2 (2.9)	47 (8)

Note: The value in parenthesis is one standard error of the statistic.
Source: Tables 1, 13, 25.

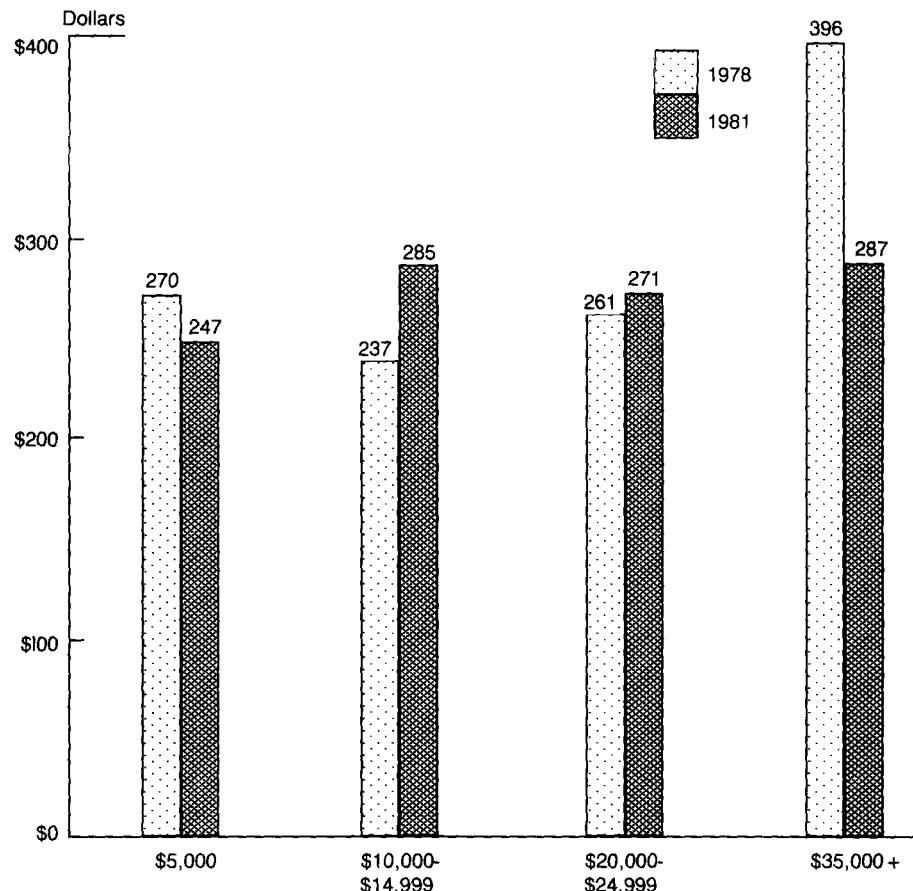
Energy expenditures, particularly for space heating, varied by income, and by geographic region. In 1978, the average space heating cost for electrically heated homes in the Northeast was approximately \$347 (57). By 1981, this cost had almost doubled to \$644 (81). However, other regions in the United States experienced a decline in electricity costs for space heating, with the West experiencing the largest decrease in costs.



Summary of Findings (Continued)

Electricity costs for space heating decreased from 1978 through 1981 by 28 (10) percent for households in the highest income bracket (\$35,000 or more). The 9 (11) percent decrease in electricity costs among households in the lowest income bracket (less than \$5,000) was not statistically significant. At all other income levels, the cost of heating with electricity increased from 1978 through 1981. Figure 6 shows electricity expenditures for 1978 and 1981 by selected categories of income.

Figure 6. Average Household Electricity Expenditures for Space Heating for 1978 and 1981 by Selected Level of Income (Dollars)



Source: Energy Information Administration, 1978 and 1981 Residential Consumption Surveys.



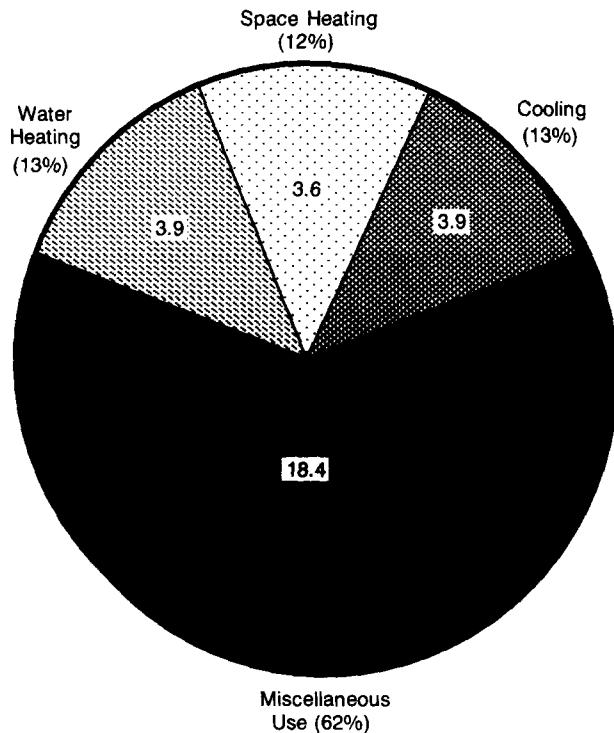
Summary of Findings (Continued)

End Use

In addition to the trends in consumption and expenditures, the patterns of energy use within a given time period are also of interest. Figures 7 through 11 describe the distribution of electricity consumption and expenditures by end use.

Figure 7 shows that in 1981, among households that used electricity but did not necessarily heat with it, approximately 62 (.8) percent of the average household electricity consumed was for miscellaneous use. Approximately 12 (.7) percent of household electricity consumption was used for space heating, while water heating accounted for approximately 13 (.5) percent and cooling accounted for 13 (.6) percent. This pattern was the same for 1978 and 1980.

Figure 7. Average Household Electricity Consumption for All Households That Use Electricity by End Use for 1981 (Million Btu)



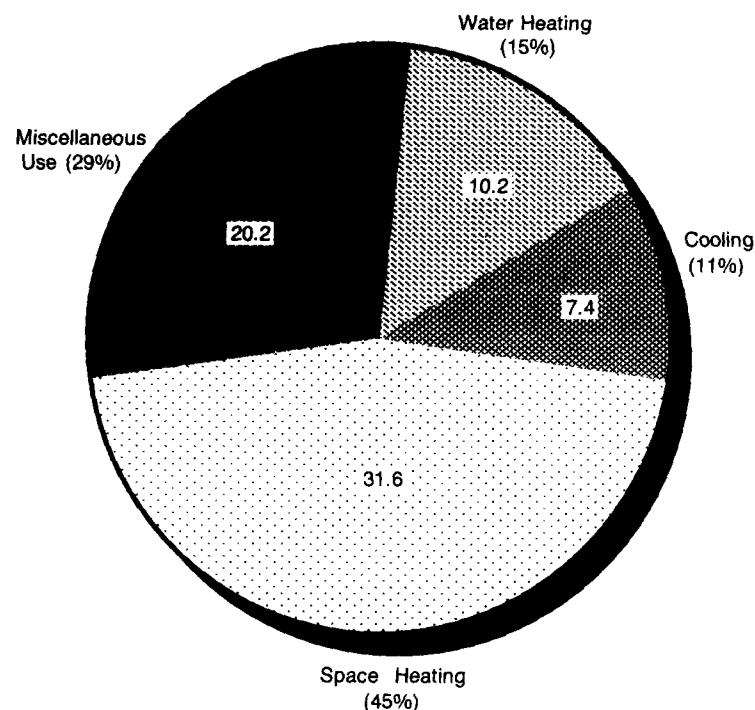
Source: Energy Information Administration, 1981 Residential Energy Consumption Survey.

Figures 8 through 10 show that this pattern of electricity consumption changes when electricity is the main heating fuel. The average household consumption for electricity was 53.4 (2) million Btu for those households that heated with electricity in 1981. Approximately 36 (1) percent was used for space heating and 32 (.5) percent was used for miscellaneous use. Approximately 12 (1) percent of electricity was used for cooling and 20 (.3) percent was used for water heating.



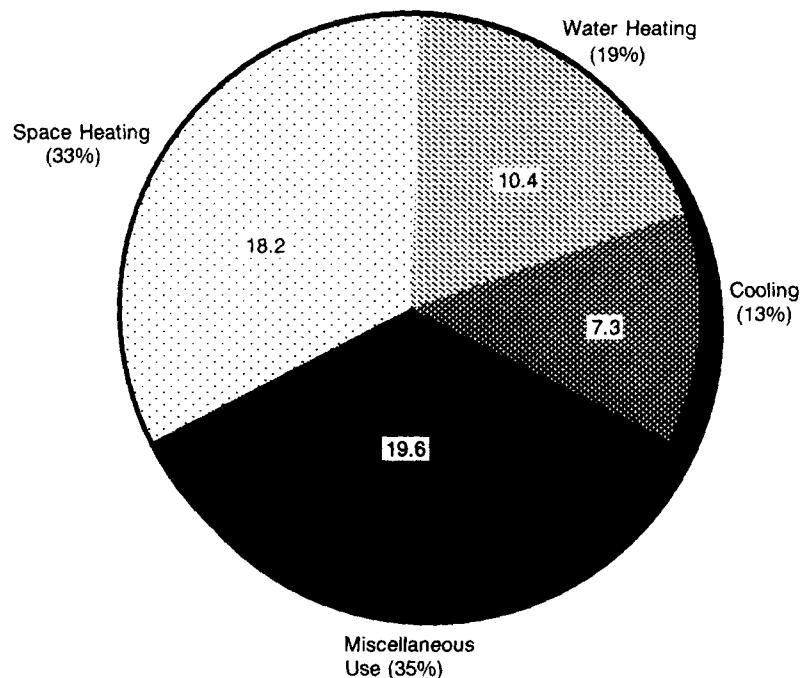
Summary of Findings (Continued)

Figure 8. Average Household Electricity Consumption When Main Heating Fuel is Electricity by End Use for 1978 (Million Btu)



Source: Energy Information Administration, 1978 Residential Energy Consumption Survey.

Figure 9. Average Household Electricity Consumption When Main Heating Fuel is Electricity by End Use for 1980 (Million Btu)

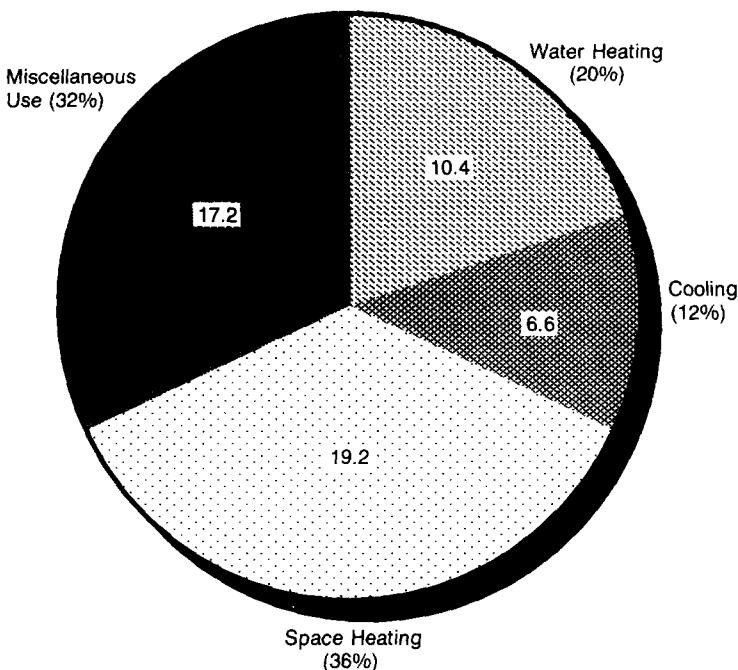


Source: Energy Information Administration, 1980 Residential Energy Consumption Survey.



Summary of Findings (Continued)

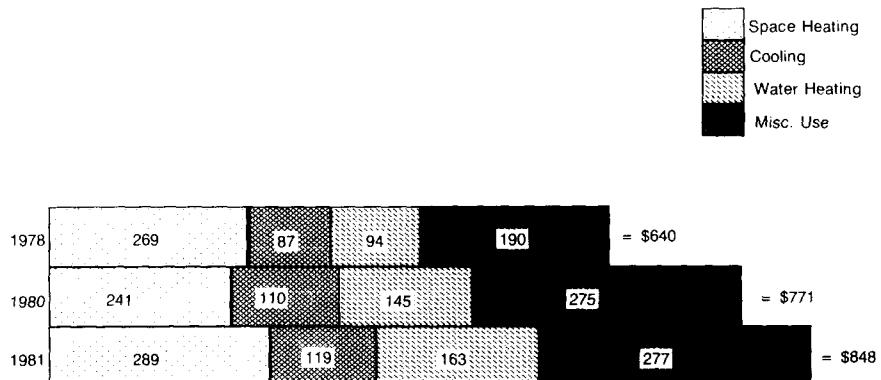
Figure 10. Average Household Electricity Consumption When Main Heating Fuel is Electricity by End Use for 1981 (Million Btu)



Source: Energy Information Administration, 1981 Residential Energy Consumption Survey.

Figure 11 shows the distribution for 1978, 1980, and 1981 of the average household electricity expenditures by end use for households whose main heating fuel is electricity.

Figure 11. Average Household Electricity Expenditures When Main Heating Fuel is Electricity by End Use for 1978, 1980, and 1981 (Dollars)





Summary of Findings (Continued)

Natural Gas Consumption and Expenditures

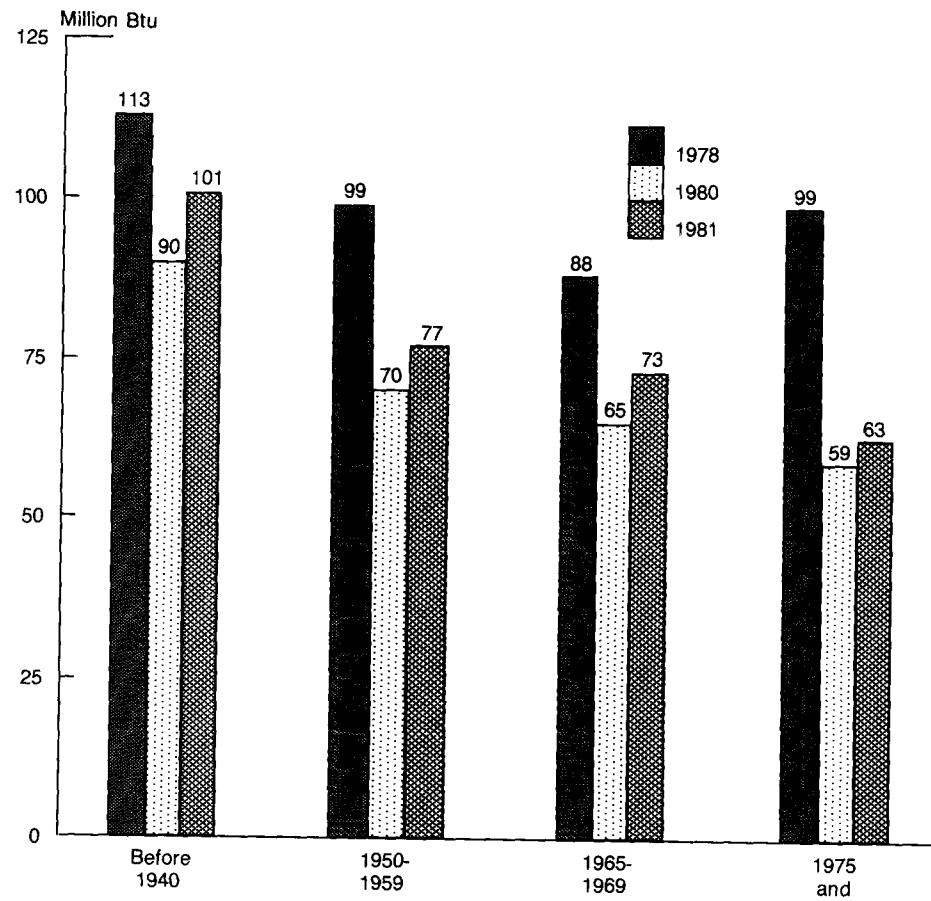
Space Heating

Among those households in the West whose main heating fuel was natural gas, there was approximately a 30 (7) percent decrease in natural gas used for space heating from 1978 through 1981 compared with a 14 (3) percent decrease in the North Central region. (The 14 (7) percent decrease in the Northeast and the 11 (8) percent decrease in natural gas consumption in the South from 1978 through 1981 were not statistically significant.) However, in the Northeast between 1978 and 1980, there was a significant decline in natural gas consumption for space heating. Households in this region experienced, on the average, a 21 (6) percent decrease in consumption.

Between 1978 and 1981 households of 1,000 to 1,199 square feet and households of 2,400 or more square feet both experienced approximately the same percentage decrease (31 percent) in consumption for space heating.

Energy consumption also varied by the age of the house. Figure 12 shows natural gas consumption for space heating by the year the house was constructed. Homes constructed after 1974 and heated by natural gas used 36 (8) percent less energy in 1978 than they did in 1981; older homes (constructed before 1975) experienced a 17 (3) percent decrease in natural gas consumption.

Figure 12. Average Natural Gas Consumption for Space Heating When Main Heating Fuel is Natural Gas by Selected Year House Was Built (Million Btu)



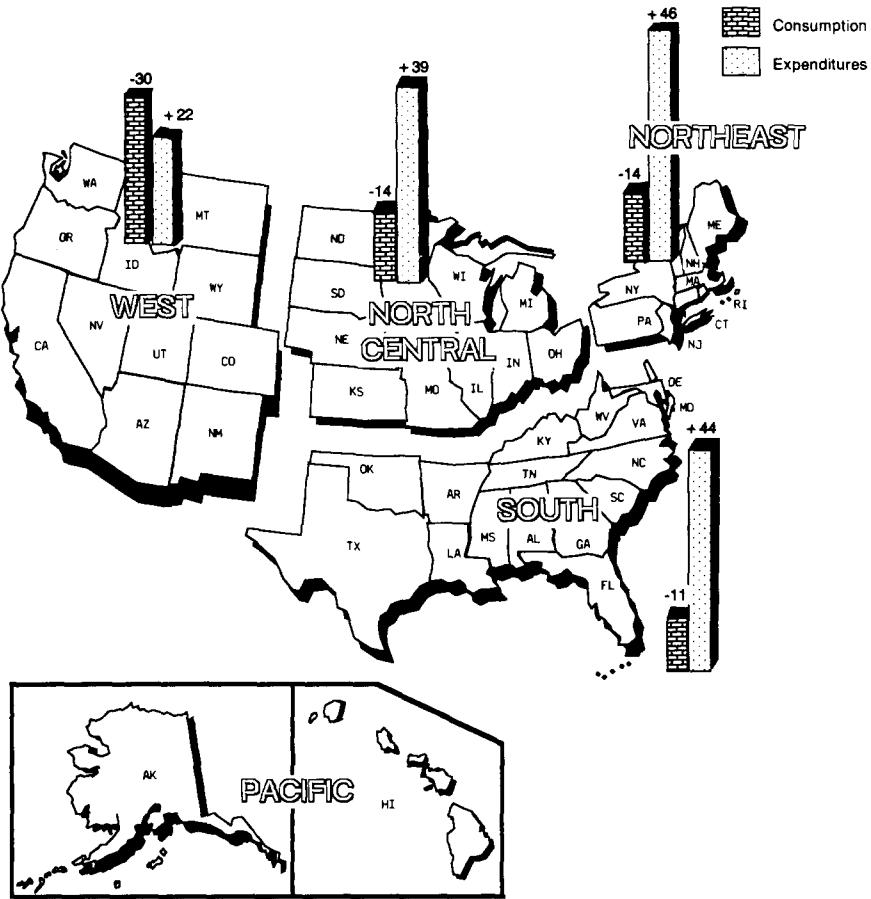
Source: Energy Information Administration. 1978, 1980, and 1981 Residential Energy Consumption Surveys.



Summary of Findings (Continued)

Natural gas expenditures for space heating increased in all regions of the United States from 1978 through 1981. Households in the Northeast experienced a 46 (3) percent increase in space heating costs; the South, a 44 (4) percent increase; the North Central region, a 39 (2) percent increase; and the West, a 22 (6) percent increase. Figure 13 shows the percentage change between 1978 and 1981 in natural gas consumption and expenditures by region.

Figure 13. Percent Change Between 1978 and 1981 of Average Household Consumption and Expenditures for Space Heating When Main Heating Fuel is Natural Gas by Region



Note: Alaska and Hawaii were not included in the 1978 survey.



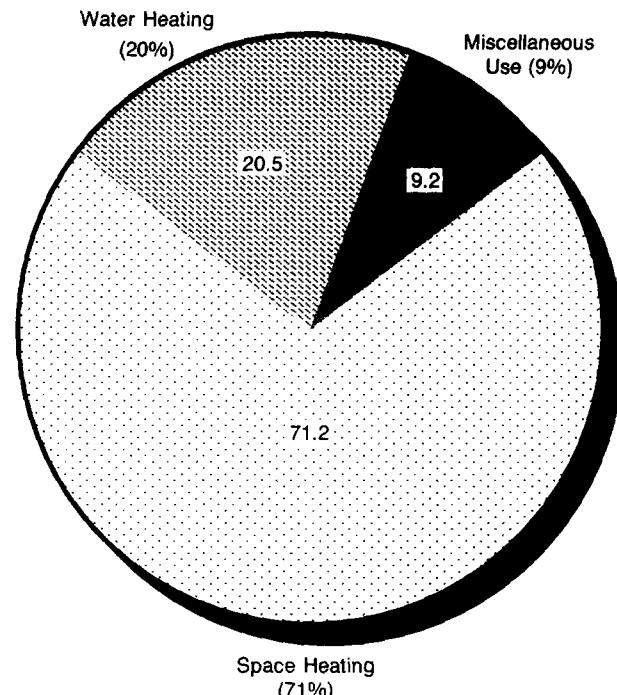
Summary of Findings (Continued)

End Use

The distribution of natural gas among space heating, water heating, and miscellaneous use was similar for households that used natural gas but did not necessarily heat with it and for households that used natural gas as the main heating fuel. The similarity in distribution patterns between the two types of households was because most households that used natural gas, used it for the main heating fuel.

Figures 15 through 17 show the distribution of natural gas consumption for 1978, 1980, and 1981 among homes whose main heating fuel was natural gas. In 1981, households that heated with natural gas used, on the average, 111.9 (2) million Btu of which approximately 73 (.5) percent was used for space heating, 19 (.2) percent for water heating and 8 (.4) percent for miscellaneous use.

Figure 14. Average Household Natural Gas Consumption for All Households That Use Natural Gas by End Use for 1981 (Million Btu)

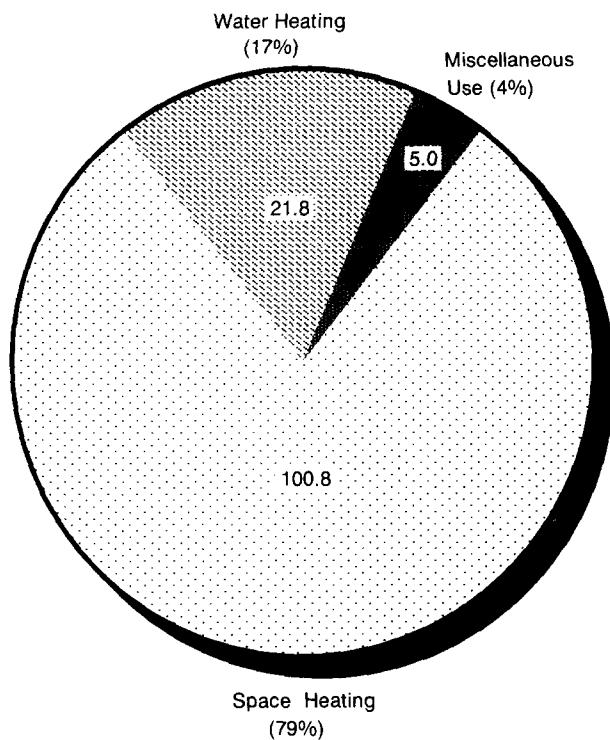


Source: Energy Information Administration, 1978 Residential Energy Consumption Survey.



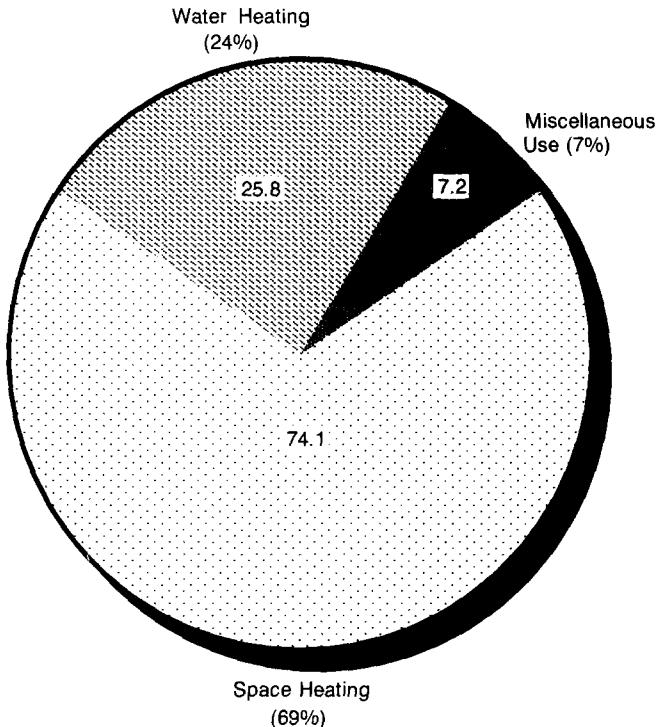
Summary of Findings (Continued)

Figure 15. Average Household Natural Gas Consumption When Main Heating Fuel is Natural Gas by End Use for 1978 (Million Btu)



Source: Energy Information Administration, 1978 Residential Energy Consumption Survey.

Figure 16. Average Household Natural Gas Consumption When Main Heating Fuel is Natural Gas by End Use for 1980 (Million Btu)

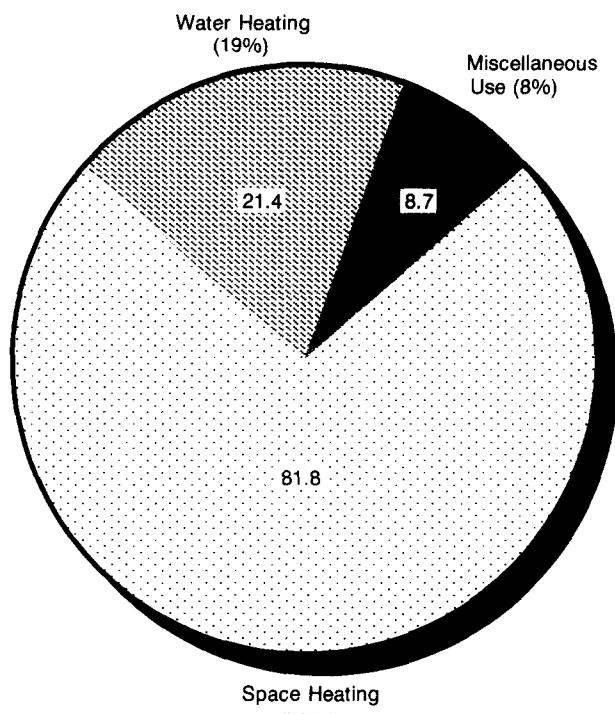


Source: Energy Information Administration, 1980 Residential Energy Consumption Survey.



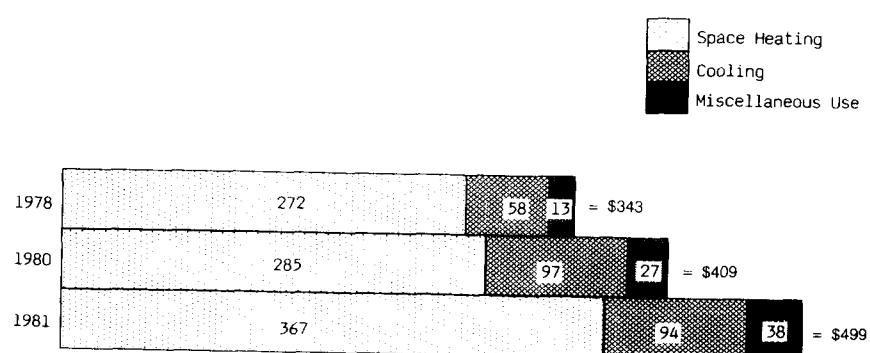
Summary of Findings (Continued)

Figure 17. Average Household Natural Gas Consumption When Main Heating Fuel is Natural Gas by End Use for 1981 (Million Btu)



Source: Energy Information Administration, 1981 Residential Energy Consumption Survey.

Figure 18. Average Household Natural Gas Expenditures When Main Heating Fuel is Natural Gas by End Use for 1978, 1980, and 1981 (Dollars)





Summary of Findings (Continued)

Table 1. Average Household Electricity Consumption When Main Heating Fuel is Electricity by End Use by Selected Housing Characteristics for 1978

HOUSING CHARACTERISTICS	NUMBER OF HOUSEHOLDS (MILLION)	END USE			
		SPACE HEATING (MILLION BTU)	COOLING (MILLION BTU)	WATER HEATING (MILLION BTU)	MISCELLANEOUS USE (MILLION BTU)
NATIONAL.....	12.1 (1.2)	31.6 (2.2)	7.4 (1.0)	10.2 (0.5)	20.2 (0.9)
HOUSING STRUCTURE					
SINGLE-FAMILY DETACHED.....	6.4 (0.9)	38.4 (2.6)	8.2 (1.3)	12.9 (0.5)	25.0 (3.4)
SINGLE-FAMILY ATTACHED.....	Q	Q	Q	Q	Q
TWO TO FOUR UNITS.....	1.6 (0.5)	18.5 (3.5)	6.8 (3.6)	7.6 (0.9)	14.5 (4.7)
FIVE OR MORE UNITS.....	2.5 (0.6)	19.2 (3.1)	7.6 (1.9)	5.6 (0.8)	21.1 (9.3)
MOBILE HOME.....	1.1 (0.2)	34.8 (3.1)	2.9 (0.9)	9.5 (0.9)	19.8 (8.7)
YEAR HOUSE BUILT					
BEFORE 1940.....	1.1 (0.3)	41.4 (4.3)	1.2 (0.5)	9.2 (1.2)	18.1 (2.2)
1940-1949.....	0.4 (0.1)	42.9 (5.1)	3.6 (1.3)	10.9 (2.2)	22.4 (2.9)
1950-1959.....	1.3 (0.3)	30.9 (5.5)	10.0 (4.0)	9.6 (0.9)	21.3 (1.9)
1960-1964.....	1.6 (0.2)	28.7 (2.7)	8.9 (1.1)	10.0 (1.0)	21.2 (1.5)
1965-1969.....	2.2 (0.3)	25.8 (3.7)	8.5 (1.1)	8.1 (1.2)	16.8 (1.8)
1970-1974.....	3.0 (0.5)	32.8 (3.2)	7.6 (1.6)	10.4 (0.8)	20.4 (1.2)
1975 OR LATER.....	2.4 (0.6)	31.3 (4.8)	7.3 (2.3)	12.7 (1.0)	22.2 (2.1)
HEATED SQUARE FOOTAGE					
1-799.....	1.9 (0.3)	20.3 (2.9)	5.0 (1.5)	3.8 (0.5)	10.8 (1.1)
800-999.....	2.4 (0.4)	26.7 (2.7)	5.7 (1.4)	8.4 (0.6)	17.0 (1.2)
1,000-1,199.....	2.4 (0.5)	28.3 (3.2)	4.6 (1.4)	9.4 (0.6)	18.6 (1.6)
1,200-1,399.....	1.5 (0.3)	29.6 (4.2)	8.5 (1.4)	10.2 (1.1)	21.0 (1.6)
1,400-1,799.....	2.0 (0.3)	39.4 (3.2)	8.9 (1.3)	13.7 (1.0)	25.8 (1.2)
1,800-2,399.....	1.2 (0.3)	40.5 (4.7)	11.7 (2.8)	16.0 (1.3)	27.6 (1.5)
2,400 OR MORE.....	0.7 (0.2)	60.9 (6.5)	16.6 (4.3)	18.0 (1.5)	33.0 (2.3)

"Q" = DATA WITHHELD BECAUSE OF A LARGE VARIANCE.

NOTE: BECAUSE OF ROUNDING, DATA MAY NOT SUM TO TOTALS.

NUMBER IN PARENTHESIS INDICATES ONE STANDARD DEVIATION. SEE APPENDIX B FOR A DETAILED DISCUSSION.

SOURCE: ENERGY INFORMATION ADMINISTRATION, OFFICE OF ENERGY MARKETS AND END USE, ENERGY END USE

DIVISION, THE 1978 RESIDENTIAL ENERGY CONSUMPTION SURVEY.



Summary of Findings (Continued)

Table 2. Average Household Electricity Consumption When Main Heating Fuel is Electricity by End Use by Selected Sociodemographic Characteristics for 1978

SOCIODEMOGRAPHIC CHARACTERISTICS	NUMBER OF HOUSEHOLDS (MILLION)	END USE			
		SPACE HEATING (MILLION BTU)	COOLING (MILLION BTU)	WATER HEATING (MILLION BTU)	MISCELLANEOUS USE (MILLION BTU)
NATIONAL.....	12.1 (1.2)	31.6 (2.2)	7.4 (1.0)	10.2 (0.5)	20.2 (0.9)
GEOGRAPHIC REGION					
NORTHEAST.....	1.4 (0.5)	32.6 (5.4)	0.3 (0.3)	7.7 (1.3)	14.0 (2.1)
NORTH CENTRAL.....	1.1 (0.3)	46.5 (4.1)	4.0 (1.7)	12.0 (1.8)	23.7 (2.8)
SOUTH.....	6.7 (0.9)	20.7 (2.1)	12.4 (1.1)	9.7 (0.7)	19.6 (1.1)
WEST.....	2.8 (0.6)	51.6 (1.9)	0.5 (0.2)	12.1 (1.2)	23.2 (2.1)
HEATING DEGREE DAYS					
0-1,999.....	2.3 (0.7)	6.7 (2.9)	18.3 (3.6)	6.7 (1.5)	15.7 (3.5)
2,000-2,999.....	1.5 (0.5)	21.5 (3.3)	10.6 (1.5)	9.6 (1.3)	19.5 (2.4)
3,000-3,999.....	1.6 (0.6)	29.5 (2.0)	10.5 (2.7)	12.7 (1.2)	23.9 (0.8)
4,000-4,999.....	1.4 (0.4)	30.0 (1.2)	6.2 (1.4)	10.4 (0.5)	20.2 (1.0)
5,000-5,999.....	2.5 (0.9)	50.0 (7.6)	1.3 (1.1)	11.5 (2.1)	22.8 (3.9)
6,000-6,999.....	1.5 (0.4)	45.4 (2.9)	1.5 (0.6)	11.7 (1.4)	21.4 (2.5)
7,000-7,999.....	1.3 (0.7)	42.3 (15.6)	0.3 (0.8)	9.8 (2.1)	17.8 (4.0)
8,000 OR MORE.....	Q	Q	Q	Q	Q
INCOME					
LESS THAN \$5,000.....	1.2 (0.2)	34.6 (2.5)	0.9 (0.3)	5.3 (0.7)	13.5 (1.2)
\$5,000-\$9,999.....	1.8 (0.3)	30.1 (2.9)	4.1 (0.7)	8.0 (0.7)	16.9 (1.2)
\$10,000-\$14,999.....	2.7 (0.5)	25.5 (2.7)	7.1 (1.1)	8.7 (0.8)	17.5 (1.3)
\$15,000-\$19,999.....	2.1 (0.3)	30.3 (3.2)	7.3 (1.2)	11.2 (0.9)	22.4 (1.4)
\$20,000-\$24,999.....	1.6 (0.3)	30.2 (3.7)	9.2 (1.7)	12.0 (0.8)	22.1 (1.5)
\$25,000-\$34,999.....	1.6 (0.3)	34.4 (4.1)	9.0 (2.0)	13.0 (0.8)	22.9 (1.5)
\$35,000 OR MORE.....	1.1 (0.2)	47.1 (7.0)	15.9 (3.8)	14.3 (1.6)	28.2 (2.7)
NUMBER OF HOUSEHOLD MEMBERS					
ONE.....	2.2 (0.3)	28.6 (3.4)	4.2 (0.9)	4.0 (0.4)	12.4 (1.2)
TWO.....	4.5 (0.7)	29.3 (3.6)	8.1 (1.4)	7.8 (0.5)	18.3 (1.3)
THREE.....	2.1 (0.2)	32.7 (2.2)	8.0 (1.2)	11.3 (0.5)	22.6 (1.0)
FOUR.....	1.9 (0.2)	33.6 (3.1)	8.6 (1.6)	14.3 (0.9)	24.2 (1.5)
FIVE OR MORE.....	1.3 (0.2)	40.3 (2.5)	7.7 (1.4)	21.0 (1.1)	29.8 (1.2)

"Q" = DATA WITHHELD BECAUSE OF A LARGE VARIANCE.

NOTE: BECAUSE OF ROUNDING, DATA MAY NOT SUM TO TOTALS.

NUMBER IN PARENTHESIS INDICATES ONE STANDARD DEVIATION. SEE APPENDIX B FOR A DETAILED DISCUSSION.

SOURCE: ENERGY INFORMATION ADMINISTRATION, OFFICE OF ENERGY MARKETS AND END USE, ENERGY END USE DIVISION, THE 1978 RESIDENTIAL ENERGY CONSUMPTION SURVEY.



Summary of Findings (Continued)

Table 3. Average Household Natural Gas Consumption When Main Heating Fuel is Natural Gas by End Use by Selected Housing Characteristics for 1978

HOUSING CHARACTERISTICS	NUMBER OF HOUSEHOLDS (MILLION)	END USE		
		SPACE HEATING (MILLION BTU)	WATER HEATING (MILLION BTU)	MISCELLANEOUS USE (MILLION BTU)
NATIONAL.....	41.8 (1.9)	100.8 (3.4)	21.8 (0.7)	5.0 (0.2)
HOUSING STRUCTURE				
SINGLE-FAMILY DETACHED.....	26.9 (1.2)	114.0 (3.8)	24.5 (0.8)	5.4 (0.3)
SINGLE-FAMILY ATTACHED.....	2.2 (0.4)	100.3 (6.5)	18.5 (2.7)	4.9 (1.2)
TWO TO FOUR UNITS.....	6.7 (0.9)	90.4 (8.2)	20.4 (2.0)	4.6 (0.4)
FIVE OR MORE UNITS.....	4.4 (0.7)	47.6 (9.3)	10.0 (3.2)	2.6 (0.7)
MOBILE HOME.....	1.3 (0.4)	65.4 (13.7)	18.3 (2.3)	5.5 (0.8)
OTHER.....	0.2 (0.1)	Q	Q	Q
YEAR HOUSE BUILT				
BEFORE 1940.....	14.3 (1.3)	113.0 (5.0)	20.3 (1.0)	5.0 (0.3)
1940-1949.....	4.9 (0.6)	96.7 (5.0)	22.0 (1.5)	5.6 (0.8)
1950-1959.....	8.0 (0.8)	99.0 (5.0)	21.9 (1.2)	5.6 (0.6)
1960-1964.....	4.5 (0.6)	96.0 (5.6)	22.1 (1.3)	4.0 (0.5)
1965-1969.....	4.4 (0.7)	88.2 (8.1)	24.1 (1.9)	5.0 (0.8)
1970-1974.....	3.7 (0.5)	85.0 (6.2)	21.4 (1.8)	4.4 (0.7)
1975 OR LATER.....	20.7 (0.4)	99.2 (11.9)	25.5 (1.8)	4.2 (0.7)
HEATED SQUARE FOOTAGE				
1-799.....	7.2 (0.8)	62.5 (6.7)	12.3 (1.4)	3.6 (0.4)
800-999.....	8.5 (0.7)	87.5 (4.5)	18.6 (1.1)	5.2 (0.3)
1,000-1,199.....	7.9 (0.6)	95.3 (4.3)	22.8 (1.2)	5.2 (0.4)
1,200-1,399.....	6.1 (0.5)	107.3 (4.7)	25.9 (1.4)	5.1 (0.5)
1,400-1,799.....	7.0 (0.7)	115.6 (5.7)	25.5 (1.1)	4.7 (0.3)
1,800-2,399.....	3.6 (0.4)	143.3 (5.8)	26.9 (1.4)	7.1 (1.5)
2,400 OR MORE.....	1.5 (0.3)	191.4 (16.9)	32.5 (2.8)	4.2 (1.1)

"Q" = DATA WITHHELD BECAUSE OF A LARGE VARIANCE.

NOTE: BECAUSE OF ROUNDING, DATA MAY NOT SUM TO TOTALS.

NUMBER IN PARENTHESIS INDICATES ONE STANDARD DEVIATION. SEE APPENDIX B FOR A DETAILED DISCUSSION.

SOURCE: ENERGY INFORMATION ADMINISTRATION, OFFICE OF ENERGY MARKETS AND END USE, ENERGY END USE DIVISION, THE 1978 RESIDENTIAL ENERGY CONSUMPTION SURVEY.



Summary of Findings (Continued)

Table 4. Average Household Natural Gas Consumption When Main Heating Fuel is Natural Gas by End Use by Selected Socio-demographic Characteristics for 1978

SOCIODEMOGRAPHIC CHARACTERISTICS	NUMBER OF HOUSEHOLDS (MILLION)	END USE		
		SPACE HEATING (MILLION BTU)	WATER HEATING (MILLION BTU)	MISCELLANEOUS USE (MILLION BTU)
NATIONAL.....	41.8 (1.9)	100.8 (3.4)	21.8 (0.7)	5.0 (0.2)
GEOGRAPHIC REGION				
NORTHEAST.....	7.0 (0.6)	120.6 (7.8)	22.1 (1.5)	5.6 (0.5)
NORTH CENTRAL.....	15.3 (1.0)	132.0 (3.6)	24.3 (1.0)	5.1 (0.3)
SOUTH.....	10.1 (1.4)	65.4 (5.0)	20.9 (1.1)	5.5 (0.6)
WEST.....	9.6 (0.6)	73.8 (6.4)	18.4 (2.1)	3.7 (0.5)
HEATING DEGREE DAYS				
0-1,999.....	2.3 (0.9)	38.1 (5.6)	25.9 (3.8)	6.4 (0.8)
2,000-2,999.....	6.5 (0.8)	54.9 (4.1)	20.9 (1.5)	6.6 (0.9)
3,000-3,999.....	5.0 (1.4)	75.5 (5.0)	20.2 (1.7)	3.5 (0.9)
4,000-4,999.....	1.8 (1.0)	76.1 (14.7)	15.7 (6.6)	3.3 (1.5)
5,000-5,999.....	8.4 (1.3)	119.5 (6.2)	22.8 (1.6)	5.2 (0.6)
6,000-6,999.....	7.8 (1.9)	128.0 (4.3)	23.0 (1.6)	4.4 (0.3)
7,000-7,999.....	8.5 (1.9)	122.6 (9.9)	21.5 (2.0)	5.1 (0.6)
8,000 OR MORE.....	1.5 (0.1)	142.5 (8.0)	20.1 (2.1)	3.9 (0.4)
INCOME				
LESS THAN \$5,000.....	6.4 (0.7)	79.7 (4.4)	14.8 (1.3)	4.4 (0.3)
\$5,000-\$9,999.....	8.0 (0.6)	92.9 (5.4)	19.1 (1.3)	5.1 (0.5)
\$10,000-\$14,999.....	7.8 (0.6)	91.3 (4.4)	19.1 (1.2)	4.8 (0.4)
\$15,000-\$19,999.....	5.8 (0.5)	102.1 (5.2)	24.3 (1.3)	4.1 (0.5)
\$20,000-\$24,999.....	5.5 (0.5)	111.3 (5.1)	25.6 (1.3)	5.2 (0.5)
\$25,000-\$34,999.....	5.4 (0.5)	117.4 (5.9)	28.6 (1.1)	4.6 (0.4)
\$35,000 OR MORE.....	3.0 (0.4)	140.9 (10.6)	26.3 (1.2)	7.1 (1.4)
NUMBER OF HOUSEHOLD MEMBERS				
ONE.....	8.3 (0.7)	77.9 (4.6)	7.2 (0.4)	3.9 (0.3)
TWO.....	13.6 (0.8)	99.4 (3.6)	15.1 (0.4)	4.7 (0.3)
THREE.....	7.5 (0.5)	108.3 (4.7)	23.9 (0.8)	5.4 (0.4)
FOUR.....	6.5 (0.4)	110.4 (4.6)	31.4 (0.9)	5.9 (0.6)
FIVE OR MORE.....	5.9 (0.5)	116.9 (6.3)	44.5 (1.8)	5.4 (0.5)

"Q" = DATA WITHHELD BECAUSE OF A LARGE VARIANCE.

NOTE: BECAUSE OF ROUNDING, DATA MAY NOT SUM TO TOTALS.

NUMBER IN PARENTHESIS INDICATES ONE STANDARD DEVIATION. SEE APPENDIX B FOR A DETAILED DISCUSSION.

SOURCE: ENERGY INFORMATION ADMINISTRATION, OFFICE OF ENERGY MARKETS AND END USE, ENERGY END USE DIVISION, THE 1978 RESIDENTIAL ENERGY CONSUMPTION SURVEY.



Summary of Findings (Continued)

Table 5. Average Household Fuel Oil or Kerosene Consumption When Main Heating Fuel is Fuel Oil or Kerosene by End Use by Selected Housing Characteristics for 1978

HOUSING CHARACTERISTICS	NUMBER OF HOUSEHOLDS (MILLION)	END USE		
		SPACE HEATING (MILLION BTU)	WATER HEATING (MILLION BTU)	MISCELLANEOUS USE (MILLION BTU)
NATIONAL.....	16.9 (1.3)	120.7 (4.8)	8.3 (0.9)	Q
HOUSING STRUCTURE				
SINGLE-FAMILY DETACHED.....	11.1 (1.1)	123.3 (5.0)	6.6 (0.8)	Q
SINGLE-FAMILY ATTACHED.....	0.4 (0.1)	119.8 (16.9)	9.7 (5.8)	Q
TWO TO FOUR UNITS.....	2.1 (0.4)	154.6 (13.1)	13.6 (4.8)	Q
FIVE OR MORE UNITS.....	Q	Q	Q	Q
MOBILE HOME.....	1.3 (0.3)	62.2 (5.8)	0.2 (0.3)	Q
YEAR HOUSE BUILT				
BEFORE 1940.....	7.7 (0.9)	142.1 (6.8)	9.4 (1.6)	Q
1940-1949.....	1.9 (0.3)	110.4 (7.7)	6.8 (2.1)	Q
1950-1959.....	3.6 (0.5)	109.4 (6.9)	8.5 (1.9)	Q
1960-1964.....	1.2 (0.3)	101.1 (16.9)	10.0 (7.2)	Q
1965-1969.....	0.9 (0.2)	82.3 (9.4)	5.3 (3.3)	Q
1970-1974.....	1.1 (0.2)	87.9 (10.1)	3.3 (1.3)	Q
1975 OR LATER.....	0.4 (0.2)	106.4 (17.4)	8.6 (8.3)	Q
HEATED SQUARE FOOTAGE				
1-799.....	3.0 (0.5)	105.1 (11.3)	10.2 (4.6)	Q
800-999.....	3.6 (0.5)	107.1 (8.7)	7.9 (3.0)	Q
1,000-1,199.....	3.2 (0.4)	108.0 (5.3)	5.4 (1.5)	Q
1,200-1,399.....	2.2 (0.3)	121.4 (7.8)	7.1 (1.7)	Q
1,400-1,799.....	3.0 (0.5)	130.9 (11.1)	8.3 (2.1)	Q
1,800-2,399.....	1.5 (0.2)	156.9 (14.5)	11.6 (2.1)	Q
2,400 OR MORE.....	0.6 (0.1)	201.6 (28.3)	11.6 (4.1)	Q

"Q" = DATA WITHHELD BECAUSE OF A LARGE VARIANCE.

NOTE: BECAUSE OF ROUNDING, DATA MAY NOT SUM TO TOTALS.

NUMBER IN PARENTHESIS INDICATES ONE STANDARD DEVIATION. SEE APPENDIX B FOR A DETAILED DISCUSSION.

SOURCE: ENERGY INFORMATION ADMINISTRATION, OFFICE OF ENERGY MARKETS AND END USE, ENERGY END USE DIVISION, THE 1978 RESIDENTIAL ENERGY CONSUMPTION SURVEY.



Summary of Findings (Continued)

Table 6. Average Household Fuel Oil or Kerosene Consumption When Main Heating Fuel is Fuel Oil or Kerosene by End Use by Selected Socio-demographic Characteristics for 1978

SOCIODEMOGRAPHIC CHARACTERISTICS	NUMBER OF HOUSEHOLDS (MILLION)	END USE		
		SPACE HEATING (MILLION BTU)	WATER HEATING (MILLION BTU)	MISCELLANEOUS USE (MILLION BTU)
NATIONAL.....	16.9 (1.3)	120.7 (4.8)	8.3 (0.9)	Q
GEOGRAPHIC REGION				
NORTHEAST.....	8.8 (0.8)	135.8 (6.0)	14.0 (1.3)	Q
NORTH CENTRAL.....	3.1 (0.8)	145.4 (12.6)	2.3 (1.0)	Q
SOUTH.....	4.2 (0.6)	73.4 (6.4)	2.3 (0.5)	Q
WEST.....	0.8 (0.2)	105.4 (7.4)	0.1 (0.8)	Q
HEATING DEGREE DAYS				
0-1,999.....	1.0 (0.1)	30.4 (3.4)	0.5 (0.1)	Q
2,000-2,999.....	Q	Q	Q	Q
3,000-3,999.....	1.2 (0.4)	81.9 (8.9)	3.1 (1.0)	Q
4,000-4,999.....	0.6 (0.5)	76.6 (3.4)	2.4 (1.6)	Q
5,000-5,999.....	7.5 (1.2)	128.9 (6.4)	13.2 (2.2)	Q
6,000-6,999.....	3.7 (1.0)	131.4 (7.6)	6.1 (2.0)	Q
7,000-7,999.....	1.7 (0.6)	154.8 (22.9)	7.5 (3.7)	Q
8,000 OR MORE.....	0.6 (0.5)	185.6 (66.3)	0.7 (1.5)	Q
INCOME				
LESS THAN \$5,000.....	2.2 (0.3)	115.8 (9.5)	6.6 (2.5)	Q
\$5,000-\$9,999.....	3.4 (0.4)	109.8 (9.0)	7.6 (3.5)	Q
\$10,000-\$14,999.....	3.0 (0.3)	108.5 (7.5)	7.5 (2.1)	Q
\$15,000-\$19,999.....	2.8 (0.3)	117.7 (11.0)	11.2 (2.8)	Q
\$20,000-\$24,999.....	2.2 (0.2)	121.9 (10.9)	8.2 (1.5)	Q
\$25,000-\$34,999.....	2.1 (0.3)	138.2 (8.8)	8.4 (1.6)	Q
\$35,000 OR MORE.....	1.2 (0.2)	163.3 (20.0)	8.2 (2.2)	Q
NUMBER OF HOUSEHOLD MEMBERS				
ONE.....	2.9 (0.4)	115.2 (7.4)	3.3 (1.2)	Q
TWO.....	5.5 (0.5)	121.8 (5.2)	5.9 (1.0)	Q
THREE.....	2.9 (0.3)	116.6 (8.3)	6.8 (2.1)	Q
FOUR.....	3.2 (0.4)	118.9 (13.7)	10.9 (2.2)	Q
FIVE OR MORE.....	2.4 (0.3)	132.5 (8.5)	18.3 (2.5)	Q

"Q" = DATA WITHHELD BECAUSE OF A LARGE VARIANCE.

NOTE: BECAUSE OF ROUNDING, DATA MAY NOT SUM TO TOTALS.

NUMBER IN PARENTHESIS INDICATES ONE STANDARD DEVIATION. SEE APPENDIX B FOR A DETAILED DISCUSSION.

SOURCE: ENERGY INFORMATION ADMINISTRATION, OFFICE OF ENERGY MARKETS AND END USE, ENERGY END USE DIVISION, THE 1978 RESIDENTIAL ENERGY CONSUMPTION SURVEY.



Summary of Findings (Continued)

Table 7. Average Household LPG Consumption When Main Heating Fuel is LPG by End Use by Selected Housing Characteristics for 1978

HOUSING CHARACTERISTICS	NUMBER OF HOUSEHOLDS (MILLION)	END USE		
		SPACE HEATING (MILLION BTU)	WATER HEATING (MILLION BTU)	MISCELLANEOUS USE (MILLION BTU)
NATIONAL.....	3.1 (0.5)	67.3 (8.6)	9.9 (1.5)	3.0 (0.4)
HOUSING STRUCTURE				
SINGLE-FAMILY DETACHED.....	1.9 (0.3)	74.1 (10.0)	11.7 (1.3)	2.7 (0.4)
SINGLE-FAMILY ATTACHED.....	Q	Q	Q	Q
TWO TO FOUR UNITS.....	Q	Q	Q	Q
FIVE OR MORE UNITS.....	Q	Q	Q	Q
MOBILE HOME.....	0.9 (0.2)	55.8 (12.0)	8.2 (4.7)	3.8 (0.5)
YEAR HOUSE BUILT				
BEFORE 1940.....	0.8 (0.2)	85.6 (15.0)	8.4 (2.1)	2.4 (0.7)
1940-1949.....	Q	Q	Q	Q
1950-1959.....	0.4 (0.1)	73.7 (40.3)	9.7 (5.9)	2.7 (1.3)
1960-1964.....	0.4 (0.1)	58.3 (11.9)	8.7 (3.1)	1.9 (0.7)
1965-1969.....	0.5 (0.2)	50.3 (12.7)	13.5 (3.1)	3.8 (1.1)
1970-1974.....	0.7 (0.2)	53.3 (8.1)	10.1 (5.0)	3.5 (0.6)
1975 OR LATER.....	0.2 (0.1)	87.6 (8.3)	15.9 (3.3)	2.7 (2.1)
HEATED SQUARE FOOTAGE				
1-799.....	0.6 (0.2)	36.6 (17.7)	2.7 (2.4)	2.9 (1.2)
800-999.....	0.8 (0.2)	50.2 (11.8)	6.2 (2.1)	2.9 (0.6)
1,000-1,199.....	0.6 (0.1)	84.1 (9.8)	14.3 (3.7)	3.1 (0.9)
1,200-1,399.....	0.6 (0.2)	80.6 (10.2)	14.2 (3.1)	3.7 (0.7)
1,400-1,799.....	0.4 (0.1)	89.9 (21.0)	15.2 (4.7)	1.9 (0.9)
1,800-2,399.....	Q	Q	Q	Q
2,400 OR MORE.....	Q	Q	Q	Q

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SOURCE: ENERGY INFORMATION ADMINISTRATION, OFFICE OF ENERGY MARKETS AND END USE, ENERGY END USE DIVISION, THE 1978 RESIDENTIAL ENERGY CONSUMPTION SURVEY.



Summary of Findings (Continued)

Table 8. Average Household LPG Consumption When Main Heating Fuel is LPG by End Use by Selected Socio-demographic Characteristics for 1978

SOCIODEMOGRAPHIC CHARACTERISTICS	NUMBER OF HOUSEHOLDS (MILLION)	END USE		
		SPACE HEATING (MILLION BTU)	WATER HEATING (MILLION BTU)	MISCELLANEOUS USE (MILLION BTU)
NATIONAL.....	3.1 (0.5)	67.3 (8.6)	9.9 (1.5)	3.0 (0.4)
GEOGRAPHIC REGION				
NORTHEAST.....	Q	Q	Q	Q
NORTH CENTRAL.....	0.8 (0.2)	110.1 (23.8)	14.3 (1.8)	3.2 (1.2)
SOUTH.....	2.0 (0.4)	46.6 (5.9)	8.1 (2.1)	3.1 (0.5)
WEST.....	0.3 (0.2)	85.6 (28.6)	10.4 (7.4)	1.1 (1.2)
HEATING DEGREE DAYS				
0-1,999.....	0.2 (0.1)	19.5 (3.7)	6.4 (4.2)	2.8 (1.4)
2,000-2,999.....	1.0 (0.4)	44.6 (10.4)	9.5 (3.3)	3.4 (0.7)
3,000-3,999.....	0.8 (0.3)	55.3 (3.5)	7.8 (2.1)	2.9 (0.9)
4,000-4,999.....	Q	Q	Q	Q
5,000-5,999.....	0.5 (0.2)	86.2 (15.7)	11.0 (3.5)	3.0 (1.2)
6,000-6,999.....	0.4 (0.2)	113.8 (19.3)	14.7 (8.8)	3.0 (1.8)
7,000-7,999.....	Q	Q	Q	Q
8,000 OR MORE.....	Q	Q	Q	Q
INCOME				
LESS THAN \$5,000.....	0.5 (0.1)	52.1 (7.6)	4.8 (1.8)	3.3 (0.6)
\$5,000-\$9,999.....	1.0 (0.2)	58.2 (10.9)	6.1 (1.8)	2.7 (0.7)
\$10,000-\$14,999.....	0.7 (0.1)	55.1 (6.6)	12.1 (2.1)	2.5 (0.7)
\$15,000-\$19,999.....	0.5 (0.1)	85.2 (16.0)	13.8 (5.5)	3.6 (1.2)
\$20,000-\$24,999.....	0.4 (0.1)	74.4 (28.2)	13.1 (4.5)	3.5 (1.9)
\$25,000-\$34,999.....	Q	Q	Q	Q
\$35,000 OR MORE.....	Q	Q	Q	Q
NUMBER OF HOUSEHOLD MEMBERS				
ONE.....	0.5 (0.1)	79.1 (18.7)	3.9 (1.4)	2.4 (1.0)
TWO.....	1.0 (0.2)	55.8 (8.8)	6.2 (1.6)	2.9 (1.0)
THREE.....	0.5 (0.1)	74.2 (14.4)	11.9 (4.3)	3.6 (1.0)
FOUR.....	0.6 (0.1)	61.5 (11.7)	13.9 (3.1)	3.4 (0.6)
FIVE OR MORE.....	0.5 (0.1)	80.0 (15.9)	17.5 (4.2)	2.5 (1.0)

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SOURCE: ENERGY INFORMATION ADMINISTRATION, OFFICE OF ENERGY MARKETS AND END USE, ENERGY END USE DIVISION, THE 1978 RESIDENTIAL ENERGY CONSUMPTION SURVEY.



Summary of Findings (Continued)

Table 9. Average Household Energy Expenditures by End Use by Selected Housing Characteristics for 1978

HOUSING CHARACTERISTICS	TOTAL EXPENDITURES (DOLLARS)	END USE			
		SPACE HEATING (DOLLARS)	COOLING (DOLLARS)	WATER HEATING (DOLLARS)	MISCELLANEOUS USE (DOLLARS)
NATIONAL.....	724 (13)	315 (8)	52 (3)	91 (2)	267 (6)
HOUSING STRUCTURE					
SINGLE-FAMILY DETACHED.....	800 (14)	339 (9)	57 (4)	100 (3)	305 (6)
SINGLE-FAMILY ATTACHED.....	742 (49)	345 (26)	54 (18)	89 (10)	254 (17)
TWO TO FOUR UNITS.....	655 (40)	322 (21)	36 (9)	83 (7)	214 (11)
FIVE OR MORE UNITS.....	476 (46)	221 (21)	43 (11)	54 (7)	158 (11)
MOBILE HOME.....	587 (22)	226 (16)	54 (9)	88 (5)	219 (11)
OTHER.....	459 (210)	234 (112)	13 (8)	37 (20)	176 (61)
YEAR HOUSE BUILT					
BEFORE 1940.....	750 (21)	379 (16)	24 (4)	86 (5)	261 (8)
1940-1949.....	697 (25)	307 (17)	36 (6)	84 (4)	270 (10)
1950-1959.....	756 (23)	304 (12)	64 (8)	94 (5)	295 (10)
1960-1964.....	712 (27)	285 (18)	67 (7)	91 (5)	269 (10)
1965-1969.....	669 (35)	249 (17)	77 (8)	85 (5)	258 (18)
1970-1974.....	704 (30)	269 (15)	78 (9)	100 (5)	256 (10)
1975 OR LATER.....	694 (50)	276 (21)	71 (16)	107 (8)	240 (18)
HEATED SQUARE FOOTAGE					
ZERO HEATED SQUARE FOOTAGE....	463 (29)	224 (15)	26 (6)	52 (4)	161 (8)
1-799.....	613 (14)	273 (10)	36 (5)	82 (3)	221 (5)
800-999.....	686 (15)	291 (10)	43 (3)	94 (3)	259 (7)
1,000-1,199.....	768 (19)	324 (12)	52 (4)	98 (4)	293 (8)
1,200-1,399.....	877 (19)	362 (15)	70 (7)	109 (4)	336 (9)
1,400-1,799.....	1026 (25)	446 (20)	86 (10)	120 (7)	375 (11)
1,800-2,399.....	1234 (68)	559 (50)	145 (19)	125 (9)	404 (23)

"Q" = DATA WITHHELD BECAUSE OF A LARGE VARIANCE.

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NUMBER IN PARENTHESIS INDICATES ONE STANDARD DEVIATION. SEE APPENDIX B FOR A DETAILED DISCUSSION.

SOURCE: ENERGY INFORMATION ADMINISTRATION, OFFICE OF ENERGY MARKETS AND END USE, ENERGY END USE DIVISION, THE 1978 RESIDENTIAL ENERGY CONSUMPTION SURVEY.



Summary of Findings (Continued)

Table 10. Average Household Energy Expenditures by End Use by Selected Sociodemographic Characteristics for 1978

SOCIODEMOGRAPHIC CHARACTERISTICS	TOTAL EXPENDITURES (DOLLARS)	END USE			
		SPACE HEATING (DOLLARS)	COOLING (DOLLARS)	WATER HEATING (DOLLARS)	MISCELLANEOUS USE (DOLLARS)
NATIONAL.....	724 (13)	315 (8)	52 (3)	91 (2)	267 (6)
GEOGRAPHIC REGION					
NORTHEAST.....	887 (48)	468 (20)	18 (3)	104 (6)	298 (19)
NORTH CENTRAL.....	821 (20)	387 (17)	44 (6)	89 (5)	300 (9)
SOUTH.....	674 (19)	209 (10)	106 (7)	102 (3)	256 (9)
WEST.....	469 (24)	207 (14)	9 (2)	56 (2)	197 (11)
HEATING DEGREE DAYS					
0-1,999.....	651 (52)	113 (21)	179 (10)	107 (12)	252 (24)
2,000-2,999.....	553 (51)	165 (16)	73 (12)	76 (6)	238 (18)
3,000-3,999.....	649 (37)	222 (17)	64 (13)	95 (8)	269 (9)
4,000-4,999.....	573 (44)	232 (16)	53 (17)	84 (6)	205 (24)
5,000-5,999.....	831 (51)	403 (24)	42 (6)	98 (7)	289 (17)
6,000-6,999.....	798 (34)	393 (22)	20 (5)	97 (7)	289 (16)
7,000-7,999.....	722 (57)	382 (30)	17 (6)	74 (6)	249 (21)
8,000 OR MORE.....	915 (51)	501 (64)	20 (7)	91 (24)	303 (34)
INCOME					
LESS THAN \$5,000.....	522 (23)	264 (13)	16 (2)	58 (4)	184 (9)
\$5,000-\$9,999.....	627 (15)	288 (11)	34 (4)	76 (3)	228 (7)
\$10,000-\$14,999.....	659 (17)	282 (10)	46 (4)	88 (3)	243 (6)
\$15,000-\$19,999.....	769 (23)	318 (14)	56 (5)	105 (5)	290 (8)
\$20,000-\$24,999.....	816 (20)	336 (15)	70 (7)	102 (5)	307 (8)
\$25,000-\$34,999.....	874 (23)	361 (18)	71 (6)	113 (5)	329 (11)
\$35,000 OR MORE.....	1047 (50)	455 (36)	112 (15)	111 (7)	369 (14)
NUMBER OF HOUSEHOLD MEMBERS					
ONE.....	489 (21)	268 (11)	30 (3)	33 (1)	158 (6)
TWO.....	669 (14)	305 (9)	53 (4)	69 (2)	241 (6)
THREE.....	776 (15)	333 (11)	59 (6)	100 (3)	284 (6)
FOUR.....	853 (19)	338 (13)	64 (5)	126 (4)	325 (8)
FIVE OR MORE.....	959 (26)	352 (16)	54 (5)	168 (6)	385 (10)

"Q" = DATA WITHHELD BECAUSE OF A LARGE VARIANCE.

NOTE: BECAUSE OF ROUNDING, DATA MAY NOT SUM TO TOTALS.

NUMBER IN PARENTHESIS INDICATES ONE STANDARD DEVIATION. SEE APPENDIX B FOR A DETAILED DISCUSSION.

SOURCE: ENERGY INFORMATION ADMINISTRATION, OFFICE OF ENERGY MARKETS AND END USE, ENERGY END USE DIVISION, THE 1978 RESIDENTIAL ENERGY CONSUMPTION SURVEY.



Summary of Findings (Continued)

Table 11. Average Household Energy Expenditures for Space Heating by Main Heating Fuel by Selected Housing Characteristics for 1978

HOUSING CHARACTERISTICS	MAIN HEATING FUEL		
	ELECTRICITY (DOLLARS)	NATURAL GAS (DOLLARS)	FUEL OIL OR KEROSENE (DOLLARS)
NATIONAL.....	269 (18)	272 (7)	475 (19)
HOUSING STRUCTURE			
SINGLE-FAMILY DETACHED.....	312 (21)	298 (8)	483 (20)
SINGLE-FAMILY ATTACHED.....	431 (55)	305 (18)	468 (67)
TWO TO FOUR UNITS.....	190 (35)	261 (18)	612 (51)
FIVE OR MORE UNITS.....	187 (29)	139 (14)	Q
MOBILE HOME.....	253 (24)	173 (33)	246 (22)
OTHER.....	Q	244 (64)	Q
YEAR HOUSE BUILT			
BEFORE 1940.....	306 (26)	306 (12)	558 (27)
1940-1949.....	290 (27)	264 (13)	437 (35)
1950-1959.....	242 (23)	261 (12)	430 (28)
1960-1964.....	269 (24)	263 (19)	399 (72)
1965-1969.....	237 (33)	236 (21)	325 (38)
1970-1974.....	291 (28)	224 (18)	343 (38)
1975 OR LATER.....	264 (31)	274 (26)	416 (71)
HEATED SQUARE FOOTAGE			
1-799.....	175 (21)	174 (14)	413 (45)
800-999.....	219 (22)	238 (10)	422 (34)
1,000-1,199.....	252 (24)	259 (9)	421 (20)
1,200-1,399.....	246 (29)	284 (11)	478 (33)
1,400-1,799.....	329 (24)	306 (12)	516 (44)
1,800-2,399.....	377 (39)	384 (20)	616 (55)
2,400 OR MORE.....	468 (39)	508 (45)	790 (110)

"Q" = DATA WITHHELD BECAUSE OF A LARGE VARIANCE.

NOTE: BECAUSE OF ROUNDING, DATA MAY NOT SUM TO TOTALS.

NUMBER IN PARENTHESIS INDICATES ONE STANDARD DEVIATION. SEE APPENDIX B FOR A DETAILED DISCUSSION.

SOURCE: ENERGY INFORMATION ADMINISTRATION, OFFICE OF ENERGY MARKETS AND END USE, ENERGY END USE DIVISION, THE 1978 RESIDENTIAL ENERGY CONSUMPTION SURVEY.



Summary of Findings (Continued)

Table 12. Average Household Energy Expenditures for Space Heating by Main Heating Fuel by Selected Socio-demographic Characteristics for 1978

SOCIODEMOGRAPHIC CHARACTERISTICS	MAIN HEATING FUEL		
	ELECTRICITY (DOLLARS)	NATURAL GAS (DOLLARS)	FUEL OIL OR KEROSENE (DOLLARS)
NATIONAL.....	269 (18)	272 (7)	475 (19)
GEOGRAPHIC REGION			
NORTHEAST.....	347 (57)	389 (19)	541 (24)
NORTH CENTRAL.....	492 (43)	338 (8)	556 (47)
SOUTH.....	215 (20)	185 (8)	289 (25)
WEST.....	272 (31)	171 (12)	397 (31)
HEATING DEGREE DAYS			
0-1,999.....	87 (33)	126 (25)	133 (11)
2,000-2,999.....	232 (36)	131 (9)	246 (45)
3,000-3,999.....	302 (18)	190 (16)	313 (33)
4,000-4,999.....	282 (12)	195 (57)	294 (20)
5,000-5,999.....	306 (48)	339 (17)	512 (25)
6,000-6,999.....	437 (59)	332 (18)	515 (32)
7,000-7,999.....	321 (76)	342 (29)	602 (85)
8,000 OR MORE.....	Q	384 (30)	696 (277)
INCOME			
LESS THAN \$5,000.....	270 (29)	220 (16)	452 (39)
\$5,000-\$9,999.....	249 (26)	246 (11)	431 (34)
\$10,000-\$14,999.....	237 (22)	249 (9)	426 (29)
\$15,000-\$19,999.....	255 (28)	274 (13)	465 (44)
\$20,000-\$24,999.....	261 (27)	300 (13)	480 (43)
\$25,000-\$34,999.....	284 (37)	311 (16)	545 (33)
\$35,000 OR MORE.....	396 (46)	385 (30)	638 (78)
NUMBER OF HOUSEHOLD MEMBERS			
ONE.....	229 (22)	215 (10)	450 (28)
TWO.....	247 (25)	266 (8)	478 (21)
THREE.....	300 (23)	298 (10)	458 (33)
FOUR.....	296 (25)	295 (11)	470 (52)
FIVE OR MORE.....	324 (27)	306 (14)	522 (33)

"Q" = DATA WITHHELD BECAUSE OF A LARGE VARIANCE.

NOTE: BECAUSE OF ROUNDING, DATA MAY NOT SUM TO TOTALS.

NUMBER IN PARENTHESIS INDICATES ONE STANDARD DEVIATION. SEE APPENDIX B FOR A DETAILED DISCUSSION.

SOURCE: ENERGY INFORMATION ADMINISTRATION, OFFICE OF ENERGY MARKETS AND END USE, ENERGY END USE DIVISION, THE 1978 RESIDENTIAL ENERGY CONSUMPTION SURVEY.



Summary of Findings (Continued)

Table 13. Average Household Electricity Consumption When Main Heating Fuel is Electricity by End Use by Selected Housing Characteristics for 1980

HOUSING CHARACTERISTICS	NUMBER OF HOUSEHOLDS (MILLION)	END USE			
		SPACE HEATING (MILLION BTU)	COOLING (MILLION BTU)	WATER HEATING (MILLION BTU)	MISCELLANEOUS USE (MILLION BTU)
NATIONAL.....	14.3 (1.0)	18.2 (1.6)	7.3 (0.5)	10.4 (0.4)	19.6 (0.6)
HOUSING STRUCTURE					
SINGLE-FAMILY DETACHED.....	7.7 (0.6)	23.5 (1.5)	9.7 (0.6)	13.5 (0.4)	24.6 (0.7)
SINGLE-FAMILY ATTACHED.....	0.5 (0.2)	19.8 (3.4)	4.8 (1.6)	8.3 (2.0)	15.7 (2.1)
TWO TO FOUR UNITS.....	1.3 (0.4)	13.5 (4.4)	5.3 (2.0)	7.2 (0.7)	12.3 (1.0)
FIVE OR MORE UNITS.....	3.7 (0.5)	8.5 (1.1)	3.9 (0.5)	6.7 (0.6)	12.2 (0.6)
MOBILE HOME.....	1.1 (0.2)	19.2 (3.2)	5.2 (1.1)	5.9 (0.6)	20.2 (1.9)
YEAR HOUSE BUILT					
BEFORE 1940.....	0.8 (0.1)	25.8 (4.0)	6.1 (1.3)	7.0 (0.9)	15.3 (1.3)
1940-1949.....	0.5 (0.1)	22.2 (3.3)	4.9 (2.4)	9.5 (1.3)	17.7 (2.3)
1950-1959.....	1.1 (0.2)	19.5 (4.0)	6.7 (1.8)	8.9 (1.3)	18.5 (1.6)
1960-1964.....	0.8 (0.1)	25.3 (4.1)	6.0 (1.5)	10.6 (1.6)	21.3 (2.4)
1965-1969.....	1.7 (0.2)	19.9 (1.6)	6.0 (1.0)	10.5 (0.7)	19.0 (1.3)
1970-1974.....	3.7 (0.4)	18.8 (1.4)	6.3 (0.8)	10.5 (0.7)	20.2 (0.9)
1975 OR LATER.....	5.7 (0.7)	14.7 (1.7)	8.9 (0.8)	11.1 (0.7)	19.9 (0.9)
HEATED SQUARE FOOTAGE					
1-799.....	3.6 (0.4)	11.8 (1.5)	2.7 (0.4)	5.4 (0.4)	11.5 (0.7)
800-999.....	2.2 (0.2)	14.5 (1.3)	4.9 (0.7)	8.2 (0.6)	15.1 (0.9)
1,000-1,199.....	1.7 (0.2)	16.0 (2.0)	5.8 (0.6)	10.6 (0.9)	18.3 (1.0)
1,200-1,399.....	1.4 (0.2)	19.4 (2.6)	8.9 (1.3)	11.1 (1.0)	21.1 (1.2)
1,400-1,799.....	2.0 (0.2)	19.9 (2.4)	11.1 (1.1)	13.8 (0.8)	23.8 (1.2)
1,800-2,399.....	2.0 (0.3)	26.6 (1.7)	10.6 (1.3)	13.8 (0.7)	27.1 (1.0)
2,400 OR MORE.....	1.4 (0.2)	27.6 (2.3)	12.6 (1.5)	15.6 (1.3)	30.2 (2.2)

"Q" = DATA WITHHELD BECAUSE OF A LARGE VARIANCE.

NOTE: BECAUSE OF ROUNDING, DATA MAY NOT SUM TO TOTALS.

NUMBER IN PARENTHESIS INDICATES ONE STANDARD DEVIATION. SEE APPENDIX B FOR A DETAILED DISCUSSION.

SOURCE: ENERGY INFORMATION ADMINISTRATION, OFFICE OF ENERGY MARKETS AND END USE, ENERGY END USE DIVISION, THE 1980 RESIDENTIAL ENERGY CONSUMPTION SURVEY.



Summary of Findings (Continued)

Table 14. Average Household Electricity Consumption When Main Heating Fuel is Electricity by End Use by Selected Sociodemographic Characteristics for 1980

SOCIODEMOGRAPHIC CHARACTERISTICS	NUMBER OF HOUSEHOLDS (MILLION)	END USE			
		SPACE HEATING (MILLION BTU)	COOLING (MILLION BTU)	WATER HEATING (MILLION BTU)	MISCELLANEOUS USE (MILLION BTU)
NATIONAL.....	14.3 (1.0)	18.2 (1.6)	7.3 (0.5)	10.4 (0.4)	19.6 (0.6)
GEOGRAPHIC REGION					
NORTHEAST.....	1.6 (0.4)	24.3 (2.0)	1.7 (0.5)	10.8 (0.7)	17.9 (1.3)
NORTH CENTRAL.....	2.1 (0.4)	26.5 (2.4)	4.1 (0.7)	11.3 (1.2)	20.4 (2.3)
SOUTH.....	7.7 (0.8)	14.9 (2.6)	11.0 (0.7)	10.5 (0.6)	20.6 (0.7)
WEST.....	2.9 (0.4)	17.8 (1.5)	2.5 (0.4)	9.2 (0.7)	16.9 (1.1)
HEATING DEGREE DAYS					
0-1,999.....	3.8 (1.1)	4.9 (2.0)	13.4 (1.2)	8.9 (0.5)	19.5 (1.3)
2,000-2,999.....	1.2 (0.3)	11.9 (1.5)	12.4 (2.2)	9.1 (1.7)	18.1 (2.4)
3,000-3,999.....	1.7 (0.4)	18.0 (1.4)	8.0 (0.9)	10.3 (1.0)	18.8 (1.4)
4,000-4,999.....	2.8 (0.5)	26.2 (1.0)	4.5 (1.0)	12.2 (0.9)	21.3 (1.2)
5,000-5,999.....	2.0 (0.5)	27.2 (0.8)	3.9 (0.8)	10.9 (0.7)	19.9 (0.6)
6,000-6,999.....	2.0 (0.5)	23.5 (3.7)	1.8 (0.8)	10.6 (1.2)	18.7 (2.8)
7,000-7,999.....	0.4 (0.1)	24.4 (4.5)	0.3 (0.1)	10.6 (2.3)	16.2 (3.3)
8,000 OR MORE.....	0.3 (0.1)	32.6 (8.9)	0.8 (0.5)	11.3 (1.9)	22.5 (6.1)
INCOME					
LESS THAN \$5,000.....	1.8 (0.3)	17.4 (2.2)	2.3 (0.3)	6.0 (0.5)	12.6 (0.9)
\$5,000-\$9,999.....	2.1 (0.3)	16.4 (2.8)	4.3 (0.6)	8.3 (0.6)	16.1 (0.9)
\$10,000-\$14,999.....	2.5 (0.2)	16.3 (1.5)	6.4 (0.8)	9.2 (0.8)	16.8 (1.2)
\$15,000-\$19,999.....	2.0 (0.3)	17.4 (2.2)	5.9 (1.0)	10.7 (0.6)	19.0 (0.9)
\$20,000-\$24,999.....	1.7 (0.2)	20.5 (2.2)	9.2 (1.2)	13.1 (0.9)	24.5 (1.1)
\$25,000-\$34,999.....	2.4 (0.3)	18.8 (2.3)	9.5 (1.1)	11.2 (1.0)	22.0 (1.3)
\$35,000 OR MORE.....	1.8 (0.3)	21.9 (2.6)	13.7 (1.5)	14.6 (1.0)	26.9 (1.6)
NUMBER OF HOUSEHOLD MEMBERS					
ONE.....	3.6 (0.4)	13.5 (1.4)	4.7 (0.8)	5.4 (0.4)	12.6 (0.9)
TWO.....	4.8 (0.5)	17.1 (2.5)	6.7 (0.9)	8.3 (0.4)	16.9 (0.5)
THREE.....	2.3 (0.2)	20.7 (1.4)	9.2 (0.8)	12.5 (0.7)	23.4 (1.3)
FOUR.....	1.8 (0.2)	20.8 (1.8)	10.0 (1.1)	15.3 (0.8)	25.9 (0.9)
FIVE OR MORE.....	1.7 (0.2)	25.3 (2.8)	8.4 (1.2)	18.9 (1.1)	29.9 (1.5)

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NOTE: BECAUSE OF ROUNDING, DATA MAY NOT SUM TO TOTALS.

NUMBER IN PARENTHESIS INDICATES ONE STANDARD DEVIATION. SEE APPENDIX B FOR A DETAILED DISCUSSION.

SOURCE: ENERGY INFORMATION ADMINISTRATION, OFFICE OF ENERGY MARKETS AND END USE, ENERGY END USE DIVISION, THE 1980 RESIDENTIAL ENERGY CONSUMPTION SURVEY.



Summary of Findings (Continued)

Table 15. Average Household Natural Gas Consumption When Main Heating Fuel is Natural Gas by End Use by Selected Housing Characteristics for 1980

HOUSING CHARACTERISTICS	NUMBER OF HOUSEHOLDS (MILLION)	END USE		
		SPACE HEATING (MILLION BTU)	WATER HEATING (MILLION BTU)	MISCELLANEOUS USE (MILLION BTU)
NATIONAL.....	44.6 (1.5)	74.1 (1.3)	25.8 (0.5)	7.2 (0.4)
HOUSING STRUCTURE				
SINGLE-FAMILY DETACHED.....	30.1 (1.3)	81.7 (1.5)	28.5 (0.5)	6.8 (0.5)
SINGLE-FAMILY ATTACHED.....	1.9 (0.3)	62.1 (5.5)	23.0 (2.0)	10.8 (0.8)
TWO TO FOUR UNITS.....	6.6 (0.5)	69.5 (3.2)	23.2 (1.0)	7.7 (0.6)
FIVE OR MORE UNITS.....	4.6 (0.3)	41.8 (6.0)	15.4 (1.2)	6.5 (1.3)
MOBILE HOME.....	1.4 (0.3)	53.6 (5.6)	18.1 (1.1)	10.0 (1.1)
YEAR HOUSE BUILT				
BEFORE 1940.....	13.3 (0.8)	90.6 (2.7)	25.1 (0.7)	6.8 (0.4)
1940-1949.....	4.6 (0.3)	71.6 (2.9)	25.5 (1.1)	6.1 (0.7)
1950-1959.....	9.1 (0.8)	70.4 (2.7)	26.9 (0.9)	7.9 (0.9)
1960-1964.....	4.6 (0.4)	69.3 (3.1)	26.7 (0.9)	7.6 (1.1)
1965-1969.....	4.8 (0.4)	64.8 (3.6)	26.9 (1.1)	7.8 (0.7)
1970-1974.....	4.6 (0.4)	62.4 (3.8)	24.8 (1.2)	7.5 (1.2)
1975 OR LATER.....	3.6 (0.4)	59.1 (4.1)	24.6 (1.0)	6.8 (1.5)
HEATED SQUARE FOOTAGE				
1-799.....	8.3 (0.5)	48.3 (1.8)	18.0 (1.0)	5.9 (0.5)
800-999.....	6.3 (0.5)	57.7 (2.9)	23.0 (1.0)	6.1 (0.5)
1,000-1,199.....	5.1 (0.3)	68.5 (3.0)	27.0 (1.1)	6.2 (0.4)
1,200-1,399.....	4.4 (0.3)	67.3 (3.0)	26.9 (1.4)	9.5 (1.3)
1,400-1,799.....	7.2 (0.4)	75.8 (2.5)	27.8 (0.7)	7.3 (0.6)
1,800-2,399.....	7.0 (0.4)	89.2 (3.4)	29.5 (1.1)	7.4 (0.7)
2,400 OR MORE.....	6.3 (0.4)	115.1 (5.0)	30.7 (1.0)	8.8 (1.3)

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NUMBER IN PARENTHESIS INDICATES ONE STANDARD DEVIATION. SEE APPENDIX B FOR A DETAILED DISCUSSION.

SOURCE: ENERGY INFORMATION ADMINISTRATION, OFFICE OF ENERGY MARKETS AND END USE, ENERGY END USE DIVISION, THE 1980 RESIDENTIAL ENERGY CONSUMPTION SURVEY.



Summary of Findings (Continued)

Table 16. Average Household Natural Gas Consumption When Main Heating Fuel is Natural Gas by End Use by Selected Socio-demographic Characteristics for 1980

SOCIODEMOGRAPHIC CHARACTERISTICS	NUMBER OF HOUSEHOLDS (MILLION)	END USE		
		SPACE HEATING (MILLION BTU)	WATER HEATING (MILLION BTU)	MISCELLANEOUS USE (MILLION BTU)
NATIONAL.....	44.6 (1.5)	74.1 (1.3)	25.8 (0.5)	7.2 (0.4)
GEOGRAPHIC REGION				
NORTHEAST.....	6.6 (0.9)	94.9 (2.9)	25.1 (0.7)	8.0 (0.5)
NORTH CENTRAL.....	5.0 (0.6)	99.1 (2.2)	27.0 (0.6)	7.2 (0.4)
SOUTH.....	11.8 (0.9)	57.5 (2.8)	25.2 (1.3)	7.4 (0.7)
WEST.....	11.1 (0.5)	45.5 (1.3)	25.2 (1.0)	6.5 (0.9)
HEATING DEGREE DAYS				
0-1,999.....	6.4 (1.1)	27.8 (1.3)	26.8 (1.4)	9.8 (1.2)
2,000-2,999.....	5.5 (1.2)	42.4 (2.2)	25.7 (1.9)	6.6 (1.1)
3,000-3,999.....	5.0 (0.7)	58.6 (4.1)	24.6 (1.5)	6.1 (1.0)
4,000-4,999.....	3.3 (0.7)	68.3 (3.1)	22.6 (2.0)	5.1 (0.8)
5,000-5,999.....	8.1 (0.9)	88.4 (2.4)	26.5 (1.2)	7.9 (0.7)
6,000-6,999.....	10.1 (1.0)	100.4 (2.1)	27.1 (0.6)	7.5 (0.4)
7,000-7,999.....	4.6 (0.6)	104.3 (4.0)	24.9 (1.0)	5.7 (0.6)
8,000 OR MORE.....	1.5 (0.6)	107.1 (7.4)	22.5 (2.1)	5.4 (1.4)
INCOME				
LESS THAN \$5,000.....	5.5 (0.3)	66.9 (4.2)	22.0 (1.1)	5.9 (0.3)
\$5,000-\$9,999.....	7.3 (0.4)	68.7 (2.8)	23.1 (0.8)	6.9 (0.9)
\$10,000-\$14,999.....	6.9 (0.5)	68.4 (3.1)	23.3 (1.0)	6.7 (0.6)
\$15,000-\$19,999.....	6.6 (0.4)	70.1 (2.5)	25.8 (1.0)	6.8 (0.5)
\$20,000-\$24,999.....	6.0 (0.4)	79.5 (4.0)	29.4 (1.1)	7.3 (0.5)
\$25,000-\$34,999.....	6.7 (0.4)	79.1 (2.2)	28.2 (0.7)	7.9 (0.7)
\$35,000 OR MORE.....	5.6 (0.4)	87.9 (5.4)	29.3 (1.1)	9.1 (1.5)
NUMBER OF HOUSEHOLD MEMBERS				
ONE.....	8.2 (0.4)	60.6 (2.5)	14.4 (0.5)	5.4 (0.3)
TWO.....	14.4 (0.6)	72.5 (2.0)	21.0 (0.5)	6.8 (0.7)
THREE.....	8.3 (0.5)	74.1 (2.2)	26.4 (0.7)	8.2 (0.5)
FOUR.....	7.7 (0.5)	82.2 (2.9)	33.9 (0.9)	7.6 (0.6)
FIVE OR MORE.....	5.9 (0.4)	86.0 (2.5)	41.9 (1.1)	8.6 (1.0)

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NUMBER IN PARENTHESIS INDICATES ONE STANDARD DEVIATION. SEE APPENDIX B FOR A DETAILED DISCUSSION.

SOURCE: ENERGY INFORMATION ADMINISTRATION, OFFICE OF ENERGY MARKETS AND END USE, ENERGY END USE DIVISION, THE 1980 RESIDENTIAL ENERGY CONSUMPTION SURVEY.



Summary of Findings (Continued)

Table 17. Average Household Fuel Oil or Kerosene Consumption When Main Heating Fuel is Fuel Oil or Kerosene by End Use by Selected Housing Characteristics for 1980

HOUSING CHARACTERISTICS	NUMBER OF HOUSEHOLDS (MILLION)	END USE		
		SPACE HEATING (MILLION BTU)	WATER HEATING (MILLION BTU)	MISCELLANEOUS USE (MILLION BTU)
NATIONAL.....	13.4 (0.7)	96.0 (2.5)	16.4 (1.2)	Q
HOUSING STRUCTURE				
SINGLE-FAMILY DETACHED.....	7.9 (0.5)	98.0 (2.5)	11.7 (1.0)	Q
SINGLE-FAMILY ATTACHED.....	0.7 (0.1)	11.0 (10.9)	12.2 (3.1)	Q
TWO TO FOUR UNITS.....	1.6 (0.2)	105.3 (10.5)	21.7 (2.6)	Q
FIVE OR MORE UNITS.....	2.4 (0.3)	90.0 (42.6)	34.2 (19.9)	Q
MOBILE HOME.....	0.7 (0.1)	58.4 (7.2)	1.4 (0.9)	Q
YEAR HOUSE BUILT				
BEFORE 1940.....	6.1 (0.5)	105.3 (3.5)	15.2 (1.6)	Q
1940-1949.....	1.6 (0.2)	91.6 (7.1)	17.9 (4.2)	Q
1950-1959.....	2.5 (0.3)	90.8 (4.1)	14.5 (2.0)	Q
1960-1964.....	1.1 (0.2)	90.3 (8.7)	22.5 (8.0)	Q
1965-1969.....	0.7 (0.1)	88.0 (9.7)	16.3 (5.3)	Q
1970-1974.....	0.8 (0.1)	82.1 (10.3)	21.4 (6.9)	Q
1975 OR LATER.....	0.6 (0.1)	75.0 (12.0)	14.0 (3.3)	Q
HEATED SQUARE FOOTAGE				
1-799.....	3.1 (0.4)	80.8 (6.6)	22.3 (5.3)	Q
800-999.....	1.6 (0.2)	81.5 (8.2)	18.0 (3.5)	Q
1,000-1,199.....	1.4 (0.2)	90.1 (4.9)	17.6 (2.8)	Q
1,200-1,399.....	1.2 (0.2)	85.9 (6.3)	12.9 (2.9)	Q
1,400-1,799.....	1.9 (0.2)	98.7 (4.4)	12.3 (2.0)	Q
1,800-2,399.....	1.7 (0.2)	107.3 (6.0)	13.1 (2.1)	Q
2,400 OR MORE.....	2.5 (0.2)	122.9 (4.7)	14.4 (1.8)	Q

"Q" = DATA WITHHELD BECAUSE OF A LARGE VARIANCE.

NOTE: BECAUSE OF ROUNDING, DATA MAY NOT SUM TO TOTALS.

NUMBER IN PARENTHESIS INDICATES ONE STANDARD DEVIATION. SEE APPENDIX B FOR A DETAILED DISCUSSION.

SOURCE: ENERGY INFORMATION ADMINISTRATION, OFFICE OF ENERGY MARKETS AND END USE, ENERGY END USE DIVISION, THE 1980 RESIDENTIAL ENERGY CONSUMPTION SURVEY.



Summary of Findings (Continued)

Table 18. Average Household Fuel Oil or Kerosene Consumption When Main Heating Fuel is Fuel Oil or Kerosene by End Use by Selected Socio-demographic Characteristics for 1980

SOCIODEMOGRAPHIC CHARACTERISTICS	NUMBER OF HOUSEHOLDS (MILLION)	END USE		
		SPACE HEATING (MILLION BTU)	WATER HEATING (MILLION BTU)	MISCELLANEOUS USE (MILLION BTU)
NATIONAL.....	13.4 (0.7)	96.0 (2.5)	16.4 (1.2)	Q
GEOGRAPHIC REGION				
NORTHEAST.....	8.2 (0.5)	106.5 (2.7)	23.4 (1.6)	Q
NORTH CENTRAL.....	1.5 (0.2)	88.8 (4.2)	3.3 (2.3)	Q
SOUTH.....	3.1 (0.4)	76.5 (4.4)	6.9 (3.0)	Q
WEST.....	0.5 (0.1)	68.0 (4.3)	1.2 (0.7)	Q
HEATING DEGREE DAYS				
0-1,999.....	Q	Q	Q	Q
2,000-2,999.....	Q	Q	Q	Q
3,000-3,999.....	1.0 (0.3)	73.5 (2.6)	1.8 (1.3)	Q
4,000-4,999.....	1.2 (0.4)	85.0 (6.7)	10.4 (5.9)	Q
5,000-5,999.....	5.6 (0.7)	96.9 (6.1)	22.8 (3.8)	Q
6,000-6,999.....	2.9 (0.5)	105.0 (4.9)	16.2 (2.2)	Q
7,000-7,999.....	1.4 (0.2)	109.4 (6.3)	15.9 (2.6)	Q
8,000 OR MORE.....	0.9 (0.5)	100.6 (7.4)	7.6 (2.0)	Q
INCOME				
LESS THAN \$5,000.....	2.0 (0.2)	94.0 (9.4)	16.4 (6.5)	Q
\$5,000-\$9,999.....	2.5 (0.2)	95.2 (8.9)	20.4 (5.8)	Q
\$10,000-\$14,999.....	2.4 (0.2)	88.8 (6.0)	15.4 (2.6)	Q
\$15,000-\$19,999.....	1.8 (0.2)	95.0 (6.3)	14.2 (2.5)	Q
\$20,000-\$24,999.....	1.4 (0.1)	98.7 (8.5)	11.8 (2.6)	Q
\$25,000-\$34,999.....	2.0 (0.2)	96.7 (4.7)	14.9 (2.1)	Q
\$35,000 OR MORE.....	1.4 (0.2)	110.8 (5.2)	20.3 (2.1)	Q
NUMBER OF HOUSEHOLD MEMBERS				
ONE.....	2.7 (0.3)	94.1 (7.1)	19.7 (4.0)	Q
TWO.....	4.8 (0.2)	93.7 (3.8)	16.5 (2.6)	Q
THREE.....	2.3 (0.2)	97.6 (6.2)	14.3 (2.0)	Q
FOUR.....	2.0 (0.2)	91.7 (4.7)	12.0 (1.3)	Q
FIVE OR MORE.....	1.6 (0.2)	109.1 (6.1)	18.9 (2.5)	Q

"Q" = DATA WITHHELD BECAUSE OF A LARGE VARIANCE.

NOTE: BECAUSE OF ROUNDING, DATA MAY NOT SUM TO TOTALS.

NUMBER IN PARENTHESIS INDICATES ONE STANDARD DEVIATION. SEE APPENDIX B FOR A DETAILED DISCUSSION.

SOURCE: ENERGY INFORMATION ADMINISTRATION, OFFICE OF ENERGY MARKETS AND END USE, ENERGY END USE DIVISION, THE 1980 RESIDENTIAL ENERGY CONSUMPTION SURVEY.



Summary of Findings (Continued)

Table 19. Average Household LPG Consumption When Main Heating Fuel is LPG by End Use by Selected Housing Characteristics for 1980

HOUSING CHARACTERISTICS	NUMBER OF HOUSEHOLDS (MILLION)	END USE		
		SPACE HEATING (MILLION BTU)	WATER HEATING (MILLION BTU)	MISCELLANEOUS USE (MILLION BTU)
NATIONAL.....	3.7 (0.4)	60.7 (3.4)	10.8 (1.2)	5.3 (0.5)
HOUSING STRUCTURE				
SINGLE-FAMILY DETACHED.....	2.3 (0.3)	67.9 (4.7)	12.9 (1.0)	5.1 (0.7)
SINGLE-FAMILY ATTACHED.....	Q	Q	Q	Q
TWO TO FOUR UNITS.....	Q	Q	Q	Q
FIVE OR MORE UNITS.....	Q	Q	Q	Q
MOBILE HOME.....	1.2 (0.2)	45.7 (5.3)	7.0 (1.8)	6.4 (0.8)
YEAR HOUSE BUILT				
BEFORE 1950.....	0.9 (0.2)	79.9 (6.5)	12.4 (2.1)	5.1 (0.8)
1940-1949.....	0.2 (0.1)	48.4 (5.3)	15.5 (6.1)	5.1 (2.7)
1950-1959.....	0.4 (0.1)	63.8 (10.1)	11.8 (3.1)	3.5 (1.3)
1960-1964.....	0.3 (0.1)	55.3 (7.3)	13.1 (2.6)	4.0 (2.0)
1965-1969.....	0.5 (0.1)	43.5 (11.8)	8.0 (2.8)	3.5 (0.6)
1970-1974.....	0.8 (0.2)	56.4 (6.1)	8.8 (2.1)	7.5 (1.2)
1975 OR LATER.....	0.4 (0.1)	56.2 (7.0)	10.2 (3.9)	6.0 (1.3)
HEATED SQUARE FOOTAGE				
1-799.....	1.4 (0.2)	51.6 (5.1)	8.6 (2.4)	5.6 (0.6)
800-999.....	0.5 (0.1)	44.4 (5.8)	10.7 (3.0)	3.1 (0.9)
1,000-1,199.....	0.6 (0.1)	66.1 (8.9)	10.5 (2.3)	5.3 (0.6)
1,200-1,399.....	0.3 (0.1)	56.5 (7.7)	10.9 (3.6)	3.4 (0.9)
1,400-1,799.....	0.4 (0.1)	61.1 (7.0)	6.8 (2.3)	4.0 (2.0)
1,800-2,399.....	0.3 (0.1)	73.4 (12.8)	17.2 (2.7)	7.8 (3.7)
2,400 OR MORE.....	0.3 (0.1)	103.8 (13.3)	19.1 (4.9)	7.7 (2.4)

"Q" = DATA WITHHELD BECAUSE OF A LARGE VARIANCE.

NOTE: BECAUSE OF ROUNDING, DATA MAY NOT SUM TO TOTALS.

NUMBER IN PARENTHESIS INDICATES ONE STANDARD DEVIATION. SEE APPENDIX B FOR A DETAILED DISCUSSION.

SOURCE: ENERGY INFORMATION ADMINISTRATION, OFFICE OF ENERGY MARKETS AND END USE, ENERGY END USE DIVISION, THE 1980 RESIDENTIAL ENERGY CONSUMPTION SURVEY.



Summary of Findings (Continued)

Table 20. Average Household LPG Consumption When Main Heating Fuel is LPG by End Use by Selected Socio-demographic Characteristics for 1980

SOCIODEMOGRAPHIC CHARACTERISTICS	NUMBER OF HOUSEHOLDS (MILLION)	END USE		
		SPACE HEATING (MILLION BTU)	WATER HEATING (MILLION BTU)	MISCELLANEOUS USE (MILLION BTU)
NATIONAL.....	3.7 (0.4)	60.7 (3.4)	10.8 (1.2)	5.3 (0.5)
GEOGRAPHIC REGION				
NORTHEAST.....	0.2 (0.1)	75.4 (28.2)	4.1 (2.2)	2.6 (1.4)
NORTH CENTRAL.....	1.2 (0.2)	89.3 (5.2)	14.4 (0.9)	5.1 (0.5)
SOUTH.....	2.0 (0.3)	43.9 (3.7)	9.5 (2.6)	5.7 (1.0)
WEST.....	0.4 (0.1)	57.7 (8.7)	9.7 (2.7)	4.4 (1.3)
HEATING DEGREE DAYS				
0-1,999.....	0.5 (0.1)	22.5 (4.1)	7.1 (8.3)	10.6 (3.5)
2,000-2,999.....	0.4 (0.2)	36.7 (4.9)	19.2 (1.3)	6.0 (3.8)
3,000-3,999.....	0.9 (0.3)	53.9 (6.2)	7.7 (2.6)	3.7 (0.6)
4,000-4,999.....	0.4 (0.1)	67.8 (8.7)	10.1 (2.6)	3.8 (0.9)
5,000-5,999.....	0.6 (0.2)	80.7 (8.3)	12.6 (2.1)	4.9 (1.1)
6,000-6,999.....	0.3 (0.1)	79.2 (12.7)	10.0 (2.8)	4.6 (1.1)
7,000-7,999.....	0.4 (0.2)	82.6 (10.7)	11.9 (1.3)	3.8 (1.1)
8,000 OR MORE.....	Q	Q	Q	Q
INCOME				
LESS THAN \$5,000.....	0.5 (0.1)	54.6 (5.9)	10.9 (4.4)	4.7 (0.6)
\$5,000-\$9,999.....	0.9 (0.1)	55.0 (5.8)	5.5 (1.4)	3.8 (0.8)
\$10,000-\$14,999.....	0.9 (0.1)	60.3 (6.2)	11.9 (2.4)	4.3 (1.4)
\$15,000-\$19,999.....	0.4 (0.1)	61.8 (8.8)	8.4 (2.8)	5.7 (2.3)
\$20,000-\$24,999.....	0.3 (0.1)	71.0 (17.7)	14.1 (4.7)	4.7 (1.5)
\$25,000-\$34,999.....	0.5 (0.1)	60.8 (6.9)	14.6 (3.8)	7.6 (1.9)
\$35,000 OR MORE.....	0.3 (0.1)	77.2 (16.2)	16.7 (3.4)	9.5 (3.1)
NUMBER OF HOUSEHOLD MEMBERS				
ONE.....	0.6 (0.1)	59.8 (9.0)	3.2 (1.1)	3.5 (0.8)
TWO.....	1.2 (0.2)	62.2 (5.2)	8.3 (1.1)	4.9 (0.9)
THREE.....	0.8 (0.2)	54.7 (8.0)	9.9 (3.7)	5.2 (1.2)
FOUR.....	0.6 (0.1)	58.0 (8.3)	15.5 (3.9)	4.5 (1.3)
FIVE OR MORE.....	0.4 (0.1)	72.7 (13.1)	25.0 (4.6)	10.1 (1.8)

"Q" = DATA WITHHELD BECAUSE OF A LARGE VARIANCE.

NOTE: BECAUSE OF ROUNDING, DATA MAY NOT SUM TO TOTALS.

NUMBER IN PARENTHESIS INDICATES ONE STANDARD DEVIATION. SEE APPENDIX B FOR A DETAILED DISCUSSION.

SOURCE: ENERGY INFORMATION ADMINISTRATION, OFFICE OF ENERGY MARKETS AND END USE, ENERGY END USE DIVISION, THE 1980 RESIDENTIAL ENERGY CONSUMPTION SURVEY.



Summary of Findings (Continued)

Table 21. Average Household Energy Expenditures by End Use by Selected Housing Characteristics for 1980

HOUSING CHARACTERISTICS	TOTAL EXPENDITURES (DOLLARS)	END USE			
		SPACE HEATING (DOLLARS)	COOLING (DOLLARS)	WATER HEATING (DOLLARS)	MISCELLANEOUS USE (DOLLARS)
NATIONAL.....	916 (14)	355 (9)	62 (3)	145 (3)	354 (6)
HOUSING STRUCTURE					
SINGLE-FAMILY DETACHED.....	984 (15)	367 (9)	74 (3)	153 (3)	390 (7)
SINGLE-FAMILY ATTACHED.....	985 (77)	430 (53)	42 (6)	151 (14)	362 (20)
TWO TO FOUR UNITS.....	822 (34)	374 (20)	29 (7)	126 (5)	293 (9)
FIVE OR MORE UNITS.....	703 (43)	287 (48)	39 (5)	135 (12)	241 (13)
MOBILE HOME.....	789 (42)	285 (27)	66 (10)	99 (9)	339 (18)
YEAR HOUSE BUILT					
BEFORE 1940.....	981 (18)	469 (20)	29 (3)	146 (4)	337 (5)
1940-1949.....	898 (29)	370 (28)	45 (6)	146 (6)	337 (13)
1950-1959.....	919 (16)	347 (13)	66 (8)	134 (3)	372 (8)
1960-1964.....	932 (25)	344 (20)	64 (6)	140 (7)	383 (13)
1965-1969.....	858 (24)	291 (20)	74 (8)	137 (5)	356 (14)
1970-1974.....	900 (35)	295 (21)	86 (7)	150 (8)	369 (14)
1975 OR LATER.....	840 (33)	231 (19)	105 (8)	158 (10)	346 (13)
HEATED SQUARE FOOTAGE					
ZERO HEATED SQUARE FOOTAGE....	702 (88)	Q	13 (7)	180 (27)	509 (73)
1-799.....	686 (24)	285 (20)	34 (3)	116 (4)	250 (6)
800-999.....	739 (21)	283 (11)	46 (5)	126 (4)	285 (9)
1,000-1,199.....	849 (27)	331 (16)	56 (4)	142 (6)	321 (10)
1,200-1,399.....	888 (29)	320 (18)	69 (5)	145 (7)	354 (10)
1,400-1,799.....	971 (22)	357 (15)	77 (7)	151 (4)	386 (10)
1,800-2,399.....	1078 (21)	404 (12)	81 (7)	164 (6)	429 (12)
2,400 OR MORE.....	1282 (26)	535 (23)	85 (6)	177 (6)	485 (12)

"Q" = DATA WITHHELD BECAUSE OF A LARGE VARIANCE.

NOTE: BECAUSE OF ROUNDING, DATA MAY NOT SUM TO TOTALS.

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SOURCE: ENERGY INFORMATION ADMINISTRATION, OFFICE OF ENERGY MARKETS AND END USE, ENERGY END USE DIVISION, THE 1980 RESIDENTIAL ENERGY CONSUMPTION SURVEY.



Summary of Findings (Continued)

Table 22. Average Household Energy Expenditures by End Use by Selected Sociodemographic Characteristics for 1980

SOCIODEMOGRAPHIC CHARACTERISTICS	TOTAL EXPENDITURES (DOLLARS)	END USE			
		SPACE HEATING (DOLLARS)	COOLING (DOLLARS)	WATER HEATING (DOLLARS)	MISCELLANEOUS USE (DOLLARS)
NATIONAL.....	916 (14)	355 (9)	62 (3)	145 (3)	354 (6)
GEOGRAPHIC REGION					
NORTHEAST.....	1268 (28)	627 (24)	22 (4)	199 (5)	420 (8)
NORTH CENTRAL.....	910 (15)	388 (12)	39 (5)	126 (3)	356 (9)
SOUTH.....	876 (28)	261 (18)	128 (8)	149 (6)	338 (10)
WEST.....	603 (16)	170 (6)	24 (3)	101 (3)	308 (14)
HEATING DEGREE DAYS					
0-1,999.....	761 (28)	109 (16)	134 (15)	140 (7)	378 (14)
2,000-2,999.....	717 (26)	164 (9)	124 (16)	112 (9)	317 (14)
3,000-3,999.....	791 (25)	262 (17)	83 (7)	128 (5)	317 (10)
4,000-4,999.....	824 (73)	316 (29)	67 (11)	138 (16)	302 (28)
5,000-5,999.....	1099 (48)	495 (27)	50 (6)	169 (7)	384 (15)
6,000-6,999.....	990 (26)	457 (18)	19 (4)	145 (6)	370 (13)
7,000-7,999.....	1011 (35)	506 (19)	4 (1)	149 (8)	351 (13)
8,000 OR MORE.....	979 (57)	450 (49)	4 (2)	149 (10)	376 (24)
INCOME					
LESS THAN \$5,000.....	753 (33)	347 (29)	26 (3)	120 (6)	260 (9)
\$5,000-\$9,999.....	805 (21)	342 (18)	36 (4)	132 (4)	296 (8)
\$10,000-\$14,999.....	837 (20)	339 (17)	49 (4)	136 (6)	312 (9)
\$15,000-\$19,999.....	900 (22)	330 (16)	61 (5)	146 (5)	363 (8)
\$20,000-\$24,999.....	986 (19)	367 (18)	73 (6)	154 (4)	392 (9)
\$25,000-\$34,999.....	1005 (22)	365 (15)	81 (6)	155 (6)	404 (11)
\$35,000 OR MORE.....	1206 (38)	414 (20)	123 (9)	176 (7)	492 (17)
NUMBER OF HOUSEHOLD MEMBERS					
ONE.....	686 (25)	323 (19)	40 (3)	94 (4)	229 (6)
TWO.....	855 (15)	354 (11)	63 (4)	120 (3)	318 (8)
THREE.....	961 (21)	353 (12)	72 (5)	152 (5)	385 (8)
FOUR.....	1053 (28)	366 (19)	75 (5)	178 (5)	433 (10)
FIVE OR MORE.....	1171 (33)	395 (18)	61 (6)	226 (6)	489 (13)

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SOURCE: ENERGY INFORMATION ADMINISTRATION, OFFICE OF ENERGY MARKETS AND END USE, ENERGY END USE DIVISION, THE 1980 RESIDENTIAL ENERGY CONSUMPTION SURVEY.



Summary of Findings (Continued)

Table 23. Average Household Energy Expenditures for Space Heating by Main Heating Fuel by Selected Housing Characteristics for 1980

HOUSING CHARACTERISTICS	MAIN HEATING FUEL		
	ELECTRICITY (DOLLARS)	NATURAL GAS (DOLLARS)	FUEL OIL OR KEROSENE (DOLLARS)
NATIONAL.....	241 (24)	285 (5)	773 (20)
HOUSING STRUCTURE			
SINGLE-FAMILY DETACHED.....	309 (24)	303 (6)	788 (19)
SINGLE-FAMILY ATTACHED.....	322 (75)	278 (28)	882 (85)
TWO TO FOUR UNITS.....	163 (53)	300 (16)	850 (90)
FIVE OR MORE UNITS.....	123 (14)	174 (32)	723 (348)
MOBILE HOME.....	234 (41)	192 (20)	482 (62)
YEAR HOUSE BUILT			
BEFORE 1940.....	320 (48)	352 (12)	847 (29)
1940-1949.....	268 (53)	278 (12)	739 (57)
1950-1959.....	241 (54)	259 (10)	732 (32)
1960-1964.....	302 (53)	268 (12)	726 (72)
1965-1969.....	246 (23)	253 (16)	707 (76)
1970-1974.....	267 (27)	245 (14)	660 (82)
1975 OR LATER.....	202 (25)	223 (14)	604 (94)
HEATED SQUARE FOOTAGE			
1-799.....	156 (21)	194 (9)	652 (53)
800-999.....	187 (17)	223 (12)	656 (65)
1,000-1,199.....	211 (35)	264 (13)	728 (37)
1,200-1,399.....	242 (38)	256 (11)	692 (51)
1,400-1,799.....	267 (32)	294 (12)	796 (35)
1,800-2,399.....	370 (29)	335 (12)	862 (47)
2,400 OR MORE.....	357 (33)	437 (20)	984 (38)

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SOURCE: ENERGY INFORMATION ADMINISTRATION, OFFICE OF ENERGY MARKETS AND END USE, ENERGY END USE DIVISION, THE 1980 RESIDENTIAL ENERGY CONSUMPTION SURVEY.



Summary of Findings (Continued)

Table 24. Average Household Energy Expenditures for Space Heating by Main Heating Fuel by Selected Socio-demographic Characteristics for 1980

SOCIODEMOGRAPHIC CHARACTERISTICS	MAIN HEATING FUEL		
	ELECTRICITY (DOLLARS)	NATURAL GAS (DOLLARS)	FUEL OIL OR KEROSENE (DOLLARS)
NATIONAL.....	241 (24)	285 (5)	773 (20)
GEOGRAPHIC REGION			
NORTHEAST.....	426 (44)	456 (20)	857 (22)
NORTH CENTRAL.....	359 (42)	353 (11)	706 (29)
SOUTH.....	205 (34)	220 (10)	622 (32)
WEST.....	150 (8)	160 (5)	536 (37)
HEATING DEGREE DAYS			
0-1,999.....	86 (36)	103 (6)	Q
2,000-2,999.....	154 (13)	155 (6)	Q
3,000-3,999.....	248 (21)	209 (13)	598 (17)
4,000-4,999.....	270 (33)	269 (23)	685 (58)
5,000-5,999.....	364 (30)	368 (16)	780 (51)
6,000-6,999.....	352 (60)	369 (9)	842 (37)
7,000-7,999.....	358 (63)	422 (24)	877 (48)
8,000 OR MORE.....	495 (152)	390 (33)	810 (64)
INCOME			
LESS THAN \$5,000.....	228 (25)	261 (16)	760 (79)
\$5,000-\$9,999.....	206 (37)	261 (11)	764 (68)
\$10,000-\$14,999.....	222 (23)	271 (12)	712 (44)
\$15,000-\$19,999.....	225 (32)	266 (10)	763 (50)
\$20,000-\$24,999.....	264 (31)	304 (14)	799 (69)
\$25,000-\$34,999.....	242 (28)	302 (11)	779 (40)
\$35,000 OR MORE.....	320 (46)	334 (20)	891 (44)
NUMBER OF HOUSEHOLD MEMBERS			
ONE.....	185 (21)	235 (10)	760 (57)
TWO.....	223 (34)	277 (6)	752 (30)
THREE.....	269 (24)	281 (11)	783 (50)
FOUR.....	279 (32)	322 (13)	741 (39)
FIVE OR MORE.....	338 (42)	327 (12)	880 (47)

"Q" = DATA WITHHELD BECAUSE OF A LARGE VARIANCE.

NOTE: BECAUSE OF ROUNDING, DATA MAY NOT SUM TO TOTALS.

NUMBER IN PARENTHESIS INDICATES ONE STANDARD DEVIATION. SEE APPENDIX B FOR A DETAILED DISCUSSION.

SOURCE: ENERGY INFORMATION ADMINISTRATION, OFFICE OF ENERGY MARKETS AND END USE, ENERGY END USE DIVISION, THE 1980 RESIDENTIAL ENERGY CONSUMPTION SURVEY.



Summary of Findings (Continued)

Table 25. Average Household Electricity Consumption When Main Heating Fuel is Electricity by End Use by Selected Housing Characteristics for 1981

HOUSING CHARACTERISTICS	NUMBER OF HOUSEHOLDS (MILLION)	END USE			
		SPACE HEATING (MILLION BTU)	COOLING (MILLION BTU)	WATER HEATING (MILLION BTU)	MISCELLANEOUS USE (MILLION BTU)
NATIONAL.....	14.2 (1.1)	19.2 (1.3)	6.6 (0.6)	10.4 (0.4)	17.2 (0.6)
HOUSING STRUCTURE					
SINGLE-FAMILY DETACHED.....	6.6 (0.5)	22.2 (1.1)	8.9 (0.6)	12.7 (0.5)	22.2 (0.7)
SINGLE-FAMILY ATTACHED.....	0.7 (0.3)	14.1 (7.3)	9.4 (0.8)	8.5 (1.3)	14.8 (2.0)
TWO TO FOUR UNITS.....	1.8 (0.3)	15.8 (1.8)	5.0 (4.6)	8.0 (1.1)	13.5 (1.0)
FIVE OR MORE UNITS.....	4.3 (0.6)	16.8 (2.6)	3.9 (1.0)	8.0 (0.6)	11.3 (0.6)
MOBILE HOME.....	0.8 (0.2)	19.0 (2.1)	4.4 (0.7)	10.3 (0.8)	17.0 (1.1)
YEAR HOUSE BUILT					
BEFORE 1940.....	1.2 (0.2)	23.4 (1.8)	3.1 (0.8)	7.8 (0.8)	13.6 (1.1)
1940-1949.....	0.5 (0.1)	23.2 (4.9)	6.2 (2.2)	8.3 (1.3)	18.1 (1.2)
1950-1959.....	1.1 (0.1)	19.0 (2.9)	6.0 (1.2)	9.0 (0.7)	17.1 (1.2)
1960-1964.....	0.9 (0.2)	14.7 (2.3)	6.8 (1.7)	10.1 (1.0)	16.9 (1.4)
1965-1969.....	1.8 (0.3)	17.7 (2.6)	7.9 (1.2)	9.3 (0.8)	16.6 (1.1)
1970-1974.....	3.3 (0.3)	20.2 (1.4)	6.0 (0.9)	11.2 (0.7)	17.5 (1.1)
1975 OR LATER.....	5.4 (0.7)	18.6 (1.9)	7.6 (1.0)	11.3 (0.6)	17.9 (0.7)
HEATED SQUARE FOOTAGE					
1-799.....	3.9 (0.4)	15.7 (1.4)	3.0 (0.6)	6.8 (0.4)	11.1 (0.5)
800-999.....	2.6 (0.3)	15.9 (1.4)	4.5 (0.7)	8.9 (0.5)	14.4 (0.6)
1,000-1,199.....	2.0 (0.3)	19.0 (1.4)	4.7 (0.9)	11.3 (0.6)	17.5 (0.7)
1,200-1,399.....	1.5 (0.2)	17.2 (2.2)	10.0 (2.3)	12.2 (0.9)	19.0 (1.0)
1,400-1,799.....	1.8 (0.3)	18.9 (3.5)	10.2 (1.2)	10.8 (1.2)	20.8 (2.1)
1,800-2,399.....	1.4 (0.2)	28.0 (2.6)	9.6 (1.5)	13.9 (1.1)	24.0 (1.8)
2,400 OR MORE.....	1.1 (0.2)	32.2 (2.9)	14.5 (1.8)	17.0 (0.8)	28.0 (0.9)

"Q" = DATA WITHHELD BECAUSE OF A LARGE VARIANCE.

NOTE: BECAUSE OF ROUNDING, DATA MAY NOT SUM TO TOTALS.

NUMBER IN PARENTHESIS INDICATES ONE STANDARD DEVIATION. SEE APPENDIX B FOR A DETAILED DISCUSSION.

SOURCE: ENERGY INFORMATION ADMINISTRATION, OFFICE OF ENERGY MARKETS AND END USE, ENERGY END USE DIVISION, THE 1981 RESIDENTIAL ENERGY CONSUMPTION SURVEY.



Summary of Findings (Continued)

Table 26. Average Household Electricity Consumption When Main Heating Fuel is Electricity by End Use by Selected Sociodemographic Characteristics for 1981

SOCIODEMOGRAPHIC CHARACTERISTICS	NUMBER OF HOUSEHOLDS (MILLION)	END USE			
		SPACE HEATING (MILLION BTU)	COOLING (MILLION BTU)	WATER HEATING (MILLION BTU)	MISCELLANEOUS USE (MILLION BTU)
NATIONAL.....	14.2 (1.1)	19.2 (1.3)	6.6 (0.6)	10.4 (0.4)	17.2 (0.6)
GEOGRAPHIC REGION					
NORTHEAST.....	1.5 (0.3)	33.2 (2.8)	1.3 (0.4)	12.1 (0.9)	16.8 (2.1)
NORTH CENTRAL.....	1.6 (0.3)	29.3 (4.3)	2.4 (0.5)	9.5 (0.8)	14.0 (1.2)
SOUTH.....	7.7 (0.9)	13.3 (2.0)	10.5 (0.8)	10.2 (0.8)	18.2 (1.0)
WEST.....	3.4 (0.3)	21.5 (1.8)	2.3 (0.7)	10.4 (0.6)	16.5 (0.9)
HEATING DEGREE DAYS					
0-1,999.....	3.5 (1.0)	4.1 (1.9)	15.2 (1.1)	8.2 (1.3)	16.7 (1.9)
2,000-2,999.....	1.7 (0.3)	11.7 (1.3)	7.8 (1.8)	9.2 (1.1)	16.1 (1.6)
3,000-3,999.....	2.1 (0.4)	18.3 (1.9)	6.4 (1.3)	10.0 (1.4)	18.0 (1.5)
4,000-4,999.....	2.0 (0.5)	20.9 (1.5)	3.8 (1.2)	11.1 (0.9)	18.2 (1.5)
5,000-5,999.....	2.4 (0.3)	30.4 (2.1)	1.7 (0.5)	12.9 (0.7)	18.4 (1.0)
6,000-6,999.....	1.9 (0.5)	32.3 (2.3)	1.8 (0.4)	12.8 (0.7)	17.2 (1.2)
7,000-7,999.....	0.4 (0.2)	30.1 (5.6)	0.1 (0.1)	6.7 (0.9)	11.7 (2.6)
8,000 OR MORE.....	0.4 (0.1)	42.9 (10.9)	0.4 (0.3)	9.8 (3.5)	14.5 (3.9)
INCOME					
LESS THAN \$5,000.....	2.0 (0.2)	14.8 (1.4)	4.0 (0.9)	7.2 (0.7)	11.7 (0.8)
\$5,000-\$9,999.....	2.2 (0.3)	17.5 (1.7)	4.5 (0.6)	7.6 (0.6)	13.8 (0.7)
\$10,000-\$14,999.....	2.2 (0.2)	19.9 (1.4)	4.5 (0.5)	10.0 (0.5)	16.4 (0.9)
\$15,000-\$19,999.....	2.1 (0.3)	23.1 (2.1)	4.6 (0.9)	11.1 (0.7)	17.7 (1.2)
\$20,000-\$24,999.....	1.8 (0.3)	18.2 (2.3)	6.8 (1.0)	11.0 (0.8)	18.2 (1.1)
\$25,000-\$34,999.....	1.9 (0.2)	20.9 (2.5)	8.9 (1.4)	12.2 (1.1)	21.7 (1.5)
\$35,000 OR MORE.....	2.1 (0.3)	20.0 (2.3)	13.6 (1.1)	13.9 (0.8)	21.3 (0.9)
NUMBER OF HOUSEHOLD MEMBERS					
ONE.....	3.1 (0.3)	16.7 (1.8)	3.6 (0.5)	5.6 (0.5)	10.2 (0.6)
TWO.....	5.4 (0.6)	18.3 (2.1)	6.6 (0.7)	9.1 (0.5)	15.7 (0.6)
THREE.....	2.4 (0.3)	19.9 (1.6)	9.1 (1.3)	12.1 (0.5)	20.1 (0.7)
FOUR.....	2.1 (0.2)	20.5 (1.6)	7.8 (1.4)	14.0 (0.8)	22.2 (1.0)
FIVE OR MORE.....	1.2 (0.1)	25.4 (2.2)	7.2 (1.2)	18.0 (1.0)	26.3 (1.4)

"Q" = DATA WITHHELD BECAUSE OF A LARGE VARIANCE.

NOTE: BECAUSE OF ROUNDING, DATA MAY NOT SUM TO TOTALS.

NUMBER IN PARENTHESIS INDICATES ONE STANDARD DEVIATION. SEE APPENDIX B FOR A DETAILED DISCUSSION.

SOURCE: ENERGY INFORMATION ADMINISTRATION, OFFICE OF ENERGY MARKETS AND END USE, ENERGY END USE DIVISION, THE 1981 RESIDENTIAL ENERGY CONSUMPTION SURVEY.



Summary of Findings (Continued)

Table 27. Average Household Natural Gas Consumption When Main Heating Fuel is Natural Gas by End Use by Selected Housing Characteristics for 1981

HOUSING CHARACTERISTICS	NUMBER OF HOUSEHOLDS (MILLION)	END USE		
		SPACE HEATING (MILLION BTU)	WATER HEATING (MILLION BTU)	MISCELLANEOUS USE (MILLION BTU)
NATIONAL.....	46.2 (1.5)	81.8 (1.7)	21.4 (0.4)	8.7 (0.4)
HOUSING STRUCTURE				
SINGLE-FAMILY DETACHED.....	32.5 (1.3)	88.0 (2.0)	24.3 (0.4)	9.7 (0.5)
SINGLE-FAMILY ATTACHED.....	1.7 (0.2)	71.6 (6.7)	20.4 (0.7)	9.4 (0.8)
TWO TO FOUR UNITS.....	5.6 (0.5)	79.0 (4.6)	15.7 (1.1)	6.5 (0.9)
FIVE OR MORE UNITS.....	5.1 (0.6)	53.3 (10.3)	10.7 (1.7)	4.2 (1.3)
MOBILE HOME.....	1.3 (0.3)	65.2 (7.7)	14.5 (2.2)	9.5 (1.3)
YEAR HOUSE BUILT				
BEFORE 1940.....	14.2 (0.8)	100.8 (3.6)	20.6 (0.7)	8.7 (0.5)
1940-1949.....	4.4 (0.3)	77.8 (4.8)	17.6 (0.9)	8.3 (0.7)
1950-1959.....	9.0 (0.6)	76.8 (2.7)	21.7 (0.7)	10.2 (0.8)
1960-1964.....	4.8 (0.3)	77.7 (5.0)	24.9 (1.0)	9.6 (1.2)
1965-1969.....	4.8 (0.6)	73.3 (3.5)	22.2 (1.4)	8.5 (0.7)
1970-1974.....	4.8 (0.3)	67.8 (6.3)	21.5 (1.3)	7.4 (1.0)
1975 OR LATER.....	4.1 (0.4)	63.7 (3.8)	22.1 (1.7)	6.6 (2.2)
HEATED SQUARE FOOTAGE				
1-799.....	8.0 (0.5)	57.6 (2.7)	11.0 (0.8)	6.4 (0.3)
800-999.....	6.0 (0.4)	68.4 (3.0)	15.2 (1.1)	6.8 (0.5)
1,000-1,199.....	5.9 (0.4)	66.0 (2.5)	18.3 (0.6)	8.8 (1.1)
1,200-1,399.....	4.6 (0.4)	67.5 (3.5)	20.4 (0.9)	8.0 (0.7)
1,400-1,799.....	7.3 (0.4)	83.1 (2.9)	21.9 (0.7)	9.5 (0.8)
1,800-2,399.....	7.8 (0.5)	95.2 (1.9)	27.0 (0.7)	8.5 (0.7)
2,400 OR MORE.....	6.6 (0.5)	131.4 (5.7)	35.8 (0.9)	13.0 (2.3)

"Q" = DATA WITHHELD BECAUSE OF A LARGE VARIANCE.

NOTE: BECAUSE OF ROUNDING, DATA MAY NOT SUM TO TOTALS.

NUMBER IN PARENTHESIS INDICATES ONE STANDARD DEVIATION. SEE APPENDIX B FOR A DETAILED DISCUSSION.

SOURCE: ENERGY INFORMATION ADMINISTRATION, OFFICE OF ENERGY MARKETS AND END USE, ENERGY END USE DIVISION, THE 1981 RESIDENTIAL ENERGY CONSUMPTION SURVEY.



Summary of Findings (Continued)

Table 28. Average Household Natural Gas Consumption When Main Heating Fuel is Natural Gas by End Use by Selected Socio-demographic Characteristics for 1981

SOCIODEMOGRAPHIC CHARACTERISTICS	NUMBER OF HOUSEHOLDS (MILLION)	END USE		
		SPACE HEATING (MILLION BTU)	WATER HEATING (MILLION BTU)	MISCELLANEOUS USE (MILLION BTU)
NATIONAL.....	46.2 (1.5)	81.8 (1.7)	21.4 (0.4)	8.7 (0.4)
GEOGRAPHIC REGION				
NORTHEAST.....	7.0 (1.0)	103.5 (3.2)	22.4 (0.9)	9.4 (0.6)
NORTH CENTRAL.....	15.4 (0.6)	113.0 (3.1)	22.6 (0.9)	8.2 (0.5)
SOUTH.....	13.0 (0.9)	58.0 (3.1)	19.6 (1.0)	8.5 (0.7)
WEST.....	10.8 (0.4)	51.6 (1.7)	21.1 (0.7)	9.2 (1.6)
HEATING DEGREE DAYS				
0-1,999.....	3.4 (1.0)	32.8 (2.3)	20.2 (1.4)	10.0 (1.4)
2,000-2,999.....	9.0 (0.9)	40.0 (1.1)	21.7 (1.0)	11.7 (1.7)
3,000-3,999.....	5.4 (0.7)	62.0 (2.7)	17.9 (1.4)	6.4 (0.6)
4,000-4,999.....	2.8 (0.7)	74.9 (7.4)	20.9 (1.4)	7.4 (1.3)
5,000-5,999.....	7.4 (1.2)	94.6 (3.0)	20.8 (0.8)	7.9 (0.8)
6,000-6,999.....	9.0 (1.3)	111.6 (2.8)	23.2 (0.9)	8.5 (0.8)
7,000-7,999.....	6.7 (1.0)	115.8 (6.0)	23.5 (1.9)	9.1 (0.6)
8,000 OR MORE.....	2.6 (0.7)	112.6 (3.3)	19.3 (1.4)	4.3 (0.6)
INCOME				
LESS THAN \$5,000.....	5.1 (0.4)	70.5 (5.1)	14.3 (1.0)	7.5 (0.7)
\$5,000-\$9,999.....	7.2 (0.4)	81.8 (4.2)	17.4 (1.2)	7.3 (0.4)
\$10,000-\$14,999.....	6.7 (0.3)	78.9 (3.0)	19.3 (0.7)	7.5 (0.8)
\$15,000-\$19,999.....	5.5 (0.3)	81.1 (5.1)	19.8 (1.1)	7.5 (0.5)
\$20,000-\$24,999.....	5.8 (0.4)	79.3 (3.3)	22.4 (0.9)	8.5 (0.7)
\$25,000-\$34,999.....	8.2 (0.4)	83.2 (4.2)	24.5 (0.6)	8.6 (0.7)
\$35,000 OR MORE.....	7.8 (0.6)	92.7 (5.7)	28.4 (1.0)	13.0 (1.6)
NUMBER OF HOUSEHOLD MEMBERS				
ONE.....	8.5 (0.5)	72.2 (3.5)	9.0 (0.5)	5.9 (0.4)
TWO.....	14.9 (0.5)	80.6 (2.6)	16.6 (0.4)	8.3 (0.7)
THREE.....	8.6 (0.5)	87.6 (3.9)	23.3 (0.6)	8.9 (0.8)
FOUR.....	8.1 (0.5)	83.2 (3.4)	28.6 (0.7)	10.6 (1.3)
FIVE OR MORE.....	6.1 (0.4)	88.3 (3.1)	38.0 (1.1)	10.8 (1.0)

"Q" = DATA WITHHELD BECAUSE OF A LARGE VARIANCE.

NOTE: BECAUSE OF ROUNDING, DATA MAY NOT SUM TO TOTALS.

NUMBER IN PARENTHESIS INDICATES ONE STANDARD DEVIATION. SEE APPENDIX B FOR A DETAILED DISCUSSION.

SOURCE: ENERGY INFORMATION ADMINISTRATION, OFFICE OF ENERGY MARKETS AND END USE, ENERGY END USE DIVISION, THE 1981 RESIDENTIAL ENERGY CONSUMPTION SURVEY.



Summary of Findings (Continued)

Table 29. Average Household Fuel Oil or Kerosene Consumption When Main Heating Fuel is Fuel Oil or Kerosene by End Use by Selected Housing Characteristics for 1981

HOUSING CHARACTERISTICS	NUMBER OF HOUSEHOLDS (MILLION)	END USE		
		SPACE HEATING (MILLION BTU)	WATER HEATING (MILLION BTU)	MISCELLANEOUS USE (MILLION BTU)
NATIONAL.....	12.2 (0.6)	87.9 (2.8)	15.1 (1.2)	Q
HOUSING STRUCTURE				
SINGLE-FAMILY DETACHED.....	7.0 (0.5)	93.1 (3.1)	11.7 (1.0)	Q
SINGLE-FAMILY ATTACHED.....	0.5 (0.2)	88.3 (12.8)	16.0 (8.9)	Q
TWO TO FOUR UNITS.....	1.7 (0.1)	90.5 (11.2)	20.9 (7.0)	Q
FIVE OR MORE UNITS.....	2.3 (0.2)	Q	Q	Q
MOBILE HOME.....	0.7 (0.2)	51.1 (5.0)	0.9 (0.8)	Q
YEAR HOUSE BUILT				
BEFORE 1940.....	5.1 (0.4)	97.3 (4.8)	15.9 (3.7)	Q
1940-1949.....	1.2 (0.2)	81.3 (6.8)	11.9 (4.9)	Q
1950-1959.....	2.2 (0.2)	86.3 (5.6)	15.8 (2.1)	Q
1960-1964.....	1.1 (0.1)	78.2 (6.9)	16.0 (3.1)	Q
1965-1969.....	1.0 (0.2)	85.1 (8.2)	14.3 (3.7)	Q
1970-1974.....	1.1 (0.2)	75.7 (6.6)	15.7 (4.8)	Q
1975 OR LATER.....	0.5 (0.1)	67.2 (9.6)	9.7 (4.4)	Q
HEATED SQUARE FOOTAGE				
1-799.....	2.9 (0.4)	71.9 (7.4)	15.0 (7.2)	Q
800-999.....	1.7 (0.2)	75.7 (8.7)	18.0 (7.3)	Q
1,000-1,199.....	1.2 (0.2)	71.4 (6.1)	10.8 (5.0)	Q
1,200-1,399.....	0.9 (0.2)	83.8 (7.9)	12.5 (3.1)	Q
1,400-1,799.....	1.7 (0.2)	97.3 (4.9)	15.8 (3.4)	Q
1,800-2,399.....	1.7 (0.2)	96.8 (7.2)	11.6 (2.8)	Q
2,400 OR MORE.....	2.1 (0.3)	116.4 (7.2)	18.6 (3.1)	Q

"Q" = DATA WITHHELD BECAUSE OF A LARGE VARIANCE.

NOTE: BECAUSE OF ROUNDING, DATA MAY NOT SUM TO TOTALS.

NUMBER IN PARENTHESIS INDICATES ONE STANDARD DEVIATION. SEE APPENDIX B FOR A DETAILED DISCUSSION.

SOURCE: ENERGY INFORMATION ADMINISTRATION, OFFICE OF ENERGY MARKETS AND END USE, ENERGY END USE DIVISION, THE 1981 RESIDENTIAL ENERGY CONSUMPTION SURVEY.



Summary of Findings (Continued)

Table 30. Average Household Fuel Oil or Kerosene Consumption When Main Heating Fuel is Fuel Oil or Kerosene by End Use by Selected Socio-demographic Characteristics for 1981

SOCIODEMOGRAPHIC CHARACTERISTICS	NUMBER OF HOUSEHOLDS (MILLION)	END USE		
		SPACE HEATING (MILLION BTU)	WATER HEATING (MILLION BTU)	MISCELLANEOUS USE (MILLION BTU)
NATIONAL.....	12.2 (0.6)	87.9 (2.8)	15.1 (1.2)	Q
GEOGRAPHIC REGION				
NORTHEAST.....	7.9 (0.4)	94.4 (3.9)	22.2 (1.4)	Q
NORTH CENTRAL.....	1.7 (0.2)	94.1 (4.2)	0.7 (0.7)	Q
SOUTH.....	2.2 (0.4)	63.7 (10.3)	2.9 (1.5)	Q
WEST.....	0.4 (0.1)	67.7 (9.2)	Q	Q
HEATING DEGREE DAYS				
0-1,999.....	0.4 (0.3)	35.8 (5.0)	0.1 (0.1)	Q
2,000-2,999.....	Q	Q	Q	Q
3,000-3,999.....	0.6 (0.3)	57.6 (14.4)	Q	Q
4,000-4,999.....	0.8 (0.4)	75.8 (9.2)	5.9 (2.8)	Q
5,000-5,999.....	4.9 (0.6)	90.0 (6.8)	21.5 (4.9)	Q
6,000-6,999.....	2.8 (0.5)	54.4 (8.3)	17.3 (3.1)	Q
7,000-7,999.....	1.1 (0.3)	97.7 (5.5)	14.1 (3.2)	Q
8,000 OR MORE.....	1.4 (0.5)	92.8 (5.9)	4.8 (3.1)	Q
INCOME				
LESS THAN \$5,000.....	1.2 (0.1)	79.9 (7.0)	11.1 (7.0)	Q
\$5,000-\$9,999.....	2.3 (0.3)	83.3 (4.5)	13.0 (5.7)	Q
\$10,000-\$14,999.....	2.1 (0.2)	84.0 (9.5)	14.0 (3.4)	Q
\$15,000-\$19,999.....	1.5 (0.1)	81.9 (5.8)	15.5 (3.9)	Q
\$20,000-\$24,999.....	1.6 (0.3)	89.5 (6.0)	15.9 (5.3)	Q
\$25,000-\$34,999.....	1.8 (0.2)	84.0 (6.0)	15.4 (2.2)	Q
\$35,000 OR MORE.....	1.8 (0.2)	111.3 (7.8)	20.5 (2.9)	Q
NUMBER OF HOUSEHOLD MEMBERS				
ONE.....	2.6 (0.3)	87.9 (10.8)	7.5 (2.3)	Q
TWO.....	4.1 (0.2)	89.7 (3.4)	11.4 (1.8)	Q
THREE.....	2.1 (0.2)	77.6 (5.3)	13.8 (3.4)	Q
FOUR.....	1.9 (0.2)	86.4 (5.0)	22.0 (3.0)	Q
FIVE OR MORE.....	1.4 (0.2)	100.1 (9.5)	32.0 (6.2)	Q

"Q" = DATA WITHHELD BECAUSE OF A LARGE VARIANCE.

NOTE: BECAUSE OF ROUNDING, DATA MAY NOT SUM TO TOTALS.

NUMBER IN PARENTHESIS INDICATES ONE STANDARD DEVIATION. SEE APPENDIX B FOR A DETAILED DISCUSSION.

SOURCE: ENERGY INFORMATION ADMINISTRATION, OFFICE OF ENERGY MARKETS AND END USE, ENERGY END USE DIVISION, THE 1981 RESIDENTIAL ENERGY CONSUMPTION SURVEY.



Summary of Findings (Continued)

Table 31. Average Household LPG Consumption When Main Heating Fuel is LPG by End Use by Selected Housing Characteristics for 1981

HOUSING CHARACTERISTICS	NUMBER OF HOUSEHOLDS (MILLION)	END USE		
		SPACE HEATING (MILLION BTU)	WATER HEATING (MILLION BTU)	MISCELLANEOUS USE (MILLION BTU)
NATIONAL.....	3.7 (0.4)	55.2 (4.5)	8.2 (0.8)	3.1 (0.3)
HOUSING STRUCTURE				
SINGLE-FAMILY DETACHED.....	2.6 (0.4)	64.0 (4.9)	9.2 (0.9)	2.4 (0.3)
SINGLE-FAMILY ATTACHED.....	Q	Q	Q	Q
TWO TO FOUR UNITS.....	Q	Q	Q	Q
FIVE OR MORE UNITS.....	Q	Q	Q	Q
MOBILE HOME.....	1.1 (0.2)	33.8 (5.6)	6.0 (1.1)	4.9 (0.4)
YEAR HOUSE BUILT				
BEFORE 1940.....	1.2 (0.2)	78.4 (7.2)	9.1 (1.2)	3.0 (0.4)
1940-1949.....	0.2 (0.1)	47.4 (6.2)	10.5 (4.5)	3.0 (0.6)
1950-1959.....	0.3 (0.1)	36.6 (16.0)	6.2 (1.7)	1.1 (0.6)
1960-1964.....	0.4 (0.1)	53.7 (21.3)	8.4 (4.5)	2.1 (0.8)
1965-1969.....	0.3 (0.1)	49.2 (9.9)	6.1 (3.4)	3.9 (0.7)
1970-1974.....	0.7 (0.1)	43.3 (7.8)	8.7 (1.4)	4.5 (0.6)
1975 OR LATER.....	0.6 (0.2)	38.6 (5.2)	7.0 (1.9)	3.1 (0.6)
HEATED SQUARE FOOTAGE				
1-799.....	0.9 (0.2)	31.6 (10.6)	5.9 (1.5)	3.6 (0.8)
800-999.....	0.5 (0.1)	43.5 (6.0)	6.3 (1.5)	4.4 (0.3)
1,000-1,199.....	0.6 (0.1)	51.4 (8.0)	8.4 (2.0)	2.7 (0.7)
1,200-1,399.....	0.5 (0.1)	68.8 (16.9)	5.7 (1.9)	2.3 (1.2)
1,400-1,799.....	0.6 (0.1)	60.9 (8.8)	10.3 (2.3)	3.0 (0.5)
1,800-2,399.....	0.4 (0.1)	79.7 (11.2)	14.5 (2.5)	2.7 (1.4)
2,400 OR MORE.....	0.3 (0.1)	94.3 (14.2)	10.7 (3.4)	2.5 (1.2)

"Q" = DATA WITHHELD BECAUSE OF A LARGE VARIANCE.

NOTE: BECAUSE OF ROUNDING, DATA MAY NOT SUM TO TOTALS.

NUMBER IN PARENTHESIS INDICATES ONE STANDARD DEVIATION. SEE APPENDIX B FOR A DETAILED DISCUSSION.

SOURCE: ENERGY INFORMATION ADMINISTRATION, OFFICE OF ENERGY MARKETS AND END USE, ENERGY END USE DIVISION, THE 1981 RESIDENTIAL ENERGY CONSUMPTION SURVEY.



Summary of Findings (Continued)

Table 32. Average Household LPG Consumption When Main Heating Fuel is LPG by End Use by Selected Socio-demographic Characteristics for 1981

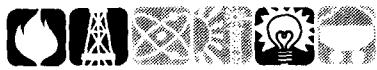
SOCIODEMOGRAPHIC CHARACTERISTICS	NUMBER OF HOUSEHOLDS (MILLION)	END USE		
		SPACE HEATING (MILLION BTU)	WATER HEATING (MILLION BTU)	MISCELLANEOUS USE (MILLION BTU)
NATIONAL.....	3.7 (0.4)	55.2 (4.5)	8.2 (0.8)	3.1 (0.3)
GEOGRAPHIC REGION				
NORTHEAST.....	0.1 (0.1)	93.2 (39.0)	12.2 (5.7)	6.4 (3.0)
NORTH CENTRAL.....	1.0 (0.2)	86.7 (8.3)	11.2 (1.1)	2.8 (0.4)
SOUTH.....	2.1 (0.4)	37.8 (4.4)	5.3 (1.0)	3.1 (0.4)
WEST.....	0.4 (0.1)	57.9 (18.4)	14.7 (3.0)	3.5 (0.6)
HEATING DEGREE DAYS				
0-1,999.....	0.7 (0.1)	20.0 (6.2)	3.2 (1.3)	4.8 (0.4)
2,000-2,999.....	0.6 (0.3)	36.6 (4.3)	10.9 (3.3)	2.8 (0.7)
3,000-3,999.....	0.8 (0.2)	49.3 (4.3)	5.7 (2.0)	1.8 (0.7)
4,000-4,999.....	0.4 (0.2)	59.8 (6.4)	8.2 (3.2)	3.5 (1.0)
5,000-5,999.....	0.4 (0.1)	85.8 (6.2)	12.0 (2.2)	3.1 (0.8)
6,000-6,999.....	0.3 (0.1)	117.6 (26.5)	9.8 (4.2)	1.0 (1.3)
7,000-7,999.....	0.2 (0.1)	98.8 (13.3)	16.8 (4.5)	5.1 (2.1)
8,000 OR MORE.....	0.3 (0.1)	72.1 (12.4)	10.0 (2.8)	3.8 (0.8)
INCOME				
LESS THAN \$5,000.....	0.6 (0.1)	42.5 (6.2)	6.0 (2.8)	2.6 (0.8)
\$5,000-\$9,999.....	0.7 (0.1)	55.9 (6.9)	8.2 (1.5)	3.9 (0.5)
\$10,000-\$14,999.....	0.4 (0.1)	57.6 (8.5)	7.2 (2.1)	2.0 (0.5)
\$15,000-\$19,999.....	0.5 (0.1)	58.9 (11.2)	10.3 (2.5)	3.0 (0.8)
\$20,000-\$24,999.....	0.6 (0.2)	51.4 (20.9)	4.5 (2.9)	3.7 (1.5)
\$25,000-\$34,999.....	0.4 (0.1)	51.1 (8.8)	7.4 (3.4)	3.0 (1.2)
\$35,000 OR MORE.....	0.4 (0.1)	75.3 (10.2)	15.8 (2.3)	3.5 (0.7)
NUMBER OF HOUSEHOLD MEMBERS				
ONE.....	0.6 (0.1)	37.7 (9.9)	5.6 (2.3)	3.3 (0.8)
TWO.....	1.4 (0.2)	51.9 (4.9)	6.6 (1.1)	3.3 (0.4)
THREE.....	0.6 (0.2)	70.4 (9.1)	9.1 (1.5)	3.0 (0.3)
FOUR.....	0.6 (0.2)	57.3 (15.1)	9.5 (2.7)	3.2 (1.0)
FIVE OR MORE.....	0.4 (0.1)	66.3 (20.6)	14.2 (3.6)	2.5 (0.6)

"Q" = DATA WITHHELD BECAUSE OF A LARGE VARIANCE.

NOTE: BECAUSE OF ROUNDING, DATA MAY NOT SUM TO TOTALS.

NUMBER IN PARENTHESIS INDICATES ONE STANDARD DEVIATION. SEE APPENDIX B FOR A DETAILED DISCUSSION.

SOURCE: ENERGY INFORMATION ADMINISTRATION, OFFICE OF ENERGY MARKETS AND END USE, ENERGY END USE DIVISION, THE 1981 RESIDENTIAL ENERGY CONSUMPTION SURVEY.



Summary of Findings (Continued)

Table 33. Average Household Energy Expenditures by End Use by Selected Housing Characteristics for 1981

HOUSING CHARACTERISTICS	TOTAL EXPENDITURES (DOLLARS)	END USE			
		SPACE HEATING (DOLLARS)	COOLING (DOLLARS)	WATER HEATING (DOLLARS)	MISCELLANEOUS USE (DOLLARS)
NATIONAL.....	1022 (17)	403 (12)	72 (4)	152 (3)	396 (7)
HOUSING STRUCTURE					
SINGLE-FAMILY DETACHED.....	1088 (20)	415 (12)	84 (5)	160 (3)	430 (7)
SINGLE-FAMILY ATTACHED.....	1015 (53)	411 (44)	69 (28)	144 (13)	390 (18)
TWO TO FOUR UNITS.....	969 (37)	440 (34)	36 (6)	140 (12)	353 (13)
FIVE OR MORE UNITS.....	827 (39)	356 (59)	44 (9)	131 (16)	297 (11)
MOBILE HOME.....	843 (54)	296 (21)	74 (12)	141 (12)	332 (22)
YEAR HOUSE BUILT					
BEFORE 1940.....	1091 (27)	520 (21)	25 (3)	150 (6)	396 (9)
1940-1949.....	964 (34)	386 (18)	58 (8)	136 (6)	382 (19)
1950-1959.....	998 (20)	383 (16)	71 (7)	135 (5)	409 (10)
1960-1964.....	1061 (39)	370 (19)	96 (11)	150 (7)	446 (17)
1965-1969.....	1023 (31)	369 (29)	104 (10)	148 (7)	402 (11)
1970-1974.....	995 (38)	350 (26)	98 (7)	167 (9)	380 (13)
1975 OR LATER.....	940 (25)	287 (18)	115 (12)	174 (6)	364 (9)
HEATED SQUARE FOOTAGE					
ZERO HEATED SQUARE FOOTAGE....	717 (67)	Q	Q	182 (13)	533 (65)
1-799.....	737 (19)	315 (23)	33 (5)	109 (5)	279 (8)
800-999.....	860 (28)	346 (24)	53 (4)	131 (6)	331 (10)
1,000-1,199.....	903 (25)	333 (18)	62 (5)	141 (7)	367 (13)
1,200-1,399.....	975 (26)	347 (22)	84 (12)	150 (5)	394 (12)
1,400-1,799.....	1103 (31)	422 (19)	92 (6)	156 (7)	433 (14)
1,800-2,399.....	1192 (18)	468 (15)	89 (8)	174 (5)	461 (7)
2,400 OR MORE.....	1511 (53)	627 (30)	112 (13)	220 (7)	552 (21)

"Q" = DATA WITHHELD BECAUSE OF A LARGE VARIANCE.

NOTE: BECAUSE OF ROUNDING, DATA MAY NOT SUM TO TOTALS.

NUMBER IN PARENTHESIS INDICATES ONE STANDARD DEVIATION. SEE APPENDIX B FOR A DETAILED DISCUSSION.

SOURCE: ENERGY INFORMATION ADMINISTRATION, OFFICE OF ENERGY MARKETS AND END USE, ENERGY END USE DIVISION, THE 1981 RESIDENTIAL ENERGY CONSUMPTION SURVEY.



Summary of Findings (Continued)

Table 34. Average Household Energy Expenditures by End Use by Selected Sociodemographic Characteristics for 1981

SOCIODEMOGRAPHIC CHARACTERISTICS	TOTAL EXPENDITURES (DOLLARS)	END USE			
		SPACE HEATING (DOLLARS)	COOLING (DOLLARS)	WATER HEATING (DOLLARS)	MISCELLANEOUS USE (DOLLARS)
NATIONAL.....	1022 (17)	403 (12)	72 (4)	152 (3)	396 (7)
GEOGRAPHIC REGION					
NORTHEAST.....	1426 (35)	675 (32)	26 (6)	218 (10)	507 (15)
NORTH CENTRAL.....	1042 (32)	487 (21)	41 (6)	127 (4)	387 (12)
SOUTH.....	922 (28)	266 (19)	148 (9)	150 (5)	357 (10)
WEST.....	739 (22)	226 (8)	31 (5)	113 (4)	350 (15)
HEATING DEGREE DAYS					
0-1,999.....	952 (47)	138 (31)	265 (15)	157 (10)	391 (17)
2,000-2,999.....	755 (26)	180 (8)	85 (9)	112 (6)	378 (14)
3,000-3,999.....	850 (19)	282 (14)	84 (8)	141 (10)	343 (16)
4,000-4,999.....	932 (61)	345 (30)	76 (13)	149 (13)	362 (21)
5,000-5,999.....	1207 (56)	539 (33)	42 (6)	176 (7)	449 (22)
6,000-6,999.....	1158 (50)	558 (32)	25 (5)	163 (6)	412 (18)
7,000-7,999.....	1128 (49)	552 (27)	26 (8)	146 (10)	404 (19)
8,000 OR MORE.....	1030 (39)	501 (35)	7 (3)	158 (20)	363 (14)
INCOME					
LESS THAN \$5,000.....	765 (29)	335 (22)	39 (6)	109 (6)	281 (12)
\$5,000-\$9,999.....	906 (27)	396 (25)	47 (5)	129 (7)	335 (10)
\$10,000-\$14,999.....	959 (31)	399 (19)	55 (5)	140 (4)	366 (11)
\$15,000-\$19,999.....	986 (26)	395 (23)	54 (5)	154 (6)	383 (9)
\$20,000-\$24,999.....	1043 (25)	396 (23)	73 (3)	161 (6)	413 (11)
\$25,000-\$34,999.....	1106 (30)	399 (23)	85 (7)	168 (6)	454 (11)
\$35,000 OR MORE.....	1333 (53)	483 (28)	141 (11)	195 (8)	514 (19)
NUMBER OF HOUSEHOLD MEMBERS					
ONE.....	767 (23)	390 (26)	43 (3)	79 (3)	255 (10)
TWO.....	956 (21)	401 (16)	74 (5)	125 (3)	355 (8)
THREE.....	1076 (25)	406 (19)	83 (6)	160 (4)	428 (9)
FOUR.....	1157 (26)	394 (16)	85 (10)	201 (6)	477 (8)
FIVE OR MORE.....	1307 (24)	434 (15)	73 (7)	250 (9)	551 (11)

"Q" = DATA WITHHELD BECAUSE OF A LARGE VARIANCE.

NOTE: BECAUSE OF ROUNDING, DATA MAY NOT SUM TO TOTALS.

NUMBER IN PARENTHESIS INDICATES ONE STANDARD DEVIATION. SEE APPENDIX B FOR A DETAILED DISCUSSION.

SOURCE: ENERGY INFORMATION ADMINISTRATION, OFFICE OF ENERGY MARKETS AND END USE, ENERGY END USE DIVISION, THE 1981 RESIDENTIAL ENERGY CONSUMPTION SURVEY.



Summary of Findings (Continued)

Table 35. Average Household Energy Expenditures for Space Heating by Main Heating Fuel by Selected Housing Characteristics for 1981

HOUSING CHARACTERISTICS	MAIN HEATING FUEL		
	ELECTRICITY (DOLLARS)	NATURAL GAS (DOLLARS)	FUEL OIL OR KEROSENE (DOLLARS)
NATIONAL.....	289 (20)	367 (7)	780 (26)
HOUSING STRUCTURE			
SINGLE-FAMILY DETACHED.....	308 (17)	382 (8)	826 (29)
SINGLE-FAMILY ATTACHED.....	203 (93)	374 (41)	782 (104)
TWO TO FOUR UNITS.....	247 (31)	396 (23)	805 (95)
FIVE OR MORE UNITS.....	299 (46)	259 (52)	Q
MOBILE HOME.....	248 (29)	286 (37)	468 (47)
YEAR HOUSE BUILT			
BEFORE 1940.....	330 (28)	459 (16)	867 (43)
1940-1949.....	300 (64)	346 (21)	717 (57)
1950-1959.....	273 (44)	327 (10)	763 (50)
1960-1964.....	204 (33)	341 (22)	694 (63)
1965-1969.....	265 (41)	344 (16)	753 (76)
1970-1974.....	324 (20)	305 (27)	676 (64)
1975 OR LATER.....	283 (30)	287 (19)	597 (86)
HEATED SQUARE FOOTAGE			
1-799.....	270 (21)	265 (13)	643 (64)
800-999.....	236 (22)	313 (15)	675 (77)
1,000-1,199.....	274 (21)	304 (10)	634 (54)
1,200-1,399.....	257 (31)	298 (19)	742 (66)
1,400-1,799.....	265 (49)	373 (16)	858 (45)
1,800-2,399.....	404 (40)	424 (10)	861 (65)
2,400 OR MORE.....	453 (37)	570 (24)	1030 (69)

"Q" = DATA WITHHELD BECAUSE OF A LARGE VARIANCE.

NOTE: BECAUSE OF ROUNDING, DATA MAY NOT SUM TO TOTALS.

NUMBER IN PARENTHESIS INDICATES ONE STANDARD DEVIATION. SEE APPENDIX B FOR A DETAILED DISCUSSION.

SOURCE: ENERGY INFORMATION ADMINISTRATION, OFFICE OF ENERGY MARKETS AND END USE, ENERGY END USE DIVISION, THE 1981 RESIDENTIAL ENERGY CONSUMPTION SURVEY.



Summary of Findings (Continued)

Table 36. Average Household Energy Expenditures for Space Heating by Main Heating Fuel by Selected Socio-demographic Characteristics for 1981

SOCIODEMOGRAPHIC CHARACTERISTICS	MAIN HEATING FUEL		
	ELECTRICITY (DOLLARS)	NATURAL GAS (DOLLARS)	FUEL OIL OR KEROSENE (DOLLARS)
NATIONAL.....	289 (20)	367 (7)	780 (26)
GEOGRAPHIC REGION			
NORTHEAST.....	644 (81)	568 (23)	841 (36)
NORTH CENTRAL.....	442 (71)	470 (15)	820 (39)
SOUTH.....	212 (32)	267 (15)	569 (85)
WEST.....	233 (15)	208 (8)	592 (83)
HEATING DEGREE DAYS			
0-1,999.....	77 (31)	169 (11)	328 (46)
2,000-2,999.....	198 (27)	164 (6)	Q
3,000-3,999.....	284 (22)	260 (16)	517 (137)
4,000-4,999.....	310 (29)	330 (39)	670 (75)
5,000-5,999.....	393 (32)	475 (18)	801 (64)
6,000-6,999.....	505 (75)	479 (19)	846 (73)
7,000-7,999.....	541 (108)	527 (23)	875 (49)
8,000 OR MORE.....	601 (114)	465 (14)	811 (44)
INCOME			
LESS THAN \$5,000.....	247 (21)	320 (24)	712 (62)
\$5,000-\$9,999.....	271 (24)	364 (18)	738 (40)
\$10,000-\$14,999.....	285 (22)	357 (13)	749 (85)
\$15,000-\$19,999.....	366 (35)	366 (23)	727 (51)
\$20,000-\$24,999.....	271 (35)	356 (16)	793 (51)
\$25,000-\$34,999.....	296 (36)	373 (19)	743 (52)
\$35,000 OR MORE.....	287 (28)	412 (22)	991 (74)
NUMBER OF HOUSEHOLD MEMBERS			
ONE.....	268 (25)	328 (15)	780 (92)
TWO.....	284 (32)	359 (11)	794 (31)
THREE.....	287 (21)	397 (17)	689 (49)
FOUR.....	285 (21)	371 (16)	771 (44)
FIVE OR MORE.....	376 (36)	391 (15)	892 (86)

"Q" = DATA WITHHELD BECAUSE OF A LARGE VARIANCE.

NOTE: BECAUSE OF ROUNDING, DATA MAY NOT SUM TO TOTALS.

NUMBER IN PARENTHESIS INDICATES ONE STANDARD DEVIATION. SEE APPENDIX B FOR A DETAILED DISCUSSION.

SOURCE: ENERGY INFORMATION ADMINISTRATION, OFFICE OF ENERGY MARKETS AND END USE, ENERGY END USE DIVISION, THE 1981 RESIDENTIAL ENERGY CONSUMPTION SURVEY.



Summary of Findings (Continued)

Table 37. Percent of Average Household Electricity Consumption Used for Space Heating When Main Heating Fuel is Electricity by Selected Housing Characteristics for 1978, 1980, 1981

HOUSING CHARACTERISTICS	PERCENT OF ELECTRICITY USED FOR SPACE HEATING BY YEAR		
	1978	1980	1981
NATIONAL.....	46 (2.0)	33 (2.0)	36 (1.0)
HOUSING STRUCTURE			
SINGLE-FAMILY DETACHED.....	45 (2.0)	33 (2.0)	34 (1.0)
SINGLE-FAMILY ATTACHED.....	56 (9.0)	41 (2.0)	30 (12.0)
TWO TO FOUR UNITS.....	39 (7.0)	35 (10.0)	37 (4.0)
FIVE OR MORE UNITS.....	43 (5.0)	27 (3.0)	42 (4.0)
MOBILE HOME.....	52 (1.0)	38 (3.0)	37 (2.0)
YEAR HOUSE BUILT			
BEFORE 1940.....	59 (2.0)	48 (5.0)	49 (2.0)
1940-1949.....	54 (5.0)	41 (2.0)	42 (6.0)
1950-1959.....	43 (5.0)	36 (4.0)	37 (4.0)
1960-1964.....	42 (3.0)	40 (4.0)	30 (3.0)
1965-1969.....	44 (3.0)	36 (2.0)	34 (4.0)
1970-1974.....	46 (3.0)	34 (2.0)	37 (2.0)
1975 OR LATER.....	43 (3.0)	27 (2.0)	34 (2.0)
HEATED SQUARE FOOTAGE			
1-799.....	51 (4.0)	37 (3.0)	43 (3.0)
800-999.....	46 (3.0)	34 (2.0)	36 (2.0)
1,000-1,199.....	47 (2.0)	32 (2.0)	36 (2.0)
1,200-1,399.....	43 (4.0)	32 (3.0)	30 (4.0)
1,400-1,799.....	45 (2.0)	29 (3.0)	31 (3.0)
1,800-2,399.....	42 (4.0)	34 (1.0)	37 (2.0)
2,400 OR MORE.....	47 (3.0)	32 (2.0)	35 (2.0)

"Q" = DATA WITHHELD BECAUSE OF A LARGE VARIANCE.

NOTE: BECAUSE OF ROUNDING, DATA MAY NOT SUM TO TOTALS.

NUMBER IN PARENTHESIS INDICATES ONE STANDARD DEVIATION. SEE APPENDIX B FOR A DETAILED DISCUSSION.

SOURCE: ENERGY INFORMATION ADMINISTRATION, OFFICE OF ENERGY MARKETS AND END USE, ENERGY END USE DIVISION, THE 1978, 1980, 1981 RESIDENTIAL ENERGY CONSUMPTION SURVEY.



Summary of Findings (Continued)

Table 38. Percent of Average Household Electricity Consumption When Main Heating Fuel is Electricity by Selected Socio-demographic Characteristics for 1978, 1980, 1981

SOCIODEMOGRAPHIC CHARACTERISTICS	PERCENT OF ELECTRICITY USED FOR SPACE HEATING BY YEAR		
	1978	1980	1981
NATIONAL.....	46 (2.0)	33 (2.0)	36 (1.0)
GEOGRAPHIC REGION			
NORTHEAST.....	60 (4.0)	44 (2.0)	52 (2.0)
NORTH CENTRAL.....	54 (3.0)	43 (2.0)	53 (3.0)
SOUTH.....	33 (2.0)	26 (3.0)	25 (2.0)
WEST.....	59 (2.0)	38 (1.0)	42 (2.0)
HEATING DEGREE DAYS			
0-1,999.....	14 (2.0)	11 (4.0)	09 (3.0)
2,000-2,999.....	35 (2.0)	23 (1.0)	26 (1.0)
3,000-3,999.....	39 (2.0)	33 (1.0)	35 (2.0)
4,000-4,999.....	45 (2.0)	41 (1.0)	39 (1.0)
5,000-5,999.....	58 (2.0)	44 (1.0)	48 (1.0)
6,000-6,999.....	57 (3.0)	43 (2.0)	50 (1.0)
7,000-7,999.....	60 (5.0)	47 (6.0)	62 (3.0)
8,000 OR MORE.....	Q	49 (5.0)	63 (3.0)
INCOME			
LESS THAN \$5,000.....	64 (2.0)	45 (3.0)	39 (3.0)
\$5,000-\$9,999.....	51 (3.0)	36 (4.0)	40 (2.0)
\$10,000-\$14,999.....	43 (2.0)	33 (2.0)	39 (1.0)
\$15,000-\$19,999.....	43 (2.0)	33 (3.0)	41 (2.0)
\$20,000-\$24,999.....	41 (3.0)	30 (2.0)	34 (3.0)
\$25,000-\$34,999.....	43 (3.0)	31 (2.0)	33 (2.0)
\$35,000 OR MORE.....	45 (4.0)	28 (2.0)	29 (2.0)
NUMBER OF HOUSEHOLD MEMBERS			
ONE.....	58 (3.0)	37 (2.0)	46 (3.0)
TWO.....	46 (3.0)	35 (3.0)	37 (2.0)
THREE.....	44 (2.0)	31 (2.0)	32 (2.0)
FOUR.....	42 (2.0)	29 (2.0)	33 (2.0)
FIVE OR MORE.....	41 (2.0)	31 (3.0)	32 (2.0)

"Q" = DATA WITHHELD BECAUSE OF A LARGE VARIANCE.

NOTE: BECAUSE OF ROUNDING, DATA MAY NOT SUM TO TOTALS.

NUMBER IN PARENTHESIS INDICATES ONE STANDARD DEVIATION. SEE APPENDIX B FOR A DETAILED DISCUSSION.

SOURCE: ENERGY INFORMATION ADMINISTRATION, OFFICE OF ENERGY MARKETS AND END USE, ENERGY END USE DIVISION, THE 1978, 1980, 1981 RESIDENTIAL ENERGY CONSUMPTION SURVEY.



Summary of Findings (Continued)

Table 39. Percent of Average Household Natural Gas Consumption Used for Space Heating When Main Heating Fuel is Natural Gas by Selected Housing Characteristics for 1978, 1980, 1981

HOUSING CHARACTERISTICS	PERCENT OF NATURAL GAS USED FOR SPACE HEATING BY YEAR		
	1978	1980	1981
NATIONAL.....	79 (0.4)	60 (0.4)	73 (0.5)
HOUSING STRUCTURE			
SINGLE-FAMILY DETACHED.....	79 (1.0)	70 (1.0)	72 (0.5)
SINGLE-FAMILY ATTACHED.....	81 (2.0)	65 (2.0)	71 (2.0)
TWO TO FOUR UNITS.....	78 (1.0)	69 (1.0)	78 (1.0)
FIVE OR MORE UNITS.....	79 (2.0)	66 (4.0)	78 (5.0)
MOBILE HOME.....	73 (3.0)	66 (2.0)	73 (3.0)
OTHER.....	83 (4.0)	Q	Q
YEAR HOUSE BUILT			
BEFORE 1940.....	82 (1.0)	74 (1.0)	77 (1.0)
1940-1949.....	78 (1.0)	69 (1.0)	75 (1.0)
1950-1959.....	78 (1.0)	67 (1.0)	71 (1.0)
1960-1964.....	79 (1.0)	67 (1.0)	69 (2.0)
1965-1969.....	75 (1.0)	65 (1.0)	70 (1.0)
1970-1974.....	77 (2.0)	66 (2.0)	70 (2.0)
1975 OR LATER.....	77 (2.0)	65 (2.0)	69 (3.0)
HEATED SQUARE FOOTAGE			
1-799.....	80 (1.0)	67 (1.0)	77 (1.0)
800-999.....	79 (1.0)	67 (1.0)	76 (1.0)
1,000-1,199.....	77 (1.0)	67 (1.0)	71 (1.0)
1,200-1,399.....	78 (1.0)	65 (1.0)	70 (2.0)
1,400-1,799.....	79 (1.0)	68 (1.0)	72 (1.0)
1,800-2,399.....	81 (1.0)	71 (1.0)	73 (1.0)
2,400 OR MORE.....	84 (1.0)	74 (1.0)	73 (1.0)

"Q" = DATA WITHHELD BECAUSE OF A LARGE VARIANCE.

NOTE: BECAUSE OF ROUNDING, DATA MAY NOT SUM TO TOTALS.

NUMBER IN PARENTHESIS INDICATES ONE STANDARD DEVIATION. SEE APPENDIX B FOR A DETAILED DISCUSSION.

SOURCE: ENERGY INFORMATION ADMINISTRATION, OFFICE OF ENERGY MARKETS AND END USE, ENERGY END USE DIVISION, THE 1978, 1980, 1981 RESIDENTIAL ENERGY CONSUMPTION SURVEY.



Summary of Findings (Continued)

Table 40. Percent of Average Household Natural Gas Consumption Used for Space Heating When Main Heating Fuel is Natural Gas by Selected Socio-demographic Characteristics for 1978, 1980, 1981

SOCIODEMOGRAPHIC CHARACTERISTICS	PERCENT OF NATURAL GAS USED FOR SPACE HEATING BY YEAR		
	1978	1980	1981
NATIONAL.....	79 (0.4)	69 (0.4)	73 (0.5)
GEOGRAPHIC REGION			
NORTHEAST.....	81 (1.0)	74 (1.0)	76 (0.4)
NORTH CENTRAL.....	82 (0.5)	74 (0.4)	79 (0.4)
SOUTH.....	71 (1.0)	64 (1.0)	67 (1.0)
WEST.....	77 (1.0)	59 (2.0)	63 (1.0)
HEATING DEGREE DAYS			
0-1,999.....	54 (5.0)	43 (1.0)	52 (3.0)
2,000-2,999.....	67 (1.0)	57 (2.0)	54 (1.0)
3,000-3,999.....	76 (2.0)	66 (2.0)	72 (2.0)
4,000-4,999.....	80 (7.0)	71 (2.0)	73 (2.0)
5,000-5,999.....	81 (1.0)	72 (1.0)	77 (1.0)
6,000-6,999.....	82 (1.0)	74 (0.4)	78 (1.0)
7,000-7,999.....	82 (1.0)	77 (1.0)	78 (1.0)
8,000 OR MORE.....	86 (1.0)	79 (1.0)	83 (1.0)
INCOME			
LESS THAN \$5,000.....	81 (1.0)	71 (1.0)	76 (2.0)
\$5,000-\$9,999.....	79 (1.0)	70 (1.0)	77 (1.0)
\$10,000-\$14,999.....	79 (1.0)	70 (1.0)	75 (1.0)
\$15,000-\$19,999.....	78 (1.0)	68 (1.0)	75 (1.0)
\$20,000-\$24,999.....	78 (1.0)	68 (1.0)	72 (1.0)
\$25,000-\$34,999.....	78 (1.0)	69 (1.0)	72 (1.0)
\$35,000 OR MORE.....	81 (1.0)	70 (2.0)	69 (1.0)
NUMBER OF HOUSEHOLD MEMBERS			
ONE.....	88 (1.0)	75 (1.0)	83 (1.0)
TWO.....	83 (1.0)	72 (1.0)	76 (1.0)
THREE.....	79 (1.0)	68 (1.0)	73 (1.0)
FOUR.....	75 (1.0)	66 (1.0)	68 (1.0)
FIVE OR MORE.....	70 (1.0)	63 (1.0)	64 (1.0)

"Q" = DATA WITHHELD BECAUSE OF A LARGE VARIANCE.

NOTE: BECAUSE OF ROUNDING, DATA MAY NOT SUM TO TOTALS.

NUMBER IN PARENTHESIS INDICATES ONE STANDARD DEVIATION. SEE APPENDIX B FOR A DETAILED DISCUSSION.

SOURCE: ENERGY INFORMATION ADMINISTRATION, OFFICE OF ENERGY MARKETS AND END USE, ENERGY END USE DIVISION, THE 1978, 1980, 1981 RESIDENTIAL ENERGY CONSUMPTION SURVEY.



Summary of Findings (Continued)

Table 41. Percent of Average Household Fuel Oil or Kerosene Consumption Used for Space Heating When Main Heating Fuel is Fuel Oil or Kerosene by Selected Housing Characteristics for 1978, 1980, 1981

HOUSING CHARACTERISTICS	PERCENT OF FUEL OIL OR KEROSENE USED FOR SPACE HEATING BY YEAR		
	1978	1980	1981
NATIONAL.....	93 (0.5)	85 (1.0)	85 (1.0)
HOUSING STRUCTURE			
SINGLE-FAMILY DETACHED.....	95 (0.6)	89 (1.0)	89 (1.0)
SINGLE-FAMILY ATTACHED.....	92 (2.0)	99 (2.0)	85 (8.0)
TWO TO FOUR UNITS.....	92 (1.0)	83 (1.0)	81 (3.0)
FIVE OR MORE UNITS.....	87 (2.0)	72 (7.0)	Q
MOBILE HOME.....	100 (0.4)	97 (3.0)	98 (0.4)
YEAR HOUSE BUILT			
BEFORE 1940.....	94 (1.0)	87 (1.0)	86 (2.0)
1940-1949.....	94 (1.0)	84 (2.0)	87 (4.0)
1950-1959.....	93 (1.0)	86 (1.0)	84 (1.0)
1960-1964.....	91 (3.0)	80 (4.0)	83 (2.0)
1965-1969.....	94 (2.0)	84 (3.0)	86 (3.0)
1970-1974.....	96 (1.0)	79 (3.0)	83 (3.0)
1975 OR LATER.....	93 (4.0)	84 (3.0)	87 (6.0)
HEATED SQUARE FOOTAGE			
1-799.....	91 (1.0)	78 (2.0)	83 (2.0)
800-999.....	93 (1.0)	82 (2.0)	81 (4.0)
1,000-1,199.....	95 (1.0)	84 (2.0)	87 (3.0)
1,200-1,399.....	94 (1.0)	87 (2.0)	87 (3.0)
1,400-1,799.....	94 (1.0)	89 (1.0)	86 (2.0)
1,800-2,399.....	93 (1.0)	89 (1.0)	89 (2.0)
2,400 OR MORE.....	95 (2.0)	90 (1.0)	86 (2.0)

"Q" = DATA WITHHELD BECAUSE OF A LARGE VARIANCE.

NOTE: BECAUSE OF ROUNDING, DATA MAY NOT SUM TO TOTALS.

NUMBER IN PARENTHESIS INDICATES ONE STANDARD DEVIATION. SEE APPENDIX B FOR A DETAILED DISCUSSION.

SOURCE: ENERGY INFORMATION ADMINISTRATION, OFFICE OF ENERGY MARKETS AND END USE, ENERGY END USE DIVISION, THE 1978, 1980, 1981 RESIDENTIAL ENERGY CONSUMPTION SURVEY.



Summary of Findings (Continued)

Table 42. Percent of Average Household Fuel Oil or Kerosene Consumption Used for Space Heating When Main Heating Fuel is Fuel Oil or Kerosene by Selected Sociodemographic Characteristics for 1978, 1980, 1981

SOCIODEMOGRAPHIC CHARACTERISTICS	PERCENT OF FUEL OIL OR KEROSENE USED FOR SPACE HEATING BY YEAR		
	1978	1980	1981
NATIONAL.....	94 (0.5)	85 (1.0)	85 (1.0)
GEOGRAPHIC REGION			
NORTHEAST.....	91 (0.5)	82 (1.0)	81 (1.0)
NORTH CENTRAL.....	99 (1.0)	96 (1.0)	99 (1.0)
SOUTH.....	97 (1.0)	92 (2.0)	96 (2.0)
WEST.....	100 (0.2)	98 (1.0)	97 (2.0)
HEATING DEGREE DAYS			
0-1,999.....	98 (2.0)	Q	100 (1.0)
2,000-2,999.....	Q	Q	Q
3,000-3,999.....	96 (1.0)	98 (3.0)	Q
4,000-4,999.....	97 (1.0)	89 (4.0)	93 (3.0)
5,000-5,999.....	91 (1.0)	81 (1.0)	81 (3.0)
6,000-6,999.....	96 (1.0)	87 (1.0)	85 (2.0)
7,000-7,999.....	95 (2.0)	87 (2.0)	87 (2.0)
8,000 OR MORE.....	100 (1.0)	93 (2.0)	95 (2.0)
INCOME			
LESS THAN \$5,000.....	95 (1.0)	85 (3.0)	88 (5.0)
\$5,000-\$9,999.....	94 (1.0)	82 (2.0)	87 (2.0)
\$10,000-\$14,999.....	94 (1.0)	85 (1.0)	86 (1.0)
\$15,000-\$19,999.....	91 (1.0)	87 (2.0)	84 (2.0)
\$20,000-\$24,999.....	94 (1.0)	89 (2.0)	85 (3.0)
\$25,000-\$34,999.....	94 (1.0)	87 (1.0)	84 (2.0)
\$35,000 OR MORE.....	95 (1.0)	84 (1.0)	84 (2.0)
NUMBER OF HOUSEHOLD MEMBERS			
ONE.....	97 (0.4)	82 (2.0)	92 (1.0)
TWO.....	95 (1.0)	85 (1.0)	89 (1.0)
THREE.....	94 (1.0)	87 (1.0)	85 (2.0)
FOUR.....	92 (1.0)	88 (1.0)	80 (2.0)
FIVE OR MORE.....	88 (1.0)	85 (1.0)	76 (3.0)

"Q" = DATA WITHHELD BECAUSE OF A LARGE VARIANCE.

NOTE: BECAUSE OF ROUNDING, DATA MAY NOT SUM TO TOTALS.

NUMBER IN PARENTHESIS INDICATES ONE STANDARD DEVIATION. SEE APPENDIX B FOR A DETAILED DISCUSSION.

SOURCE: ENERGY INFORMATION ADMINISTRATION, OFFICE OF ENERGY MARKETS AND END USE, ENERGY END USE DIVISION, THE 1978, 1980, 1981 RESIDENTIAL ENERGY CONSUMPTION SURVEY.

Appendix A

Sources of the Data

RAC 399 (6)
(10/78)

RESPONSE ANALYSIS CORPORATION
Princeton, New Jersey

HOUSING UNIT RECORD SHEET

Housing Unit # _____ ZIP Code _____

Location # _____
Address (or description) _____
Post office (city or town) _____ State _____

INTRODUCTION
Hello, I am 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 the household?

This notice explains the information about heating and air-conditioning, contained with HEAD OF HOUSEHOLD, OR ONE OF HOUSEHOLD HEADS, OR SPOUSE. This notice explains the information about your home, about heating and air-conditioning, and related topics. This notice explains the information about your home, about heating and air-conditioning, contained with HEAD OF HOUSEHOLD, OR ONE OF HOUSEHOLD HEADS, OR SPOUSE.

THIS NOTICE IS PROTECTED BY THE PRIVACY ACT OF 1974 AND WILL REMAIN CONFIDENTIAL.
THIS NOTICE IS PROTECTED BY THE PRIVACY ACT OF 1974 AND WILL REMAIN CONFIDENTIAL.
THIS NOTICE IS PROTECTED BY THE PRIVACY ACT OF 1974 AND WILL REMAIN CONFIDENTIAL.
THIS NOTICE IS PROTECTED BY THE PRIVACY ACT OF 1974 AND WILL REMAIN CONFIDENTIAL.

CONTINUE WITH INTERVIEW

INTERVIEWER OBSERVATION OF TYPE OF LIVING QUARTERS

ALL UNITS HAVE ONE OR MORE ATTACHED ON ONE SIDE (SEMIDETACHED)
ATTACHED ON TWO SIDES (DETACHED)
DETACHED ON ONE SIDE (SEMIDETACHED)
DETACHED ON TWO SIDES (DETACHED)

ALL UNITS ARE MORTGAGED WITH ONE OR MORE BANKS
ALL UNITS ARE MORTGAGED WITH ONE OR MORE BANKS

ALL UNITS ARE LOCATED WITH 5 OR MORE NUMBER OF STOREY STORIES
NUMBER OF UNITS NUMBER OF STOREY STORIES

ALL UNITS ARE LOCATED WITH 5 OR MORE NUMBER OF STOREY STORIES
NUMBER OF UNITS NUMBER OF STOREY STORIES

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

INTERVIEWER'S NAME AND I.D. NUMBER
Interviewer _____
Name _____
Phone number _____
Area code _____
I.D. number _____



Appendix A

The data contained in this report were from three residential energy consumption and expenditure surveys conducted by the Energy Information Administration, U.S. Department of Energy. The information was collected from a sample of households during 1978, 1980, and 1981. Households were selected using a multiple stage probability sampling design.

The housing characteristic information was collected in personal interviews with adult residents of a representative national sample of households. Figures on actual total consumption and expenditures were obtained from the household's fuel suppliers. Estimates for end-use data are statistical rather than metered data.

Although the three surveys were very similar in questionnaire construction and data collection, there were, nevertheless, several differences. Table A1 highlights these differences.

**Table A1.
Comparison of Three
Residential Energy
Consumption and
Expenditures Surveys**

1978 (NIECS)	1980 (RECS 1)	1981 (RECS 2)
Sample design not specifically created for EIA's needs. Instead created as all purpose design.	Sample design created for collection of residential energy consumption and related housing characteristics.	Same as 1980
Target population does not include households in Alaska, Hawaii, or on U.S. military bases.	Target population includes all households in the United States, including Alaska, Hawaii, and U.S. military bases.	Same as 1980
Uses respondent's estimate of square footage for dwelling.	Uses interviewer's measurement of square footage for dwelling.	Same as 1980
Heating degree-days calculated using a base 65° F.	Heating degree-days calculated using bases 50° F through 80° F.	Same as 1980
Weather data obtained using long-term averages adjusted by Census division for April 1978 through March 1979.	Weather data obtained using recorded daily highs and lows at the National Oceanic and Atmospheric Administration's (NOAA) district weather stations.	Same as 1980
Geographic units were four Census regions: Northeast, North Central, South, West.	The four geographic regions were further divided into nine Census divisions.	Same as 1980

¹ Residential Energy Consumption Survey: Consumption and Expenditures, April 1978 through March 1979, DOE/EIA-0207/5 (Washington D.C., July 1980). Residential Energy Consumption Survey: Consumption and Expenditures, April 1980 through March 1981, DOE/EIA-0321/1 (Washington D.C., September 1982). Residential Energy Consumption Survey: Consumption and Expenditures, April 1981 through March 1982, DOE/EIA-0321/1 (Washington D.C., September 1983).



Appendix A (Continued)

Table A2. Number of Households by Main Heating Fuel by Survey Year (Million Households)

Main Heating Fuel	1978	1980	1981
All Households	76.6 (0)	81.6 (0)	83.1 (0)
Households Where Main Heating Fuel is Electricity	12.1(1.2)	14.3(1.0)	14.2(1.1)
Households Where Main Heating Fuel is Natural Gas	41.8(1.9)	44.6(1.5)	46.2(1.5)
Households Where Main Heating Fuel is Fuel Oil or Kerosene	16.9(1.3)	13.4(0.7)	12.2(0.6)
Households Where Main Heating Fuel is LPG	3.1(0.5)	3.7(0.4)	3.7(0.4)

Household consumption data for natural gas, electricity, fuel oil/kerosene, and liquefied petroleum gas (LPG) were collected from the suppliers. Kerosene was combined with fuel oil. Figures for natural gas and electricity were based on actual consumption, while fuel oil/kerosene and LPG figures were based on the amount delivered to households rather than on the amount consumed. Both consumption and expenditure information for the three surveys was annualized for April 1978 through March 1979, April 1980 through March 1981, and April 1981 through March 1982. In this report, consumption figures are reported in million Btu except when consumption is adjusted for heating degree-days (HDD). These figures are reported in thousand Btu. Expenditure figures are reported in dollars.

Four end uses were examined: space heating, water heating, cooling², and miscellaneous use. Miscellaneous use includes cooking, lighting, dishwashing, clothes drying, pool heating, and other uses. Consumption and expenditure estimates for the four end uses were addressed in terms of selected housing characteristics and selected sociodemographic characteristics. Housing characteristics included dwelling structure, the age of the structure, and heated square footage of the dwelling. Sociodemographic characteristics included the geographic region, number of heating degree-days, income, and number of household members. The base for the number of heating degree-days was 65 degrees Fahrenheit. Income refers to family income immediately before the survey year.

²Cooling applies only to electricity consumption. The small amount of natural gas used for air-conditioning was included in the miscellaneous use for natural gas.

Appendix B

Methodology





Appendix B

The analysis of residential energy consumption and expenditures by end use occurred in three steps. The first step was to use a robust regression technique to provide a regression equation that predicts energy consumption. Energy expenditures were estimated based on the results for consumption.

Twelve equations were developed. For each of the three surveys, a separate equation was developed for each of the four main fuels: electricity, natural gas, fuel oil, and LPG. In each equation, the dependent variable was energy consumption from April to March of the following year. (That is, for the 1978 survey, measured consumption was from April 1978 to March 1979; for the 1980 survey, consumption was from April 1980 to March 1981, and so forth.)

For electricity, the theoretical model that was used for all surveys was

$$\text{Total Consumption} = \text{Space Heating Component} + \text{Water Heating Component} + \text{Air-Conditioning} + \text{Miscellaneous Component.}$$

The space heating component consisted of all electricity used in electric space heating equipment. Similarly, for water heating and air-conditioning, the components consisted of all electricity used in electric water heating equipment and electric air-conditioning equipment. The miscellaneous component consisted of all electricity not used specifically for any of the other end uses. This miscellaneous use included refrigeration, cooking, lighting, entertainment, clothes drying as well as many other uses. In many households, the miscellaneous component equaled the total consumption.

It is true that electricity used for many miscellaneous uses during the winter will contribute to the space heating requirements. In this report, this secondary effect of miscellaneous consumption will be ignored. The water heating component only included electricity used to heat water for hot running water or bath water. It did not include energy used for heating water on a stove or on an appliance for cooking or drinking purposes. The latter use of electricity was included in the miscellaneous component.

The theoretical model used for natural gas, fuel oil, and LPG consisted of only three components: space heating, water heating, and miscellaneous use. The air-conditioning component was added to the miscellaneous component.

The independent variables used in the regression equations were grouped together into sets of independent variables corresponding to the components. The components can be estimated by using the linear equations formed from the independent variables in the corresponding sets and their estimated regression coefficients.

¹For a more detailed explanation of the regression program, see Chapter 5 and 6 in Residential Energy Consumption Survey: Regression Analysis of Energy Consumption by End Use, DOE/EIA-0431 (Washington, D.C., October 1983).



Appendix B (Continued)

Many of the independent variables were multiple interaction terms. For instance, in the 1980 survey, the equation for the space heating component of the natural gas model contained an independent variable that was the product of an indicator variable for natural gas main space heating, times the heated square footage of the dwelling, times the heating degree-days. The water heating component of the electricity model for the 1981 survey contained an independent variable that was the product of an indicator variable for electric water heating, times the number of household members.

All independent variables involved indicator variables for a type of equipment or appliance except some of the variables used in the miscellaneous component for electricity. The use of electricity for small appliances, lighting, and various other small uses was represented by independent variables such as heated square footage, number of household members, and number of rooms.

The sets of independent variables that were used varied from survey to survey. For a given survey, they varied from fuel to fuel. Some appliances only used electricity, hence, the indicator variable for that appliance was only used in the electricity components. Even if the differences between the indicator variables for electric main space heating and the ones for natural gas, fuel oil, and LPG main space heating are discounted, the independent variables used in the space heating components were still different. Some of this difference is due to the type of equipment used with the different fuels and some is due to the differences in the populations of households that used the different fuels. Additionally, more households used natural gas for space heating than used electricity, fuel oil, or LPG (Table A2). Hence, it was possible to use more independent variables when fitting the space heating component for natural gas.

Only a few independent variables were used in the water heating component for any fuel. In addition, relatively few households used fuel oil or LPG as their water heating fuel. Therefore, the accuracy of the estimated water heating component for fuel oil and LPG may be limited.

One reason that the set of independent variables varied from survey to survey was that the amount and type of information changed from survey to survey. For instance, a reliable estimate of the square footage was not available for the 1978 survey; more accurate weather data was available for the 1980 and 1981 surveys; and the questions concerning appliance stock, heating equipment, and insulation characteristics were changed for each survey.

We did not attempt to interpret the coefficients of the independent variables in the regression equation. The fact that the set of independent variables changed from survey to survey would prevent any comparisons between surveys. Additionally, many of the independent variables were highly colinear. An example of this is the set of interaction terms used in the natural gas space heating component for the 1981 survey. This set included three interaction terms involving an indicator variable for natural gas main space heating, multiplied by different measures of dwelling sizes. These measures were heated square footage, number of rooms, number of doors and windows. Hence, the effect of dwelling size on the space heating component of the natural gas component was divided between several of the independent variables.

As previously outlined, the fitted regression equations were split into components. The components represent end-use categories that were easily interpreted. The problem of colinearity is greatly reduced by summing terms that were highly colinear.



Appendix B (Continued)

The second step in predicting end-use consumption consisted of using the regression results to produce end-use estimates for the individual components for each household. The end-use estimates were normalized so that the sum of the end-use estimates was equal to the actual or imputed yearly consumption. As a result, the regression results were used only to estimate the proportion of energy used by each end use. The estimated end-use expenditures were obtained by assuming the proportion of dollars spent on each end use was the same as the proportion of energy used. This assumption ignores any effect of the utility rate structure.

The third step in the analysis consisted of producing end-use estimates for selected categories based on demographic characteristics and housing characteristics. Tables and figures in this report include estimates of the average normalized household end-use consumption and expenditures both nationally and for selected subgroups. The averages are weighted by the number of households in the subpopulations that the sample represents. Consumption figures are given in Btu and expenditure figures are given in dollars. Consumption figures for Table T1 have been adjusted for weather. In this instance, the annual space heating consumption of each household was divided by the household's annual number of heating degree-days, base 65 degrees Fahrenheit. The values in Table T1 are the average value of the index of consumption per heating degree-days.

The estimates for the standard errors were obtained using a balanced half-sample replication technique. The technique was used to produce an estimate of the relative standard error (also called the coefficient of variation) of the statistics computed using only the households whose energy consumption was not imputed using a regression estimate.¹ This relative standard error was multiplied by the statistics computed using all households to produce an estimated standard error that applied to all households. The justification for only using households whose consumption was not based on a regression estimate was that the households with imputed consumption values did not contribute any information about the relationship between energy consumption and the variables collected by RECS.

In calculating standard errors for percentage change, the following approximation was used. Let Z be the percentage change from Y to X. Then $Z = 100 \times ((X-Y)/Y)$. Hence, the standard error of Z equals 100 times the standard error of X/Y. The standard error for X/Y can be obtained using the approximation $RSE^2(X/Y) = RSE^2(X) + RSE^2(Y)$, where RSE is the relative standard error. The approximation is valid when X and Y are uncorrelated. This should be true when X and Y are based on data from different surveys. All of the percentage changes cited in this report involved changes between two surveys.

This report also contains statistics on the percentage of the total consumption that is represented by each component. The standard errors of these statistics were calculated directly using the half-sample procedure. The above approximation was not used.

The error terms shown in parenthesis in the tables and text are one standard error.

¹ Residential Energy Consumption Survey: Regression Analysis of Energy Consumption by End Use, DOE/EIA-0431 (Washington, D.C., October 1983).

² Residential Energy Consumption Survey: Consumption and Expenditures, April 1981 through March 1982, DOE/EIA-0321/1(81) (Washington, D.C., September 1983). Appendix A.

Appendix C

Limitations of the Data

$$RSE(X|Y) = \sqrt{RSE^2(X) + RSE^2(Y)}$$



Appendix C

The limitations of the data can be divided into three parts: first, problems with the annual consumption and expenditure data upon which the end-use estimates were based; second, problems with the disaggregation technique; and third, problems with the estimated standard errors.

The end-use estimates were derived by disaggregating the annual consumption and expenditure data. Any deficiencies in the annual amounts were carried over into the end-use estimates. The number of households that use each fuel and the percentage of cases where the annual amount was based upon usable consumption data were of particular interest. Table C1 lists the number of households in the sample that use each fuel along with the percentage of households with consumption amounts based upon usable data for each fuel by housing type for the 1981 survey. The results for the other surveys were similar except the total sample size was 35 percent smaller for the 1978 survey. Other RECS reports discuss in detail limitations of the data pertaining to consumption and expenditure figures.

¹ Residential Energy Consumption Survey: Consumption and Expenditures, April 1978 Through March 1979, DOE/EIA-0207/5 (Washington, D.C., July 1980); Residential Energy Consumption Survey: Consumption and Expenditures, April 1980 Through March 1981, DOE/EIA-0321/1 (Washington, D.C., September 1982); and Residential Energy Consumption Survey: Consumption and Expenditures, April 1981 Through March 1982, DOE/EIA-0321/1 (Washington, D.C., September 1983).



Appendix C (Continued)

Table C1. Number of Sample Households That Use Each Fuel and Percent of Households with Usable^a Fuel Records by Fuel Used and by Type of Housing Structure^b

Type of Fuel Use	Total Households in Sample Using the Fuel	Mobile Home	Single-Family	Units in Buildings With Two to Four Units	Units in Buildings With Five or More Units
Electricity					
Number of Households	6,263	390	4,343	697	833
Percent with Usable Fuel Records	80.8	80.8	88.8	67.3	52.1
Natural Gas					
Number of Households	3,850	119	2,650	544	537
Percent with Usable Fuel Records	71.7	69.7	88.2	49.5	13.0
Fuel Oil or Kerosene					
Number of Households	1,122	70	724	159	169
Percent with Usable Fuel Records	46.7	37.1	64.2	20.7	0
LPG					
Number of Households	627	144	465	16	2
Percent with Usable Fuel Record	61.3	56.9	62.8	56.2	50.0

^aData were unusable for electricity and natural gas if the records covered less than 5 months and for fuel oil, kerosene, and LPG if the records covered less than 1 year.

^bResidential Energy Consumption Survey: Consumption and Expenditures, April 1981 through March 1982, Part 1: National Data, DOE/EIA-0321/1 (Washington, D.C.), Table A11.

For those households whose annual energy consumption data were missing or unusable, the consumption amounts were imputed. The imputation procedure for the 1978 and 1980 surveys assumes that the regression equations developed from data on households with usable data can also be used to predict the energy consumption for households whose consumption needs to be imputed. In particular, this assumes that the results on fuel oil consumption for units in buildings with five or more units will not be drastically different from the results for the other housing types. If this assumption is not valid, then the resulting annual consumption estimates and end-use consumption estimates will be biased.



Appendix C (Continued)

Beginning with the 1981 survey, adjustments were made in the imputation procedures for electricity and natural gas consumption. These adjustments take into account some differences between energy consumption patterns for households living in master metered buildings and those living in buildings with individual meters. Future surveys will expand and refine these adjustments.

Additional problems with the annual data that may result in biases in the end-use estimates are nonresponse and undercoverage. The annual estimates are derived under the assumption that the nonrespondents and neighboring respondents have similar energy characteristics. While there may be differences between neighboring households, any systematic difference between neighboring respondents and nonrespondents will result in biased estimates.

The RECS data did not cover vacant units and vacation or second residential units. This convention resulted in an underestimate of the total energy used in the residential sector. The results in this report give estimates for average end-use consumption only for occupied primary residences. If the vacant units and secondary units were included in the averages, then it is expected that the results would be lower.

The sample design for the 1978 survey did not cover Alaska, Hawaii, and residential housing units in military bases. The 1980 and 1981 survey did cover these residential units. Barracks in military bases were not classified as residential units. The results for the 1978 survey were biased by this undercoverage. This affects comparisons between the 1978 results and the results for 1980 and 1981.

The effect of not covering Alaska and Hawaii in the 1978 survey was examined by analyzing the results for the 1980 and 1981 surveys. The results of the analysis tentatively showed that dropping Hawaii and Alaska would increase the average electricity consumption in the West Census region by approximately .5 percent, increase the average natural gas consumption by approximately 1 percent, decrease the average fuel oil and kerosene consumption by approximately 4 percent, and decrease the average LPG consumption by approximately 6 percent. The effect on the national averages were approximately a .1 percent increase, a .2 percent increase, a .4 percent increase, and a .5 percent decrease for electricity, natural gas, fuel oil/kerosene, and LPG, respectively.

In comparing the results for 2 years, the changes in the population will affect the interpretation of the results. For instance, when comparing the results across surveys for units built during or after 1975, the population in 1978 includes units built in 1975 through the summer of 1978. The population in 1980 includes units built in 1975 through the summer of 1980. If the type of units built in 1975 through the summer of 1978 vary from the type of units built from the winter of 1978 through the summer of 1980, then the change in population housing characteristics will alter the interpretation of any comparison in energy consumption between the 1978 survey and the 1980 survey.

The disaggregation technique used the regression results to estimate only the percentage of each fuel consumed by each end use. Implicit in this technique was the assumption that if a household used more fuel or less fuel on the average for one end use, it will do so for all end uses by the same percentage. For example, if a household increased its electricity bill by raising the thermostat setting in the winter, then during the summer, the household will have also increased its usage of air conditioning. The percentage of the increase would have been the same for both end uses. It is obvious



Appendix C (Continued)

that many household did not conform to this behavior pattern. If there were systematic deviations from this pattern, the results given in this report will be biased. In future studies, EIA plans to use billing period data to help overcome this problem.

The regression equations for the components were developed using only the households with usable consumption data. The results are applied to all households. This carries with it the assumption that the population of households with and without usable consumption data conformed to the same linear regression model. The assumption was most tenuous when applying the results to fuel oil consumption for households living in buildings with five or more units. If this assumption was not valid, then end-use estimates could be biased, even if the total consumption estimate was not biased.

The end-use estimates for expenditures were calculated by applying the same percentages to expenditures as were applied to consumption. This assumes that the average cost per unit of energy does not vary from billing period to billing period. If the utility rate structure is such that the average cost is lower for bills with large consumption amounts than it is for bills with small consumption amounts, then the cost of heating or cooling may be overestimated. If the rate structure has the opposite effect, then the cost of heating or cooling may be underestimated. In the future, incorporating the billing period data into the estimation procedure will help alleviate this problem.

Additional biases in the end-use estimates can result from the choice of independent variables used in the regression procedure. The components where the regression technique was the least subject to these potential biases, were the space heating components for all fuels and the appliance component for electricity. The regression technique most subject to the potential biases was the water heating and appliance components for fuel oil/kerosene and LPG.

The questionnaire has been improved with each survey. Consequently, the data available to use in constructing independent variables has been improved. Hence, the end-use estimates should be more accurate for the 1981 survey than for the 1980 survey which, in turn, should be more accurate than the estimates for the 1978 survey.

An example of improved data is the square footage data. The data for the 1978 survey was an estimate provided by the respondent. These estimates were not used in the regression procedure because of inaccuracy in reporting by the respondent. The square footage data for the 1980 and 1981 surveys were based on measurements taken by the interviewers.

Only limited weather data was available for the 1978 survey. The question on the fuel used for air conditioning was improved for the 1981 survey. Questions on the number and types of appliances have been improved with each survey.

The listed standard errors reflect only the sampling variation and the number of households with usable utility data. They did not take into account errors made in disaggregating the annual energy consumption for individual households. One way to account for the disaggregation errors, is to perform a separate regression analysis for each half-sample using only the observations that fall in the half-sample. The end-use estimates for each half-sample would then be based on the regression for that half-sample. This would involve a considerable amount of work.



Appendix C (Continued)

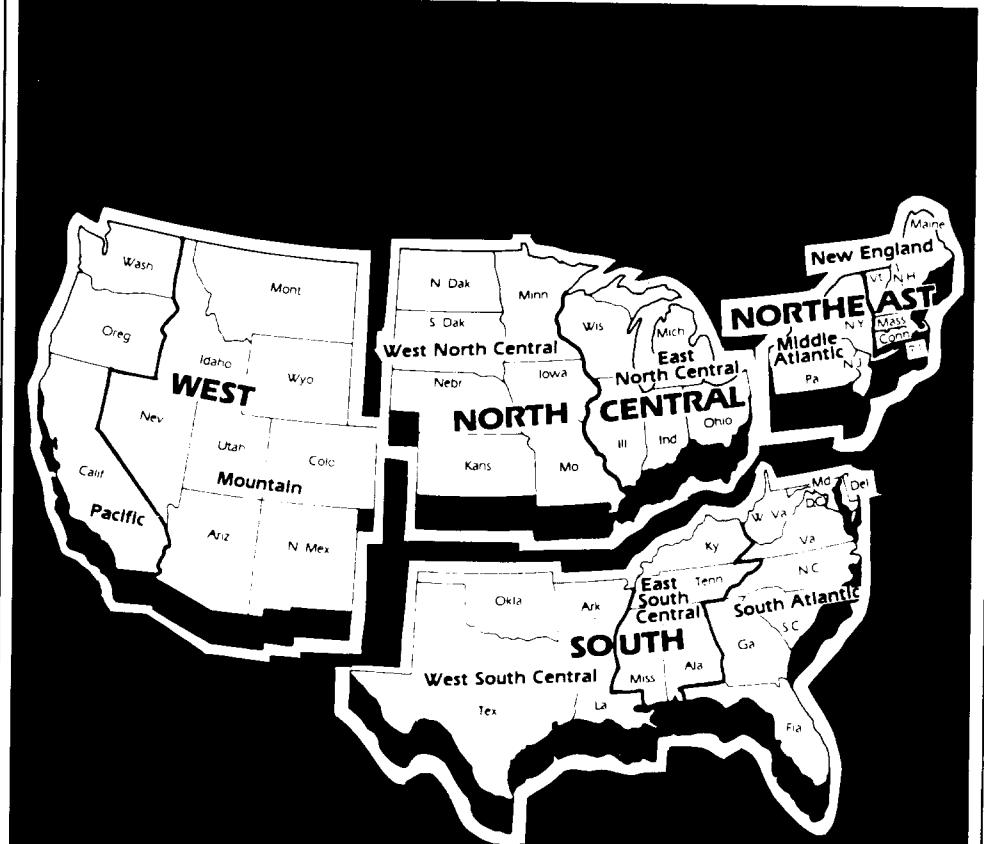
As a test of the effect of the disaggregation error, separate end-use estimates for each half-sample were computed for LPG consumption amounts for the 1980 survey. Half-sample estimates of the variance were computed for the three LPG components for the national averages and the averages for each Census division. The standard errors using the separate end-use estimates for each half-sample were higher than the standard errors where the end-use half-sample estimates were based on the full sample regression analysis. Standard errors were, on the average, 3.2 percent higher for the space heating component, 14.5 percent higher for the water heating component, and 8.7 percent higher for the appliance component.

It was conjectured, based on the results of the half-sample estimates of the variance for the LPG components, that the underestimation of the standard error was greatest in the instances where the disaggregation procedure was the least precisely determined. Hence, the underestimation would be greatest for the water heating component for LPG and fuel oil. Conversely, the underestimation would be smallest for the space heating component for all fuels and smallest for the appliance component for electricity. Additionally, the standard errors of the end-use estimates would be underestimated in cases where the estimates were averages over cells which contained a substantial proportion of households with imputed consumption data, such as the fuel estimates in large buildings.

The procedure for producing the end-use estimates has been improved with each survey. Hence, it can be conjectured that the standard error estimates for the 1978 survey will be subject to more underestimation than the standard error estimates for the 1980 and 1981 surveys.

Appendix D

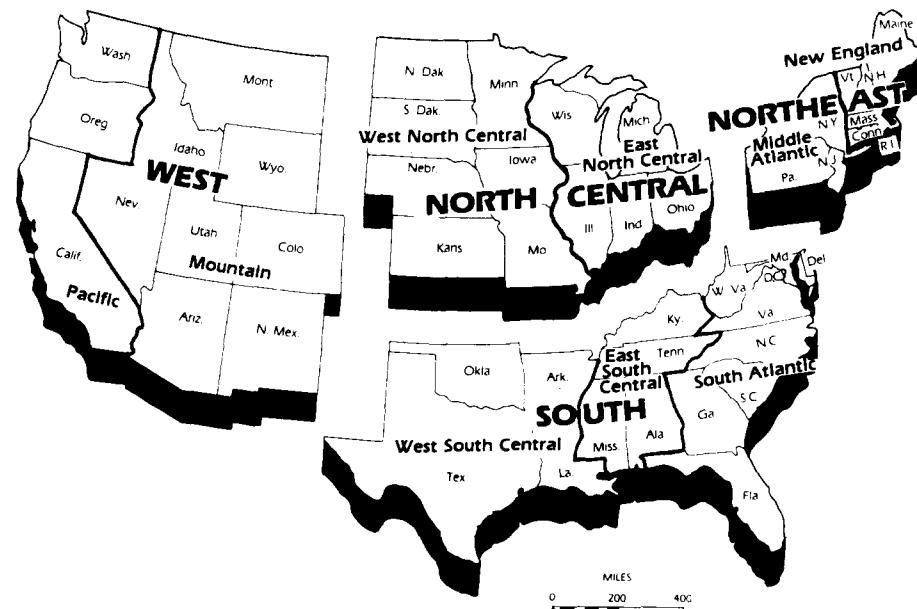
U.S. Census Regions and Divisions



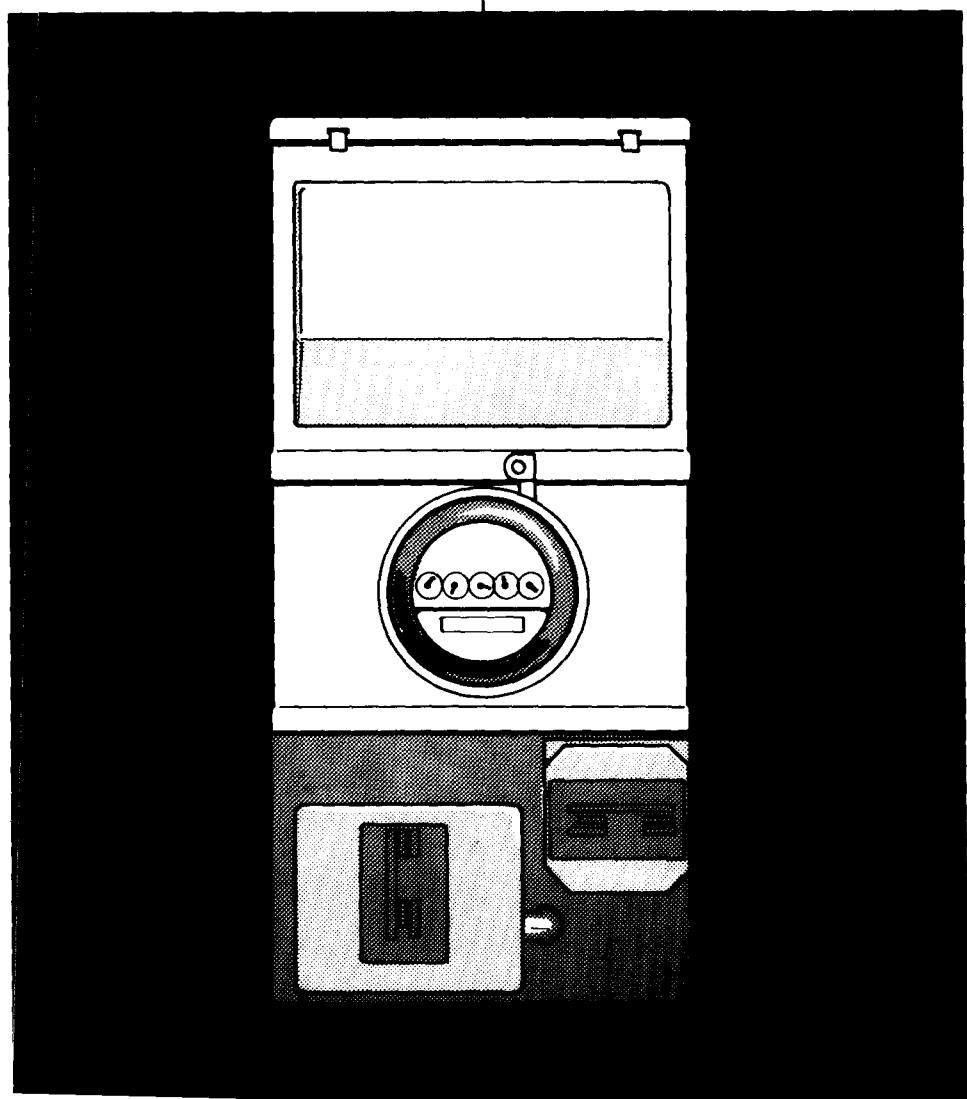


Appendix D

U.S. Census Regions and Divisions



Glossary





Glossary

Air-Conditioning: Cooling of air by a refrigeration unit. This does not include fans, blowers, or evaporative cooling systems 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. Question 36 "How many rooms in your house (apartment) are cooled by 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. 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. "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 1978 through March 1979, April 1980 through March 1981, April 1981 through March 1982: The annual consumption period is a 365-day period beginning as close as possible to April 1. 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.)

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.



Glossary (Continued)

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:

$$\begin{aligned}1 \text{ therm} &= 100,000 \text{ Btu} \\1 \text{ barrel} &= 42 \text{ gallons}\end{aligned}$$

Almost all LPG reported by the fuel suppliers was propane. Hence, the LPG conversion factors are those for propane.

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.

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)

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.

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."

End Use: Refers to the amount of energy used for space heating, space cooling, water heating, and miscellaneous use. Miscellaneous use includes energy used for lighting, cooking, and appliances.

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.

The reader should also be aware that the consumption and expenditures data include households that do not pay directly for the energy used.



Glossary (Continued)

Family Income: Is the total combined income for the calendar year prior to the survey 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 during the calendar year prior to the survey, 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.

Fireplace: Is any masonry or prebuilt installed fireplace. Fireplaces in mobile homes are included. A fireplace must have a permanent chimney built into the wall of the house. 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.

Fuels: Refers to the primary fuel 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.



Glossary (Continued)

"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.

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.

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: A procedure by which the household file is sorted by variables related to the missing item. A household is then selected that has the same value on the matching variables, and this "donor" household supplies the value for the missing item. (See Imputation).

Household: A group of up to 12 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 urethane foam" is not shown separately as a category because the description used in the survey was inaccurate. Urethane foam is not sprayed in because it expands so much that confined areas may be broken apart by the force of the expanding substance. The more general category of "sprayed foam" will be used in the future to include all types of foam insulation.

"Floor insulation" is insulation between the bottom floor and the unheated basement or crawl space. Carpeting or carpeting pads are not insulation.

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 this house (apartment)?"

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.

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.



Glossary (Continued)

Nominal Dollars: is the value of dollars for the year specified. Sometimes called "current dollars," nominal dollars have not been modified to remove the effects of inflation.

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. 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.

Rooms are counted as year-round living space if they are completely enclosed with permanently installed walls, windows, and a roof and can be heated.

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.

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."

Quadrillion: Equals 1,000,000,000,000,000 or 10^{15} .

Region: The States are divided into 10 groups as follows:

<u>Region</u>	<u>States</u>
Northeast	Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut, New York, New Jersey
North Central	Ohio, Indiana, Illinois, Michigan, Wisconsin, Minnesota, Iowa, Missouri, North Dakota, South Dakota, Nebraska, Kansas
South	Delaware, Pennsylvania, Maryland, Virginia, West Virginia, District of Columbia, Kentucky, Tennessee, North Carolina, South Carolina, Georgia, Alabama, Mississippi, Florida
West	Colorado, Utah, Wyoming, Montana, Idaho, New Mexico, Hawaii, Arizona, California, Nevada, Alaska, Oregon, Washington



Glossary (Continued)

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.)

Residential Energy Consumption Survey (RECS) 1980, 1981: The Residential Energy Consumption Surveys that contacted 6,051 households in 1980 and 6,269 households in 1981. Fuel suppliers provided data on consumption and expenditures for the period April 1980 through March 1981 and April 1981 through March 1982.

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.

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.

"Heated square feet" are that portion of the measured square feet that is heated during most of the season. Rooms that are shutoff 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.

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.



Glossary (Continued)

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.

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.

Water-Heating Fuel: The answer to the question, "Which fuel is used most for heating water?" Households that did not have running water in their home were also asked this question. The fuel is used for heating water for bathing and washing. 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.

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