

# Low Income Home Energy Data

## For Fiscal Year 2022



U.S. DEPARTMENT OF  
HEALTH AND HUMAN SERVICES  
Administration for Children and Families  
Office of Community Services  
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ADMINISTRATION FOR  
**CHILDREN & FAMILIES**

# Low Income Home Energy Data

## For Fiscal Year 2022

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# Table of Contents

<b>Executive Summary</b> .....	<b>i</b>
Residential Energy Data .....	i
Home Heating Data .....	ii
Home Cooling Data .....	iii
<b>Introduction</b> .....	<b>1</b>
<b>Residential Energy Data</b> .....	<b>2</b>
<b>Home Heating Data</b> .....	<b>5</b>
Main Heating Fuel Type .....	5
Home Heating Consumption, Expenditures, and Burden.....	5
<b>Home Cooling Data</b> .....	<b>8</b>
Cooling Type .....	8
Home Cooling Consumption, Expenditures, and Burden.....	8
<b>Appendix A: Home Energy Estimates</b> .....	<b>10</b>
Description of RECS .....	10
Strengths and Limitations of RECS Data .....	11
Average Home Energy Consumption and Expenditures .....	12
Energy Burden .....	12
Projecting Energy Consumption and Expenditures .....	16
<b>Appendix B: Income Eligible Household Estimates</b> .....	<b>36</b>

## Figures and Tables

Figure 1. Percent of U.S. Residential Energy Expenditures by Low Income Households, by End Use, FY 2022 .....	ii
Figure 2. Mean Home Heating and Home Cooling Expenditures by All Households, Non-Low Income Households, Low Income Households, and LIHEAP Beneficiary Households, FY 2022.....	iv
Figure 3. Mean Individual Burden of Heating and Cooling Expenditures for All Households, Non-Low Income Households, Low Income Households, and LIHEAP Beneficiary Households, FY 2022.....	iv
Table 1a. Residential Energy: Average Annual Household Consumption, Expenditures, and Burden by All Households, by Main Heating Fuel Type, United States, FY 2022.....	2
Table 1b. Residential Energy: Average Annual Household Consumption, Expenditures, and Burden by Non-Low Income Households, by Main Heating Fuel Type, United States, FY 2022.....	3
Table 1c. Residential Energy: Average Annual Household Consumption, Expenditures, and Burden by Low Income Households, by Main Heating Fuel Type, United States, FY 2022.....	3
Table 1d. Residential Energy: Average Annual Household Consumption, Expenditures, and Burden by LIHEAP Beneficiary Households, by Main Heating Fuel Type, United States, FY 2022.....	3
Table 2. Residential Energy: Percent of Residential Energy Expenditures for Each of the Major End Uses by All, Non-Low Income, Low Income, and LIHEAP Beneficiary Households, United States, FY 2022 .....	4
Table 3. Home Heating: Percent of Households Using Major Types of Heating Fuels by All, Non-Low Income, Low Income, and LIHEAP Beneficiary Households, United States, 2020 .....	5
Table 4a. Home Heating: Average Annual Household Consumption, Expenditures, and Burden by All Households, by Fuel Type, United States, FY 2022.....	6
Table 4b. Home Heating: Average Annual Household Consumption, Expenditures, and Burden by Non-Low Income Households, by Fuel Type, United States, FY 2022.....	6
Table 4c. Home Heating: Average Annual Household Consumption, Expenditures, and Burden by Low Income Households, by Fuel Type, United States, FY 2022 .....	7
Table 4d. Home Heating: Average Annual Household Consumption, Expenditures, and Burden by LIHEAP Beneficiary Households, by Fuel Type, United States, FY 2022.....	7
Table 5. Home Cooling: Percent of Households with Home Cooling by All, Non-Low Income, Low Income, and LIHEAP Beneficiary Households, United States, 2020 .....	8
Table 6. Home Cooling: Average Annual Household Consumption, Expenditures, and Percent of Income by All, Non-Low Income, Low Income, and LIHEAP Beneficiary Households that Cooled, United States, FY 2022 .....	9

Figure A-1. Distribution of LIHEAP Income Eligible Households by Home Energy Burden, 2020 .....	14
Table A-1. National Price Factors for FY 2022.....	17
Table A-2. Residential Energy: Average Consumption Per Household, by All Fuels and Specified Fuels, by All, Non-Low Income, Low Income, and LIHEAP Beneficiary Households, by Census Region, FY 2022.....	18
Table A-3a. Residential Energy: Average Annual Expenditures, by Amount (Dollars) and Mean Group Burden (Percent of Income), for All, Non-Low Income, Low Income, and LIHEAP Beneficiary Households, by Census Region and Main Heating Fuel, FY 2022 .....	20
Table A-3b. Residential Energy: Average Annual Expenditures, by Amount (Dollars) and Mean Individual Burden (Percent of Income), for All, Non-Low Income, Low Income, and LIHEAP Beneficiary Households, by Census Region and Main Heating Fuel, FY 2022 .....	22
Table A-3c. Residential Energy: Average Annual Expenditures, by Amount (Dollars) and Median Individual Burden (Percent of Income), for All, Non-Low Income, Low Income, and LIHEAP Beneficiary Households, by Census Region and Main Heating Fuel, FY 2022 .....	24
Table A-4. Home Heating: Percent of Households Using Major Types of Heating Fuels, by All, Non-Low Income, Low Income, and LIHEAP Beneficiary Households, by Census Region and Main Heating Fuel Type, 2020.....	26
Table A-5. Home Heating: Average Consumption Per Household, by All Fuels and Specified Fuels, by All, Non-Low Income, Low Income, and LIHEAP Beneficiary Households, by Census Region, FY 2022.....	27
Table A-6a. Home Heating: Average Annual Expenditures by Amount and Mean Group Burden, by All, Non-Low Income, Low Income, and LIHEAP Beneficiary Households, by Census Region and Main Heating Fuel Type, FY 2022 .....	29
Table A-6b. Home Heating: Average Annual Expenditures by Amount and Mean Individual Burden, by All, Non-Low Income, Low Income, and LIHEAP Beneficiary Households, by Census Region and Main Heating Fuel Type, FY 2022 .....	31
Table A-6c. Home Heating: Average Annual Expenditures by Amount and Median Individual Burden, by All, Non-Low Income, Low Income, and LIHEAP Beneficiary Households, by Census Region and Main Heating Fuel Type, FY 2022 .....	33
Table A-7. Home Cooling: Percent of Households that Cool, Average Annual Consumption per Household, Average Annual Expenditures per Household, Mean Group Burden, Mean Individual Burden, and Median Individual Burden for Households that Cooled, by All, Non-Low Income, Low Income, and LIHEAP Beneficiary Households, by Census Region, FY 2022 .....	35
Table B-1. State-Level Estimates of the Number of LIHEAP Income Eligible Households Using the Federal Maximum LIHEAP Income Standard by Vulnerability Category.....	38

Table B-2. State-Level Estimates of the Number of LIHEAP Income Eligible Households Using State Maximum LIHEAP Income Standards by Vulnerability Category.....	40
Table B-3. State-Level Estimates of the Number of LIHEAP Income Eligible Households Using the Federal Maximum LIHEAP Income Standard Categorized by Income as a Percentage of HHS Poverty Guidelines .....	42
Table B-4. State-Level Estimates of the Number of LIHEAP Income Eligible Households Using the State Maximum LIHEAP Income Standards Categorized by Income as a Percentage of HHS Poverty Guidelines .....	44

## List of Acronyms and Abbreviations

ACF	HHS's Administration for Children and Families
ACS	American Community Survey
ASEC	CPS Annual Social and Economic Supplement
Btu	British thermal unit
CDD	Cooling Degree Day
CPI	Consumer Price Index
CPS	Current Population Survey
DEA	OCS's Division of Energy Assistance
DOE	U.S. Department of Energy
EIA	DOE's Energy Information Administration
FY	Fiscal Year
HDD	Heating Degree Day
HHS	U.S. Department of Health and Human Services
LIHEAP	Low Income Home Energy Assistance Program
LPG	Liquefied Petroleum Gas
MMBtus	Million British thermal units
NC	No cases in sample
OBRA	Omnibus Budget Reconciliation Act of 1981
OCS	ACF's Office of Community Services
Pub. L.	Public Law
PUMS	Public Use Microdata Sample
RECS	Residential Energy Consumption Survey

## Executive Summary

This report presents home energy consumption and expenditure data. The primary information source for the data on residential energy is the 2020 Residential Energy Consumption Survey (RECS), which is administered by the Department of Energy's (DOE's) Energy Information Administration (EIA). The RECS covers all residential housing units that are primary residences in the United States and contains data for consumption and expenditures for calendar year 2020. All fiscal year (FY) 2022 residential energy consumption and expenditures figures for this report have been derived from the 2020 RECS data that were adjusted to reflect FY 2022 weather and fuel prices, as described in Appendix A.

### Residential Energy Data

In FY 2022, average residential energy expenditures for all households were \$2,290, and the mean individual energy burden was 2.2 percent of income.<sup>1</sup> Low income households had average energy expenditures of \$1,987, about 13.2 percent lower than the average for all households.<sup>2</sup> The mean individual energy burden for low income households was 8.7 percent, over twice the mean individual energy burden of all households. Low Income Home Energy Assistance Program (LIHEAP) beneficiary households had average residential energy expenditures of \$2,189, about 10.2 percent higher than the average for all low income households. The mean individual energy burden for LIHEAP beneficiaries was 10.9 percent, 2.2 percentage points higher than the mean individual energy burden for low income households.

LIHEAP assists households with only that portion of residential energy costs that goes towards home energy, i.e., home heating and home cooling. As shown in Figure 1, home heating and home cooling represented about 46 percent of residential energy expenditures for low income households in FY 2022. Refrigerators and freezers represented about 7 percent of residential energy expenditures, water heating represented about 18 percent of residential energy expenditures, and other appliances represented about 29 percent of residential energy expenditures.

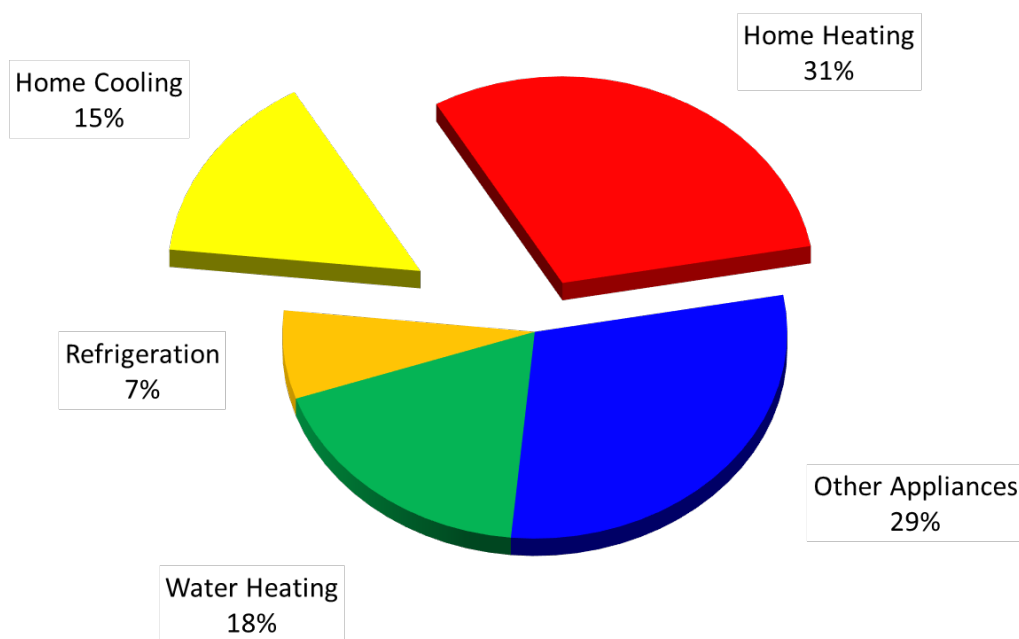
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<sup>1</sup> The mean is the sum of all values divided by the number of values. The mean is also referred to as the average.

<sup>2</sup> Unless otherwise indicated, "low income" refers to households with income at or below the federal maximum LIHEAP eligibility standard (i.e., the greater of 150 percent of HHS Poverty Guidelines and 60 percent of state median income). The terms "low income" and "LIHEAP income eligible" are, unless otherwise indicated, equivalent in the Executive Summary. "Non-low income" refers to those households with incomes above the federal maximum LIHEAP eligibility standard.



**Figure 1. Percent of U.S. Residential Energy Expenditures by Low Income Households, by End Use, FY 2022**



### **Home Heating Data**

The 3 most common heating fuels in 2020 were natural gas (50.8 percent), electricity (34.5 percent), and liquefied petroleum gas (LPG) (4.2 percent). In the decade 2000-2009, the share of households using electricity as a main heating fuel increased significantly, while the share using fuel oil declined. From 2009 to 2015, the share of households using electricity as a main heating fuel increased by 1 percentage point, while the share using fuel oil declined by the same amount. There were only small deviations from this pattern in main heating fuel choice by income group. From 2015 to 2020, the share of households using natural gas as a main heating fuel increased by almost 2 percentage points, while the share using electricity as a main heating fuel declined by half a percentage point. Liquefied petroleum gas (LPG) became the third most common heating fuel over fuel oil.

In FY 2022, as shown in Figures 2 and 3, average home heating expenditures for all households were \$695, and the mean individual home heating burden was 4.4 percent. Low income households had average home heating expenditures of \$605; this average was about 12.9 percent lower than that for all households. The mean individual home heating burden for low income households was 11.6 percent, over twice as much as the mean individual home heating burden for all households. The average home heating expenditures for LIHEAP beneficiary households was \$802, about 32.6 percent higher than the average for low income households and about 15.4 percent higher

than the average for all households. Mean individual home heating burden for LIHEAP beneficiary households was 16.1 percent, more than 3 times the average for all households, and 38.8 percent higher than that for all low income households. Average home heating expenditures (and consumption) for LIHEAP beneficiary households were greater than that for all low income households because LIHEAP heating assistance beneficiary households tend to live in colder climate regions.

## **Home Cooling Data**

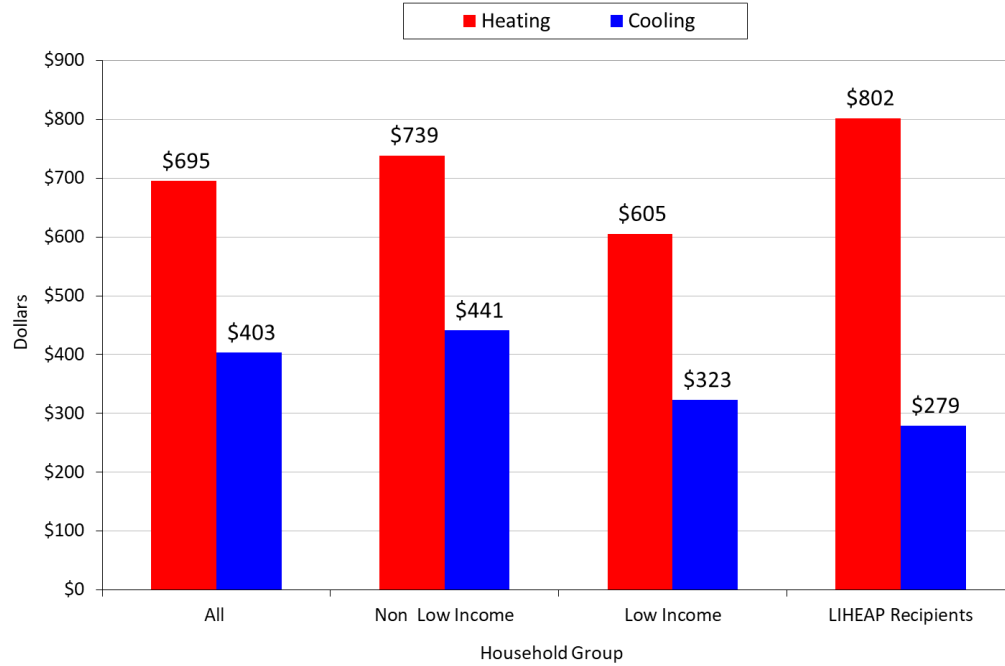
In 2020, nearly 95 percent of all households cooled their homes using 1 of the methods recorded by the RECS.<sup>3</sup> Low income and LIHEAP beneficiary households were less likely to cool their homes than were non-low income households; 92.3 percent of low income households and 93.2 percent of LIHEAP beneficiary households cooled their homes using 1 of these methods.

As Figures 2 and 3 show, in FY 2022, for households that cooled, average home cooling expenditures for all households were \$403 and the mean individual home cooling burden was 3.5 percent. Low income households had average home cooling expenditures of \$323; this average was about 19.9 percent lower than that for all households. The mean individual home cooling burden for low income households was 10.0 percent, more than twice as much as the mean individual home cooling burden for all households. Average home cooling expenditures for LIHEAP beneficiary households were \$279, about 13.6 percent lower than the average for low income households and about 30.7 percent lower than the average for all households. The mean individual home cooling burden for LIHEAP beneficiary households was 12.4 percent, more than 3 times higher than the mean individual home cooling burden for all households.

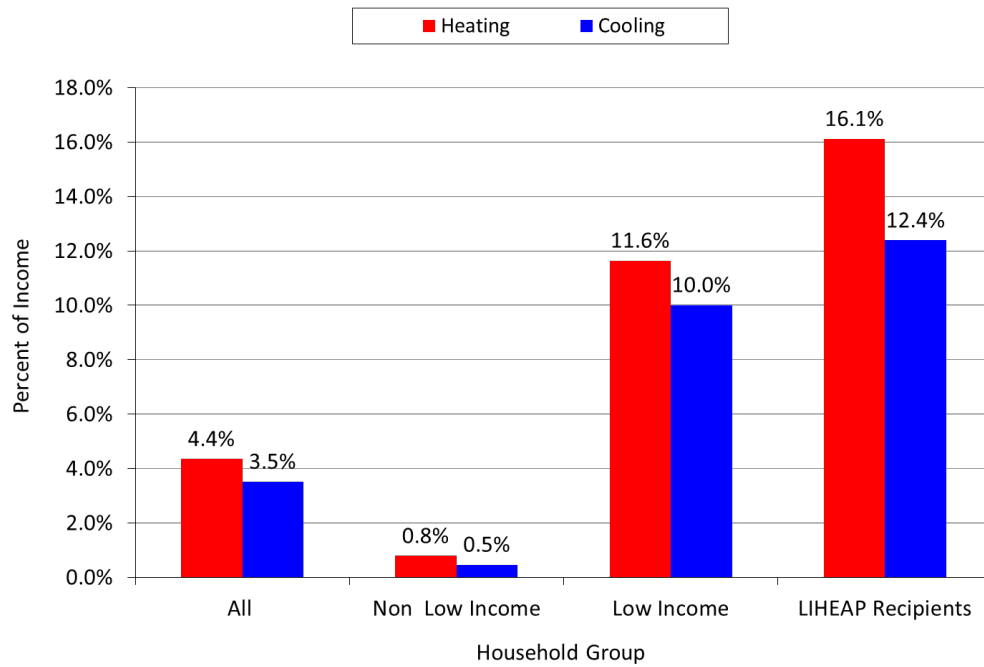
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<sup>3</sup> The 2020 RECS records cooling methods such as central or room air-conditioning, heat pump cooling, and non-air-conditioning cooling devices (e.g., ceiling fans and evaporative coolers).

**Figure 2. Mean Home Heating and Home Cooling Expenditures by All Households, Non-Low Income Households, Low Income Households, and LIHEAP Beneficiary Households, FY 2022**



**Figure 3. Mean Individual Burden of Heating and Cooling Expenditures for All Households, Non-Low Income Households, Low Income Households, and LIHEAP Beneficiary Households, FY 2022**



# Introduction

The Low Income Home Energy Assistance Program (LIHEAP) is authorized by Title XXVI of the Omnibus Budget Reconciliation Act of 1981 (OBRA), Public Law (Pub. L) 97-35, as amended. The Administration for Children and Families (ACF) within the U.S. Department of Health and Human Services (HHS) administers LIHEAP at the federal level. ACF awards annual LIHEAP block grants to assist eligible low income households in meeting their home energy costs. ACF issues such grants to the 50 states and the District of Columbia, certain Indian tribes and tribal organizations, and certain U.S. insular areas.

In 1994, Congress amended the purpose of LIHEAP to clarify that LIHEAP is “to assist low-income households, particularly those with the lowest incomes, that pay a high proportion of household income for home energy, primarily in meeting their immediate home energy needs” (The Human Services Amendments of 1994, Pub. L. 103-252, Sec. 302). Congress further indicated that LIHEAP grant recipients need to reassess their LIHEAP benefit structures to ensure that they are actually targeting those low income households that have the highest energy costs or needs. The Energy Policy Act of 2005 (Pub. L. 109-58) reauthorized LIHEAP through fiscal year (FY) 2007 without substantive changes. LIHEAP’s reauthorization is currently pending.

For LIHEAP grant recipients to reassess their LIHEAP benefit structures, they need performance statistics on LIHEAP applicants and eligible households. In addition, they need technical assistance in how to make use of the performance statistics in planning and implementing changes to their programs.

The *Low Income Home Energy Data Report* focuses on the home energy mission of LIHEAP by providing LIHEAP grant recipients with the latest national and regional data on home energy consumption, expenditures, and burden and by providing data on the characteristics of the low income population in each state. Previously, the *Low Income Home Energy Data Report* was published as part of the *LIHEAP Home Energy Notebook*, which included additional sections on low income home energy trends, federal LIHEAP targeting performance, and special studies of important issues related to LIHEAP and low income home energy needs. Beginning with data for FY 2015, the individual sections from the *LIHEAP Home Energy Notebook* have been published separately in an effort to make the data available to LIHEAP grant recipients in a more timely fashion.

The following sections present home energy consumption and expenditure data. The primary data source for these sections is the 2020 Residential Energy Consumption Survey (RECS), which has energy consumption and expenditures data for calendar year 2020. For this report, the 2020 residential energy, home heating, and home cooling consumption and expenditures have been adjusted to reflect FY 2022 weather and fuel prices and are described in Appendix A. National data on total residential energy, home heating, and home cooling are presented in the following section, with regional variations in the national data included in Appendix A. Information on the characteristics of the low income population, by state, is presented in Appendix B.

## Residential Energy Data

Tables 1a to 1d present data on average annual residential energy consumption, expenditures, and burden by fuel type for all, non-low income, low income, and LIHEAP beneficiary households.<sup>4</sup> In FY 2022, average residential energy consumption for all households was 78.1 million British thermal units (MMBtus) and average expenditures were \$2,290. The mean individual residential energy burden for all households was eight percent of income.

Low income households had average residential energy consumption of 65.8 MMBtus (about 16 percent less than all households) and average energy expenditures of \$1,987 (about 13 percent less than all households). Their mean individual residential energy burden was 19.0 percent, over twice that for all households and over 7 times that for non-low income households.

Average residential energy expenditures for LIHEAP beneficiary households were \$2,189, about 10 percent higher than that for all low income households. The mean individual residential energy burden was 24.5 percent, 5.5 percentage points higher than that for all low income households.

Households consume residential energy for a variety of uses that includes space heating, water heating, space cooling (air-conditioning or circulation), refrigeration, and other appliances. Table 2 furnishes data on the percentage of the residential energy bill that is attributable to each of these five end uses. By statute, LIHEAP targets assistance to home energy expenditures, i.e., to home heating and home cooling costs. In FY 2022, home heating was 30 percent of the residential energy bill for low income households and home cooling made up 15 percent.

**Table 1a. Residential Energy: Average Annual Household Consumption, Expenditures, and Burden by All Households, by Main Heating Fuel Type, United States, FY 2022<sup>i</sup>**

Main Heating Fuel	Fuel Consumption (MMBtus) <sup>ii</sup>	Fuel Expenditures	Mean Individual Burden <sup>iii</sup>	Median Individual Burden <sup>iv</sup>	Mean Group Burden <sup>v</sup>
All fuels	78.1	\$2,290	8.0%	3.0%	2.2%
Natural gas	97.3	\$2,373	6.9%	2.8%	2.3%
Electricity	49.8	\$1,904	9.0%	3.1%	1.9%
Fuel oil/kerosene	112.9	\$4,299	10.0%	5.2%	4.2%
LPG <sup>vi</sup>	100.0	\$3,472	8.8%	4.7%	3.4%

<sup>4</sup> Comparisons are made among the 4 income groups of all, non-low income, low income, and LIHEAP beneficiary households. All households represent the total number of households in the United States. Non-low income households represent those households with annual incomes above the LIHEAP income maximum of the greater of 150 percent of HHS Poverty Guidelines and 60 percent of the state median income. Low income households represent those households with annual incomes at or under the LIHEAP income maximum of the greater of 150 percent of HHS Poverty Guidelines and 60 percent of the state median income. LIHEAP beneficiary households represent those low income households that received federal fuel assistance.

**Table 1b. Residential Energy: Average Annual Household Consumption, Expenditures, and Burden by Non-Low Income Households, by Main Heating Fuel Type, United States, FY 2022<sup>i</sup>**

Main Heating Fuel	Fuel Consumption (MMBtus) <sup>ii</sup>	Fuel Expenditures	Mean Individual Burden <sup>iii</sup>	Median Individual Burden <sup>iv</sup>	Mean Group Burden <sup>v</sup>
All fuels	84.1	\$2,438	2.6%	2.2%	1.8%
Natural gas	102.0	\$2,491	2.5%	2.1%	1.9%
Electricity	53.3	\$2,026	2.4%	2.0%	1.5%
Fuel oil/kerosene	121.0	\$4,653	4.3%	3.7%	3.5%
LPG <sup>vi</sup>	105.5	\$3,643	3.9%	3.5%	2.7%

**Table 1c. Residential Energy: Average Annual Household Consumption, Expenditures, and Burden by Low Income Households, by Main Heating Fuel Type, United States, FY 2022<sup>i</sup>**

Main Heating Fuel	Fuel Consumption (Mmbtus) <sup>ii</sup>	Fuel Expenditures	Mean Individual Burden <sup>iii</sup>	Median Individual Burden <sup>iv</sup>	Mean Group Burden <sup>v</sup>
All fuels	65.8	\$1,987	19.0%	8.0%	8.7%
Natural gas	85.5	\$2,077	17.9%	7.9%	9.1%
Electricity	43.9	\$1,703	20.0%	7.3%	7.5%
Fuel oil/kerosene	96.9	\$3,606	21.4%	13.6%	15.8%
LPG <sup>vi</sup>	88.8	\$3,122	18.7%	12.0%	13.7%

**Table 1d. Residential Energy: Average Annual Household Consumption, Expenditures, and Burden by LIHEAP Beneficiary Households, by Main Heating Fuel Type, United States, FY 2022<sup>i</sup>**

Main Heating Fuel	Fuel Consumption (MMBtus) <sup>ii</sup>	Fuel Expenditures	Mean Individual Burden <sup>iii</sup>	Median Individual Burden <sup>iv</sup>	Mean Group Burden <sup>v</sup>
All fuels	74.5	\$2,189	24.5%	12.2%	10.9%
Natural gas	93.9	\$2,197	25.0%	13.1%	10.9%
Electricity	45.6	\$1,769	22.2%	10.2%	8.8%
Fuel oil/kerosene	88.3	\$3,294	25.1%	16.8%	16.4%
LPG <sup>vi*</sup>	102.3	\$3,793	29.7%	22.3%	18.9%

<sup>i</sup> Data are derived from the 2020 RECS, adjusted to reflect FY 2022 heating degree days, cooling degree days, and fuel prices. Data represent residential energy used from October 2021 through September 2022. See also Tables A-2, A-3a-A-3c, and Appendix A.

<sup>ii</sup> A British thermal unit (Btu) is the amount of energy necessary to raise the temperature of 1 pound of water 1 degree Fahrenheit. MMBtus refer to values in millions of Btus.

<sup>iii</sup> Mean individual burden is calculated by taking the mean, or average, of individual energy burdens, as calculated from FY 2022 adjusted RECS data. See Appendix A for information on calculation of energy burden.

<sup>iv</sup> Median individual burden is calculated by taking the median of individual energy burdens, as calculated from FY 2022 adjusted RECS data.

<sup>v</sup> Mean group energy burden has been calculated by (1) calculating average residential energy expenditures from the 2020 RECS for each group of households; (2) adjusting those figures for FY 2022; and (3) dividing the adjusted figures by the average income for each group of households from the 2022 CPS ASEC.

<sup>vi</sup> Liquefied petroleum gas (LPG) refers to any fuel gas supplied to a residence in liquid compressed form, such as propane or butane.

\* = This figure should be viewed with caution because of the small number of sample cases.

Residential energy expenditures of low income households are distributed similar to those of all households. However, LIHEAP beneficiaries spent a higher proportion of their annual residential expenditures for space heating and a lower proportion for space cooling than did other groups. LIHEAP beneficiary households spent 37 percent of their annual residential expenditures for space heating, 7 percentage points more than did the average low income household. LIHEAP beneficiary households spent 12 percent for space cooling, 3 percentage points less than did the average low income household.

**Table 2. Residential Energy: Percent of Residential Energy Expenditures for Each of the Major End Uses by All, Non-Low Income, Low Income, and LIHEAP Beneficiary Households, United States, FY 2022<sup>i</sup>**

End Use	All Households	Non-Low Income Households	Low Income Households	LIHEAP Beneficiary Households
Space heating	30%	30%	30%	37%
Space cooling	17%	17%	15%	12%
Water heating	15%	14%	18%	17%
Refrigeration	7%	7%	7%	6%
Appliances	31%	31%	29%	28%
All uses	100%	100%	100%	100%

<sup>i</sup> Data are derived from the 2020 RECS, adjusted to reflect FY 2022 heating degree days, cooling degree days, and fuel prices. Data represent residential energy used from October 2021 through September 2022. Percentages may not add to 100 percent due to rounding.

## Home Heating Data

This section presents data on main heating fuel type, home heating consumption, home heating expenditures, and home heating burden.

### Main Heating Fuel Type

Table 3 shows that, in 2020, about half of the non-low income households and LIHEAP beneficiary households used natural gas as their main heating fuel, while about 43.9 percent of low income households used natural gas as their main heating fuel. Non-low income households used natural gas at the highest rate among household groups, 54.1 percent. More than 30 percent of households in each group used electricity as their main heating fuel. Low income households used electricity at the highest rate among household groups, 39.6 percent, and non-low income households used electricity at the lowest rate among household groups, 32 percent. LIHEAP beneficiary households tended to use fuel oil/kerosene and propane more frequently than did households in other groups.

**Table 3. Home Heating: Percent of Households Using Major Types of Heating Fuels by All, Non-Low Income, Low Income, and LIHEAP Beneficiary Households, United States, 2020<sup>i</sup>**

Heating Fuel	All Households	Non-Low Income Households	Low Income Households	LIHEAP Beneficiary Households
Natural gas	50.8%	54.1%	43.9%	47.6%
Electricity	34.5%	32.0%	39.6%	34.6%
Fuel oil/kerosene	4.0%	3.9%	4.1%	8.8%
LPG	4.2%	4.2%	4.2%	4.6%
Other <sup>ii</sup>	1.9%	1.7%	2.3%	2.2%

<sup>i</sup> Data are derived from the 2020 RECS. Percentages may not add to 100 percent due to rounding. See also Table A-4, Appendix A.

<sup>ii</sup> Households using wood, coal, and other minor fuels are categorized together under "Other."

Based on the 2015 RECS and 2020 RECS, the percent of non-low income households using electricity as their main heating source stayed about the same in 2020 (32 percent) compared to 2015 (31.6 percent). In contrast, low income households decreased their use of electricity as the main heat source from 42.2 percent in 2015 to 39.6 percent in 2020. Use of electricity as the main heat source by LIHEAP beneficiary households increased in 2020 (34.6 percent) compared to 2015 (29.2 percent).

### Home Heating Consumption, Expenditures, and Burden

Average annual home heating consumption, expenditures, and burden by fuel type for all, non-low income, low income, and LIHEAP beneficiary households are presented in Tables 4a to 4d. In FY 2022, average home heating consumption for all households was 34.1 MMBtus, average expenditures were \$695, and mean individual home heating burden was 4.4 percent.

Low income households had average home heating consumption of 28.0 MMBtus (about 18 percent less than the average for all households) and average home heating expenditures of \$605



(about 13 percent less than the average for all households). The mean individual home heating burden for low income households was 11.6 percent, over twice as much as the average home heating burden for all households and more than 14 times the average home heating burden for non-low income households.

Average home heating consumption for LIHEAP beneficiary households was 36.8 MMBtus (about 8 percent higher than the average for all households), and average home heating expenditures were \$802 (about 15 percent higher than the average for all households). Mean individual home heating burden for LIHEAP households was 16.1, about 39 percent higher (or 4.5 percentage points higher) than the average for low income households and nearly 4 times the average for all households. Average home heating consumption for LIHEAP beneficiary households was about 31 percent greater than that for all low income households because LIHEAP heating assistance beneficiary households tend to live in colder climate regions.

**Table 4a. Home Heating: Average Annual Household Consumption, Expenditures, and Burden by All Households, by Fuel Type, United States, FY 2022<sup>i</sup>**

Main Heating Fuel	Fuel Consumption (Mmbtus) <sup>ii</sup>	Fuel Expenditures	Mean Individual Burden <sup>iii</sup>	Median Individual Burden <sup>iv</sup>	Mean Group Burden <sup>v</sup>
All fuels	34.1	\$695	4.4%	0.7%	0.7%
Natural gas	48.8	\$739	3.9%	0.8%	0.7%
Electricity	12.2	\$469	5.3%	0.6%	0.5%
Fuel oil/kerosene	67.8	\$2,182	6.5%	2.6%	2.1%
LPG <sup>vi</sup>	53.3	\$1,558	4.9%	2.0%	1.5%

**Table 4b. Home Heating: Average Annual Household Consumption, Expenditures, and Burden by Non-Low Income Households, by Fuel Type, United States, FY 2022<sup>i</sup>**

Main Heating Fuel	Fuel Consumption (Mmbtus) <sup>ii</sup>	Fuel Expenditures	Mean Individual Burden <sup>iii</sup>	Median Individual Burden <sup>iv</sup>	Mean Group Burden <sup>v</sup>
All fuels	37.1	\$739	0.8%	0.5%	0.6%
Natural gas	50.9	\$771	0.8%	0.6%	0.6%
Electricity	13.0	\$490	0.6%	0.3%	0.4%
Fuel oil/kerosene	72.4	\$2,341	2.2%	1.7%	1.7%
LPG <sup>vi</sup>	55.7	\$1,608	1.8%	1.4%	1.2%

**Table 4c. Home Heating: Average Annual Household Consumption, Expenditures, and Burden by Low Income Households, by Fuel Type, United States, FY 2022<sup>i</sup>**

Main Heating Fuel	Fuel Consumption (MMBtus) <sup>ii</sup>	Fuel Expenditures	Mean Individual Burden <sup>iii</sup>	Median Individual Burden <sup>iv</sup>	Mean Group Burden <sup>v</sup>
All fuels	28.0	\$605	11.6%	2.1%	2.7%
Natural gas	43.3	\$659	11.8%	2.5%	2.9%
Electricity	11.0	\$434	13.1%	1.6%	1.9%
Fuel oil/kerosene	58.8	\$1,873	14.9%	6.5%	8.2%
LPG <sup>vi</sup>	48.4	\$1,455	11.5%	4.9%	6.4%

**Table 4d. Home Heating: Average Annual Household Consumption, Expenditures, and Burden by LIHEAP Beneficiary Households, by Fuel Type, United States, FY 2022<sup>i</sup>**

Main Heating Fuel	Fuel Consumption (MMBtus) <sup>ii</sup>	Fuel Expenditures	Mean Individual Burden <sup>iii</sup>	Median Individual Burden <sup>iv</sup>	Mean Group Burden <sup>v</sup>
All fuels	36.8	\$802	16.1%	3.8%	4.0%
Natural gas	50.9	\$757	15.8%	4.3%	3.8%
Electricity	14.2	\$556	14.4%	2.5%	2.8%
Fuel oil/kerosene	55.3	\$1,777	18.7%	9.0%	8.8%
LPG <sup>vi</sup>	58.3	\$1,933	21.5%	9.7%	9.6%

<sup>i</sup> Data are derived from the 2020 RECS, adjusted to reflect FY 2022 heating degree days and fuel prices. Data represent home heating energy used from October 2021 through September 2022. See also Tables A-5, A-6a-A-6c, and Appendix A.

<sup>ii</sup> A British thermal unit (Btu) is the amount of energy necessary to raise the temperature of 1 pound of water 1 degree Fahrenheit. MMBtus refer to values in millions of Btus.

<sup>iii</sup> Mean individual burden is calculated by taking the mean, or average, of individual heating energy burdens, as calculated from FY 2022 adjusted RECS data. See Appendix A for information on energy burden calculation.

<sup>iv</sup> Median individual burden is calculated by taking the median of individual heating energy burdens, as calculated from FY 2022 adjusted RECS data.

<sup>v</sup> Mean group heating energy burden is calculated by (1) computing average home heating energy expenditures from the 2020 RECS for each group of households; (2) adjusting those figures for FY 2022; and (3) dividing the adjusted figures by the average income for each group of households from the 2022 CPS ASEC.

<sup>vi</sup> Liquefied petroleum gas (LPG) refers to any fuel gas supplied to a residence in liquid compressed form, such as propane or butane.

## Home Cooling Data

This section presents data on home cooling type, home cooling consumption, home cooling expenditures, and home cooling burden.

### Cooling Type

As shown in Table 5, about 95 percent of all households in 2020 cooled their homes in ways recorded by the 2020 RECS (i.e., with air-conditioners or with non-air-conditioning cooling devices such as ceiling fans and evaporative coolers). Low income households were less likely to cool their homes than were non-low income households.

**Table 5. Home Cooling: Percent of Households with Home Cooling by All, Non-Low Income, Low Income, and LIHEAP Beneficiary Households, United States, 2020<sup>i</sup>**

Presence of Cooling	All Households	Non-Low Income Households	Low Income Households	LIHEAP Beneficiary Households
Cooling <sup>ii</sup>	94.8%	96.1%	92.3%	93.2%
None <sup>iii</sup>	5.2%	4.0%	7.7%	6.8%

<sup>i</sup> Data are derived from the 2020 RECS. See also Table A-7, Appendix A.

<sup>ii</sup> Represents households that cool with central or room air-conditioning as well as non-air-conditioning cooling devices (e.g., ceiling fans and evaporative coolers).

<sup>iii</sup> Represents households that do not cool or cool in ways other than those recorded by the 2020 RECS (e.g., the use of table and window fans).

### Home Cooling Consumption, Expenditures, and Burden

Average annual home cooling consumption, expenditures, and burden for all, non-low income, low income, and LIHEAP beneficiary households that cooled are presented in Table 6. In FY 2022, average home cooling consumption for all households that cooled was 9.6 MMBtus, average expenditures were \$403, and mean individual home cooling burden was 3.5 percent.

For low income households that cooled, average home cooling energy consumption was 7.6 MMBtus (about 21 percent less than the average for all households) and average home cooling expenditures were \$323 (about 20 percent less than the average for all households). The mean individual home cooling burden for low income households was 10 percent, more than twice the average home cooling burden of all households and 20 times that of non-low income households.

For households that cooled, average home cooling consumption for LIHEAP beneficiary households was 6.4 MMBtus—18 percent less than that for the average low income household—and average home cooling expenditures were \$279, about 31 percent less than that for all households and 14 percent less than that for the average low income household). Mean individual home cooling burden for LIHEAP beneficiary households was 12.4 percent, 254 percent higher than the average for all households.

**Table 6. Home Cooling: Average Annual Household Consumption, Expenditures, and Percent of Income by All, Non-Low Income, Low Income, and LIHEAP Beneficiary Households that Cooled, United States, FY 2022<sup>i</sup>**

Household Group	Fuel Consumption (MMBtus) <sup>ii</sup>	Fuel Expenditures	Mean Individual Burden <sup>iii</sup>	Median Individual Burden <sup>iv</sup>	Mean Group Burden <sup>v</sup>
All households	9.6	\$403	3.5%	0.4%	0.4%
Non-low income	10.5	\$441	0.5%	0.3%	0.3%
Low income households	7.6	\$323	10.0%	1.1%	1.4%
LIHEAP beneficiary	6.4	\$279	12.4%	1.3%	1.4%

<sup>i</sup> Data are derived from the 2020 RECS, adjusted to reflect FY 2022 cooling degree days and fuel prices. Data represent residential energy used from October 2021 through September 2022. See also Table A-7, Appendix A.

<sup>ii</sup> A British thermal unit (Btu) is the amount of energy necessary to raise the temperature of 1 pound of water 1 degree Fahrenheit. MMBtus refer to values in millions of Btus.

<sup>iii</sup> Mean individual burden is calculated by taking the mean, or average, of individual cooling energy burdens, as calculated from FY 2022 adjusted RECS data. See Appendix A for information on energy burden calculation.

<sup>iv</sup> Median individual burden is calculated by taking the median of individual cooling energy burdens, as calculated from FY 2022 adjusted RECS data.

<sup>v</sup> Mean group cooling energy burden is calculated by (1) computing average home cooling energy expenditures from the 2020 RECS for each group of households; (2) adjusting those figures for FY 2022; and (3) dividing the adjusted figures by the average income for each group of households from the 2022 Current Population Survey Annual Social and Economic Supplement (CPS ASEC).

## Appendix A: Home Energy Estimates

Appendix A provides information on how estimates of home energy data were derived from the 2020 Residential Energy Consumption Survey (RECS) and updated for FY 2022. The following topics are covered in this Appendix.

- Description of RECS.
- Strengths and limitations of RECS data.
- National and regional average home energy consumption and expenditures.
- Energy burden.

### Description of RECS

The RECS is a national household sample survey that provides information on residential energy use. It has been conducted by the Energy Information Administration (EIA) of the U.S. Department of Energy (DOE) since 1978. It is designed to provide reliable data at the national and Census regional levels. The RECS includes information on energy consumption and expenditures, household demographics, housing characteristics, weatherization/conservation practices, home appliances, and type of heating and cooling equipment. Typically, this survey is conducted every four to six years.

The survey consists of three parts:

- EIA interviews households for information about which fuels are used, how fuels are used, energy-using appliances, structural features, energy-efficiency measures taken, demographic characteristics of the household, heating interruptions, and receipt of energy assistance.
- EIA interviews rental agents for households whose rent includes some portion of their energy bill. This information augments information from those households that may not be knowledgeable about the fuels used for space heating or water heating.
- After obtaining permission from respondents, EIA contacts their energy suppliers to collect the actual billing data on energy consumption and expenditures. This fuel supplier survey eliminates the inaccuracy of self-reported data. When a household does not consent or when fuel consumption records are unusable or nonexistent, regression analysis and modeling is used to impute missing data.<sup>5</sup>

The 2020 RECS is the fifteenth survey in the series of surveys.<sup>6</sup> For the 2020 RECS, 18,496 households were interviewed, including 759 verified LIHEAP beneficiary households. For the

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<sup>5</sup> Regression analysis is a statistical tool for evaluating the relationship of 1 or more independent variables to a single continuous dependent variable. Formulas developed from regression analysis are used to predict the value of the dependent variable under varying conditions of the independent variable(s).

<sup>6</sup> For more information about the RECS sample design, see EIA's RECS webpage: <https://www.eia.gov/consumption/residential/about.php>

figures in this report, 2020 RECS consumption and expenditure data were updated using price and weather data to represent consumption and expenditures for FY 2022.

## Strengths and Limitations of RECS Data

The RECS provides the most recent, comprehensive data on home energy consumption and expenditures. The strengths of using RECS to derive home energy estimates are as follows.

- RECS uses a representative national household sample, providing statistically reliable estimates for all, non-low income, and low income households.
- The RECS includes usage data for all residential fuels.
- Energy suppliers provide information on actual residential energy consumption and expenditures of RECS sample households to eliminate the inaccuracy of self-reported data.
- Regression analyses and modeling of data from the RECS provide estimates of the amounts of fuels going to various end uses, including home heating and cooling.

While the updated 2020 RECS data provide the most comprehensive data on residential energy use by low income households, several significant limitations must be addressed:<sup>7</sup>

- The 2020 RECS data for calendar year 2020 were updated to FY 2022 (October 1, 2021 to September 30, 2022), using procedures that adjust the 2020 data to reflect the weather and fuel prices for FY 2022. These procedures are comparable to those used for the FY 1986-FY 2021 annual *LIHEAP Reports to Congress*. However, the reader should exercise caution in comparing the data in this report with data in annual *LIHEAP Reports to Congress* prior to FY 1986, in which consumption and expenditure data were estimated from the RECS year (April 1 to March 31).
- For some variables, disaggregation of data into subgroups at the regional level results in estimates made from a small number of sample cases. This is particularly true of the LIHEAP beneficiary households and the fuel oil/kerosene and liquefied petroleum gas and kerosene heating subgroups. This affects the reliability of the estimates.
- The household is a basic reporting unit for RECS and LIHEAP. RECS defines a household as all individuals living in a housing unit, whether related or not, who (1) share a common direct access entry to the unit from outside the building or from a hallway, and (2) do not normally eat their meals with members of other units in the building. A household does not include temporary visitors or household members away at college or in the military. LIHEAP defines a household as one or more individuals living together as an economic unit who purchase energy in common or make undesignated payments for energy in their rent. Some variation in the count of households, particularly those containing renters or boarders, may result from the difference in definitions.
- The Current Population Survey Annual Social and Economic Supplement (CPS ASEC), conducted by the Bureau of the Census, provides, at national and regional levels, data on

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<sup>7</sup> Information about the quality of RECS data is available from the EIA website: *RECS Methodology*, Energy Information Administration, <https://www.eia.gov/consumption/residential/data/2020/index.php?view=methodology>.

total household income as a specific dollar amount. CPS's larger sample size and method of collecting income data result in more accurate income data than RECS income data. Therefore, the 2022 CPS ASEC is used to develop estimates of the number of low income households. In addition, mean income statistics from the CPS ASEC are used in the calculation of group energy burden for this report.<sup>8</sup>

- As with prior versions of this report, the estimates of households classified as income eligible for LIHEAP do not include households whose incomes may have exceeded the statutory income standards but who would be eligible to receive LIHEAP benefits because they (1) were categorically eligible for LIHEAP under Section 8624 (b)(2)(A) of the LIHEAP statute; (2) became income ineligible for LIHEAP at the time of the survey; or (3) were deemed eligible for LIHEAP based on incorrectly-reported income. However, the tabulations of LIHEAP households also include survey respondents who were identified as LIHEAP beneficiaries from state LIHEAP administrative data but who reported incomes higher than the maximum statutory income in the RECS survey.

## **Average Home Energy Consumption and Expenditures**

Average heating and cooling consumption and expenditure estimates for FY 2022 were calculated at national and regional levels for all, non-low income, low income, and LIHEAP beneficiary households, for various fuels. The heating and cooling estimates were updated for each 2020 RECS sample case using FY 2022 heating degree days, cooling degree days, and price inflators applied to the original expenditure data, as well as the multiple regression formula developed from the 2020 RECS. Home energy consumption and expenditure data were developed by aggregating and averaging home heating and cooling estimates for the sample cases that represented all, non-low income, low income, and LIHEAP beneficiary households.

Tables A-2 through A-3c display national and regional consumption and expenditure data for residential energy (including energy used for space heating, water heating, space cooling, and appliances). Tables A-4 through A-6c display national and regional usage, consumption, and expenditure data for home heating. Table A-7 displays national and regional usage, consumption, and expenditure data for home cooling. Analysis and discussion of home energy consumption and expenditures appear in Section II, Section III, and Section IV of this report.

## **Energy Burden**

Energy burden is an important statistic for policymakers who are considering the need for energy assistance. Energy burden can be defined broadly as the burden placed on household incomes by the cost of residential energy. However, there are different ways to compute energy burden and different interpretations of the energy burden statistics. The purpose of this section is to examine alternative energy burden statistics and discuss the interpretation of each.<sup>9</sup>

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<sup>8</sup> Note that household-level energy and income data from RECS are used to calculate mean and median individual energy burden.

<sup>9</sup> More detailed information is available in the Division of Energy Assistance's (DEA's) technical report, *Characterizing the Impact of Energy Expenditures on Low Income Households: An Analysis of Alternative Energy Burden Statistics*, (November 1994).

Different “measures of central tendency” can be used to describe energy burden. The most commonly used measures are the mean and the median. As previously noted, the mean or average is computed as the sum of all values divided by the number of values. The median is computed as the value that is at the center of the distribution of values (i.e., 50 percent of the values are greater than the median and 50 percent are less).

### **Computational Procedures**

There are two ways to compute mean energy burden for households.<sup>10</sup> The first is the “mean individual” approach, and the second is the “mean group” approach. While these approaches appear to be similar, they give quite different values.

Using the “mean individual burden” approach, energy burden is computed as follows.

1. First, the ratio of energy expenditures to annual income for each household in a specified population is computed.
2. Then, the mean of these energy burden ratios is computed for the population.<sup>11</sup> For example, consider the situation where there are four households with energy burdens of four, five, seven, and eight percent.
3. The mean of these energy burdens is calculated by adding the percentages (24 percentage points) and dividing by the number of households (4 households), resulting in a mean individual burden of 6 percent.

Using the “mean group burden” approach, energy burden is computed as follows.

1. First, total annual energy expenditures for households and total annual income for households in a specified population are computed.
2. Then, the ratio of total energy expenditures to total income is computed for the specified population. For example, consider the situation where a group consists of 4 households that have a total income of \$100,000 and a total energy bill of \$4,000.
3. Dividing the \$4,000 in total energy bills by \$100,000 in total income results in a mean group burden of 4 percent.

According to the 2020 RECS, the mean residential energy burden for all LIHEAP federally eligible households, in 2020, using the first approach (mean individual burden) was 19.0 percent. Using the energy bill estimates from the 2020 RECS and income estimates from the 2020 CPS ASEC, the mean residential energy burden under the second approach (mean group burden) was 8.7 percent. The disparity between the two statistics is because the lowest income households spend

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<sup>10</sup> The mean is the sum of all values divided by the number of values. The mean is also referred to as the average.

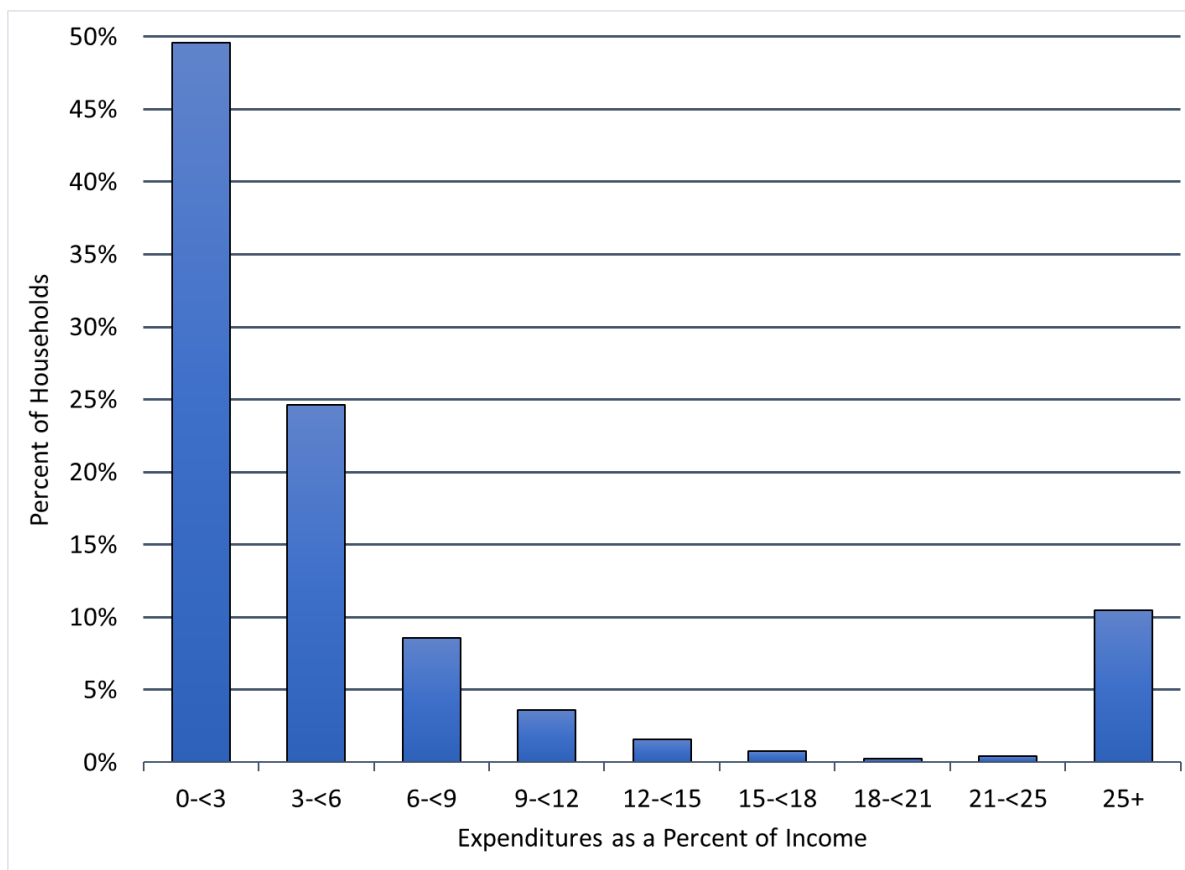
<sup>11</sup> For some households, residential energy expenditures appear to exceed income. Older adult households living on their savings are an example of such households. In calculating mean individual burden, the energy burden figures for such households have been limited to 100 percent.



a greater share of their income on residential energy than do higher income households.<sup>12</sup> If the relationship between income and residential energy expenditures is linear (i.e., a 10 percent increase in income is associated with a 10 percent increase in residential energy expenditures), the 2 statistics would be equal. However, since several low income households spend a large share of their income on energy, the relationship between income and residential energy expenditures is not linear (i.e., a 10 percent increase in income is associated with a considerably smaller increase in energy expenditures). Therefore, there is a difference between the two statistics.

In the discussion of computational procedures, the “mean individual burden” was examined. It is also possible to look at the “median individual burden.” As noted above for LIHEAP income eligible households, the mean residential energy burden computed as the “mean individual burden” was 19.0 percent. The median of the distribution of residential energy burdens from the 2020 RECS survey was eight percent. The disparity between these two statistics is the result of the skewed distribution of energy burden ratios. Figure A-1 demonstrates a skewed distribution of LIHEAP income eligible households by home energy (heating and cooling) burden.

**Figure A-1. Distribution of LIHEAP Income Eligible Households by Home Energy Burden, 2020**



<sup>12</sup> For example, 2020 RECS households with incomes of \$15,000 to \$19,999 had average residential energy expenditures of \$1,513, while those with incomes between \$40,000 and \$49,999 had average residential energy expenditures of \$1,670. Thus, households that had more than twice as much income spent only about 10 percent more on energy.

## **Data Files**

The data files used to make estimates of energy burden also have some impact on the statistic. The RECS data file is the only reliable source of national information on energy expenditures. However, the income reported on the RECS is known to be deficient in several ways. First, it is generally true that income is underreported on household surveys. Second, the RECS collects income data less precisely through the use of income intervals. Finally, the CPS ASEC collects income more precisely by asking a series of detailed questions on income than the RECS does and also has a larger sample size than the RECS.

Historically, the income collection procedures in the RECS has resulted in categorizing more households as income eligible for LIHEAP than the CPS ASEC. Based on the 2020 RECS, 40.5 million households were estimated to be LIHEAP income eligible households. Based on the 2021 CPS ASEC, the estimate of LIHEAP income eligible households was 36.5 million households.

## **Data Interpretations**

The statistic used to describe energy burden depends on the question being asked. Each statistic offers some data on energy burden while not telling the whole story by itself.

The key difference between “mean individual burden” and “mean group burden” is that the first statistic focuses on the experience of individual households and the second on the experience of a group of households. The “mean individual burden” furnishes more information on how individual households are affected by energy burden (i.e., it computes a mean by using each household’s burden). The “mean group burden” furnishes more information on group burden (i.e., it computes the share of all income earned by LIHEAP income eligible households that goes to pay for energy). Both statistics are useful, though the individual burden statistic puts more emphasis on the experience of individual households, and the group burden puts more emphasis on the share of group income that is used for energy.

The key difference between the “mean individual burden” and the “median individual burden” is that the first statistic furnishes information on all LIHEAP income eligible households at the expense of overstating what is happening to the “average” LIHEAP income eligible household. The second statistic furnishes information on the “average” LIHEAP income eligible household at the expense of disregarding what is happening to households at either end of the distribution.

The best way to furnish information on energy burden is to use all available statistics. For example, it would be informative to show the “mean individual burden,” the “median individual burden,” and the “distribution of individual energy burdens,” for all LIHEAP income eligible households, to indicate how individual households are affected by energy costs. In addition, it would be useful to show the “mean group burden” to indicate what share of income is going to pay energy bills for the group as a whole.

However, when doing an analysis of energy burden among several groups of households, it is very difficult to present the entire spectrum of available statistics. Thus, we usually limit the analysis to a comparison of one statistic between groups. In general, if only one statistic is used, either the “mean individual burden” or the “mean group burden” is preferred, since a mean is a more

complete statistic than is a median. The choice between the two means is dictated by which of the following types of analysis is being conducted.

- If funding levels are being examined, the group burden is probably more useful. This statistic furnishes information on the size of the energy bill of LIHEAP income eligible households and the portion of income for this group that is spent on energy. Using this statistic allows direct examination of the relationship between the total energy bill and total LIHEAP funding.
- If targeting decisions are being examined, the mean or median individual burden is probably more useful. These statistics furnish information on the distribution of burdens among households in a group. Using these statistics helps to target those groups where a significant number of households have high energy burdens.

All three energy burden statistics are presented in this report's tables to fully inform the reader. Beginning with the *LIHEAP Report to Congress for FY 1992*, the mean individual energy burden and mean group burden statistics have been furnished in the reports. Previous *Reports to Congress* presented only the mean group burden. The text of this report references mean group burden to maintain consistency with the previous *Reports to Congress*.

## **Projecting Energy Consumption and Expenditures**

Projections were developed using microsimulation techniques that adjusted consumption and energy expenditures for changes in weather and prices. Consumption amounts for each household were adjusted for changes in heating and cooling degree days. Projected expenditures for each household were estimated as a function of projected consumption changes and actual changes in fuel prices. To make these projections, it was assumed that households did not change their energy use behavior (that is, their tendency to seek a specific indoor temperature) as a result of weather, price, or other changes.

Consumption projections utilized end use consumption estimates that were developed with the 2020 RECS data. These estimates were based on models for each fuel, using households that had actual (not imputed) consumption records for the fuel. The models used nonlinear estimation techniques to estimate parameters that described the relationship of consumption to end uses, housing characteristics, weather, and demographics.

To develop consumption projections, heating and cooling end use estimates for Calendar Year 2020 were adjusted for weather differences between 2020 and FY 2022. The following equation was applied to each household in the microsimulation data file.

$$\begin{aligned} \text{FY 2022 Projected Btus} = & \text{(2020 estimated heat use * HDD change)} + \\ & \text{(2020 estimated cooling use * CDD change)} + \\ & \text{(2020 estimated water heat use + 2020 estimated appliance use)} \end{aligned}$$

Expenditure projections were a function of projected changes in consumption and actual changes in prices. The following equations were used.

$$\text{Preliminary Expenditures} = \text{2020 Expenditures} * (\text{FY 2022 Projected Usage}/\text{2020 Actual Usage})$$

$$\text{Final Expenditures} = \text{Preliminary Expenditures} * \text{Price Change}^{13}$$

Table A-1 shows the national price factors that were used. The price factors show the actual change in the average price of a fuel from calendar year 2020 to FY 2022. For example, electricity prices increased by about 12.4 percent from 2020 to FY 2022.

**Table A-1. National Price Factors for FY 2022**

<b>Fuel</b>	<b>Price Factors for FY22 Projections</b>
<b>Electricity</b>	1.1242
<b>Natural gas</b>	1.3221
<b>Fuel oil / kerosene</b>	1.7976
<b>Liquefied petroleum gas (LPG)</b>	1.4691

Expenditure data were adjusted using national price factors for FY 2022. Earlier *LIHEAP Home Energy Notebooks* used state-level price factor data. For FY 1993/1994, state-level data did not vary much from the national average for electricity and natural gas. For electricity, price changes varied between 0.3 percent and 1.2 percent; the national average was 0.8 percent. For natural gas, price changes varied between 1.7 percent and 2.8 percent; the national average was two percent. Expenditure projections using national price data do not appear to be significantly different from those obtained using state-level price data.

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<sup>13</sup> Price factors were developed using price data obtained from the Energy Information Administration for electricity, natural gas, and LPG, and the BLS Consumer Price Index for fuel oil. Consumption data were obtained from the Energy Information Administration for all fuels. Electricity price data used for calculating price factors are from the Monthly Energy Review, December 2022, and electricity consumption data is from the Electric Power Monthly, January 2023. Natural gas price and consumption data used for calculating price factors are from the Monthly Energy Review, December 2022. Fuel oil/kerosene price data for calculating price factors are from the U.S. City Average, Fuel Oil #2, Consumer Price Index of the Bureau of Labor Statistics, Series ID APU000072511. LPG price data were obtained from the Energy Information Administration website (<http://www.eia.doe.gov>). Fuel oil/kerosene and LPG consumption data are from the Monthly Energy Review, December 2022.

**Table A-2. Residential Energy: Average Consumption Per Household, by All Fuels and Specified Fuels, by All, Non-Low Income, Low Income, and LIHEAP Beneficiary Households, by Census Region, FY 2022<sup>i</sup>**

Census Region	All Fuels <sup>ii</sup> (MMBtus) <sup>iii</sup>	Natural Gas (MMBtus)	Electricity (MMBtus)	Fuel Oil/Kerosene (MMBtus)	LPG (MMBtus)
US - all households	78.1	97.3	49.8	112.9	100.0
US - non-low income households	84.1	102.0	53.3	121.0	105.5
US - low income households <sup>iv</sup>	65.8	85.5	43.9	96.9	88.8
US - LIHEAP beneficiary households <sup>v</sup>	74.5	93.9	45.6	88.3	102.3
Northeast - all households	91.0	101.6	40.1	114.4	97.6
Northeast - non-low income households	98.8	107.9	44.4	123.2	103.3
Northeast - low income households	76.3	89.0	34.4	95.9	84.4
Northeast - LIHEAP beneficiary households	80.6	91.4	43.6	89.1	95.8*
Midwest - all households	98.4	111.6	48.6	117.4	114.8
Midwest - non-low income households	106.3	116.5	55.3	124.9*	117.5
Midwest - low income households	82.0	99.2	40.8	107.5*	107.7
Midwest - LIHEAP beneficiary households	85.2	103.2	42.4	NC	126.1*
South - all households	68.2	95.1	53.7	99.6	85.8
South - non-low income households	73.2	99.3	56.7	99.3	92.2
South - low income households	58.1	82.7	48.3	100.2	77.7
South - LIHEAP beneficiary households	61.5	89.5	49.7	W	85.7*
West - all households	64.6	79.5	42.2	103.1	87.4
West - non-low income households	69.7	83.8	44.8	117.0	92.8
West - low income households	53.6	68.0	37.8	86.0	73.9
West - LIHEAP beneficiary households	59.0	76.4	39.2	W	W

<sup>i</sup> Developed from the 2020 Residential Energy Consumption Survey (RECS), Energy Information Administration, U.S. Department of Energy, and adjusted for FY 2022 for heating and cooling degree days.

<sup>ii</sup> Weighted average of natural gas, electricity, fuel oil, and liquefied petroleum gas consumption. RECS consumption data are not collected for other fuels.

<sup>iii</sup> A British thermal unit (Btu) is the amount of energy necessary to raise the temperature of 1 pound of water 1 degree Fahrenheit. MMBtus refer to values in millions of Btus.

<sup>iv</sup> Households with income at or below the maximum in Section 2605(b)(2)(B) of Pub. L. 97-35.

<sup>v</sup> Includes verified LIHEAP beneficiary households from the 2020 RECS.

NC = No cases in the 2020 RECS household sample.

W = Withheld due to the small number of sample cases.

\* = This figure should be viewed with caution because of the small number of sample cases.

**Table A-3a. Residential Energy: Average Annual Expenditures, by Amount (Dollars) and Mean Group Burden (Percent of Income), for All, Non-Low Income, Low Income, and LIHEAP Beneficiary Households, by Census Region and Main Heating Fuel, FY 2022**

Census Region	All Fuels <sup>i</sup>	All Fuels <sup>ii</sup>	Natural		Electric Heat	Electric Heat	Fuel		LPG Heat	LPG Heat
			Gas Heat	Natural Gas Heat			Oil/Kero Heat	Fuel Oil/Kero Heat		
US - all households	\$2,290	2.2%	\$2,373	2.3%	\$1,904	1.9%	\$4,299	4.2%	\$3,472	3.4%
US - non-low income households	\$2,438	1.8%	\$2,491	1.9%	\$2,026	1.5%	\$4,653	3.5%	\$3,643	2.7%
US - low income households <sup>iii</sup>	\$1,987	8.7%	\$2,077	9.1%	\$1,703	7.5%	\$3,606	15.8%	\$3,122	13.7%
US - LIHEAP beneficiary households <sup>iv</sup>	\$2,189	10.9%	\$2,197	10.9%	\$1,769	8.8%	\$3,294	16.4%	\$3,793	18.9%
Northeast - all households	\$2,906	2.5%	\$2,696	2.3%	\$1,949	1.7%	\$4,383	3.8%	\$3,804	3.3%
Northeast - non-low income households	\$3,150	2.0%	\$2,862	1.8%	\$2,122	1.3%	\$4,765	3.0%	\$3,978	2.5%
Northeast - low income households	\$2,451	9.4%	\$2,367	9.1%	\$1,717	6.6%	\$3,586	13.8%	\$3,397	13.0%
Northeast - LIHEAP beneficiary	\$2,614	12.2%	\$2,380	11.1%	\$2,024	9.4%	\$3,327	15.5%	\$4,008	18.6%*
Midwest - all households	\$2,299	2.3%	\$2,284	2.3%	\$1,821	1.9%	\$4,087	4.2%	\$3,476	3.5%
Midwest - non-low income households	\$2,443	1.9%	\$2,386	1.9%	\$2,021	1.6%	\$4,386	3.5%*	\$3,557	2.8%
Midwest - low income households	\$2,003	8.8%	\$2,030	8.9%	\$1,588	7.0%	\$3,690	16.2%*	\$3,269	14.3%
Midwest - LIHEAP beneficiary households	\$2,044	9.8%	\$2,118	10.2%	\$1,555	7.5%	NC	NC	\$4,152	20.0%*
South - all households	\$2,194	2.4%	\$2,514	2.7%	\$1,993	2.1%	\$3,740	4.0%	\$3,199	3.4%
South - non-low income households	\$2,313	1.9%	\$2,621	2.2%	\$2,086	1.7%	\$3,760	3.1%	\$3,408	2.8%
South - low income households	\$1,949	9.5%	\$2,196	10.7%	\$1,824	8.9%	\$3,707	18.0%	\$2,936	14.3%
South - LIHEAP beneficiary households	\$2,025	12.3%	\$2,340	14.3%	\$1,850	11.3%	W	W	\$3,169	19.3%*
West - all households	\$1,956	1.7%	\$2,097	1.9%	\$1,637	1.5%	\$4,142	3.7%	\$3,532	3.1%
West - non-low income households	\$2,106	1.5%	\$2,225	1.5%	\$1,776	1.2%	\$4,610	3.2%	\$3,803	2.6%
West - low income households	\$1,631	6.9%	\$1,757	7.4%	\$1,399	5.9%	\$3,564	15.1%	\$2,860	12.1%
West - LIHEAP beneficiary households	\$1,634	8.0%	\$1,715	8.4%	\$1,498	7.3%	W	W	W	W

<sup>i</sup> Estimates are derived from the 2020 Residential Energy Consumption Survey (RECS), Energy Information Administration, U.S. Department of Energy. The 2020 RECS data have been adjusted for heating degree days, cooling degree days, and fuel price estimates for FY 2022. Expenditures represent the costs for fuel oils and LPG delivered and billed costs for natural gas and electricity. RECS expenditure data are not collected for other fuels.

<sup>ii</sup> Represents the percent of household's income used for residential energy expenditures. National and regional mean incomes are calculated from the 2022 CPS ASEC, which reports income for calendar year 2022. Mean group residential burden is computed as mean group energy expenditures (from RECS) divided by mean group income (from CPS ASEC). See text in Appendix A for a discussion of energy burden.

<sup>iii</sup> Households with annual incomes at or below the maximum in Section 2605(b)(2)(B) of Pub. L. 97-35.

<sup>iv</sup> Includes verified LIHEAP beneficiary households from the 2020 RECS.

NC = No cases in the 2020 RECS household sample.

W = Withheld due to the small number of sample cases.

\* = This figure should be viewed with caution because of the small number of sample cases.



**Table A-3b. Residential Energy: Average Annual Expenditures, by Amount (Dollars) and Mean Individual Burden (Percent of Income), for All, Non-Low Income, Low Income, and LIHEAP Beneficiary Households, by Census Region and Main Heating Fuel, FY 2022**

Census Region	All Fuels <sup>i</sup>	All Fuels <sup>ii</sup>	Natural Gas Heat	Natural Gas Heat	Electric Heat	Electric Heat	Fuel Oil/Kero Heat	Fuel Oil/Kero Heat	LPG Heat	LPG Heat
US - all households	\$2,290	8.0%	\$2,373	6.9%	\$1,904	9.0%	\$4,299	10.0%	\$3,472	8.8%
US - non-low income households	\$2,438	2.6%	\$2,491	2.5%	\$2,026	2.4%	\$4,653	4.3%	\$3,643	3.9%
US - low income households <sup>iii</sup>	\$1,987	19.0%	\$2,077	17.9%	\$1,703	20.0%	\$3,606	21.4%	\$3,122	18.7%
US - LIHEAP beneficiary households <sup>iv</sup>	\$2,189	24.5%	\$2,197	25.0%	\$1,769	22.2%	\$3,294	25.1%	\$3,793	29.7%
Northeast - all households	\$2,906	8.0%	\$2,696	7.4%	\$1,949	8.1%	\$4,383	9.6%	\$3,804	7.6%
Northeast - non-low income households	\$3,150	2.8%	\$2,862	2.5%	\$2,122	2.0%	\$4,765	4.1%	\$3,978	3.6%
Northeast - low income households	\$2,451	17.9%	\$2,367	17.1%	\$1,717	16.4%	\$3,586	21.0%	\$3,397	17.2%
Northeast - LIHEAP beneficiary	\$2,614	21.3%	\$2,380	19.0%	\$2,024	18.1%	\$3,327	25.5%	\$4,008*	31.4%*
Midwest - all households	\$2,299	8.0%	\$2,284	7.3%	\$1,821	10.1%	\$4,087	15.9%	\$3,476	8.2%
Midwest - non-low income households	\$2,443	2.7%	\$2,386	2.6%	\$2,021	2.4%	\$4,386*	5.8%*	\$3,557	3.6%
Midwest - low income households	\$2,003	19.0%	\$2,030	19.2%	\$1,588	19.2%	\$3,690*	29.2%*	\$3,269	19.9%
Midwest - LIHEAP beneficiary households	\$2,044	26.2%	\$2,118	27.5%	\$1,555	22.9%	NC	NC	\$4,152*	39.7%*
South - all households	\$2,194	8.7%	\$2,514	7.3%	\$1,993	9.1%	\$3,740	10.6%	\$3,199	11.2%
South - non-low income households	\$2,313	2.7%	\$2,621	2.9%	\$2,086	2.5%	\$3,760	4.3%	\$3,408	4.5%
South - low income households	\$1,949	21.1%	\$2,196	20.3%	\$1,824	21.1%	\$3,707	20.7%	\$2,936	19.7%
South - LIHEAP beneficiary households	\$2,025	27.7%	\$2,340	30.8%	\$1,850	24.9%	W	W	\$3,169*	16.5%*
West - all households	\$1,956	6.7%	\$2,097	5.7%	\$1,637	8.4%	\$4,142	9.1%	\$3,532	7.3%
West - non-low income households	\$2,106	2.1%	\$2,225	2.1%	\$1,776	2.0%	\$4,610	4.9%	\$3,803	4.3%
West - low income households	\$1,631	16.5%	\$1,757	15.2%	\$1,399	19.4%	\$3,564	14.3%	\$2,860	14.6%
West - LIHEAP beneficiary households	\$1,634	21.8%	\$1,715	27.4%	\$1,498	16.8%	W	W	W	W

<sup>i</sup> Estimates are derived from the 2020 Residential Energy Consumption Survey (RECS), Energy Information Administration, U.S. Department of Energy. The 2020 RECS data have been adjusted for heating degree days, cooling degree days, and fuel price estimates for FY 2022. Expenditures represent the costs for fuel oil and LPG delivered and billed costs for natural gas and electricity. RECS expenditure data are not collected for other fuels.

<sup>ii</sup> Represents the percent of household income used for residential energy expenditures. For individual households, FY 2022 income is estimated by inflating income reported in the 2020 RECS by the consumer price index (CPI) and FY 2022 energy expenditures are estimated by adjusting energy expenditures reported in the 2020 RECS for changes in weather and energy prices. FY 2022 residential energy burden for each household is computed as estimated FY 2022 residential

energy expenditures divided by estimated FY 2022 annual income. Mean individual residential burden is computed by computing the mean of the individual values. See text in Appendix A for a discussion of energy burden.

<sup>iii</sup> Households with annual incomes at or below the maximum in Section 2605(b)(2)(B) of Pub. L. 97-35.

<sup>iv</sup> Includes verified LIHEAP beneficiary households from the 2020 RECS.

NC = No cases in the 2020 RECS household sample.

W = Withheld due to the small number of sample cases.

\* = This figure should be viewed with caution because of the small number of sample cases.

**Table A-3c. Residential Energy: Average Annual Expenditures, by Amount (Dollars) and Median Individual Burden (Percent of Income), for All, Non-Low Income, Low Income, and LIHEAP Beneficiary Households, by Census Region and Main Heating Fuel, FY 2022**

Census Region	All Fuels <sup>i</sup>	All Fuels <sup>ii</sup>	Natural Gas Heat	Natural Gas Heat	Electric Heat	Electric Heat	Fuel Oil/Kero Heat	Fuel Oil/Kero Heat	LPG Heat	LPG Heat
US - all households	\$2,290	3.0%	\$2,373	2.8%	\$1,904	3.1%	\$4,299	5.2%	\$3,472	4.7%
US - non-low income households	\$2,438	2.2%	\$2,491	2.1%	\$2,026	2.0%	\$4,653	3.7%	\$3,643	3.5%
US - low income households <sup>iii</sup>	\$1,987	8.0%	\$2,077	7.9%	\$1,703	7.3%	\$3,606	13.6%	\$3,122	12.0%
US - LIHEAP beneficiary households <sup>iv</sup>	\$2,189	12.2%	\$2,197	13.1%	\$1,769	10.2%	\$3,294	16.8%	\$3,793	22.3%
Northeast - all households	\$2,906	3.4%	\$2,696	3.0%	\$1,949	2.7%	\$4,383	5.0%	\$3,804	4.0%
Northeast - non-low income households	\$3,150	2.3%	\$2,862	2.1%	\$2,122	1.6%	\$4,765	3.6%	\$3,978	3.1%
Northeast - low income households	\$2,451	8.8%	\$2,367	8.3%	\$1,717	6.5%	\$3,586	12.7%	\$3,397	10.8%
Northeast - LIHEAP beneficiary households	\$2,614	12.3%	\$2,380	11.5%	\$2,024	8.3%	\$3,327	16.6%	\$4,008*	23.3%*
Midwest - all households	\$2,299	3.2%	\$2,284	3.0%	\$1,821	3.5%	\$4,087	7.8%	\$3,476	4.3%
Midwest - non-low income households	\$2,443	2.3%	\$2,386	2.3%	\$2,021	2.0%	\$4,386*	4.9%*	\$3,557	3.3%
Midwest - low income households	\$2,003	8.1%	\$2,030	8.0%	\$1,588	7.2%	\$3,690*	19.0%*	\$3,269	11.5%
Midwest - LIHEAP beneficiary households	\$2,044	12.9%	\$2,118	13.4%	\$1,555	8.2%	NC	NC	\$4,152*	23.5%*
South - all households	\$2,194	3.2%	\$2,514	3.1%	\$1,993	3.2%	\$3,740	5.1%	\$3,199	6.5%
South - non-low income households	\$2,313	2.3%	\$2,621	2.4%	\$2,086	2.2%	\$3,760	3.9%	\$3,408	3.7%
South - low income households	\$1,949	8.5%	\$2,196	9.8%	\$1,824	7.7%	\$3,707	15.1%	\$2,936	13.5%
South - LIHEAP beneficiary households	\$2,025	12.8%	\$2,340	15.4%	\$1,850	11.0%	W	W	\$3,169*	14.8%*
West - all households	\$1,956	2.4%	\$2,097	2.3%	\$1,637	2.5%	\$4,142	6.0%	\$3,532	4.8%
West - non-low income households	\$2,106	1.8%	\$2,225	1.8%	\$1,776	1.7%	\$4,610	4.3%	\$3,803	3.9%
West - low income households	\$1,631	5.9%	\$1,757	6.1%	\$1,399	5.6%	\$3,564	9.4%	\$2,860	9.4%
West - LIHEAP beneficiary households	\$1,634	9.9%	\$1,715	10.8%	\$1,498	8.8%	W	W	W	W

<sup>i</sup> Estimates are derived from the 2020 Residential Energy Consumption Survey (RECS), Energy Information Administration, U.S. Department of Energy. The 2020 RECS data have been adjusted for heating degree days, cooling degree days, and fuel price estimates for FY 2022. Expenditures represent the costs for fuel oil and LPG delivered and billed costs for natural gas and electricity. RECS expenditure data are not collected for other fuels.

<sup>ii</sup> Represents the percent of household income used for residential energy expenditures. For individual households, FY 2022 income is estimated by inflating income reported in the 2020 RECS by the consumer price index (CPI) and FY 2022 energy expenditures are estimated by adjusting energy expenditures reported in the 2020 RECS for changes in weather and energy prices. FY 2022 residential energy burden for each household is computed as estimated FY 2022 residential

energy expenditures divided by estimated FY 2022 annual income. Median individual residential burden is computed by computing the median of the individual values. See text in Appendix A for a discussion of energy burden.

<sup>iii</sup> Households with annual incomes at or below the maximum in Section 2605(b)(2)(B) of Pub. L. 97-35.

<sup>iv</sup> Includes verified LIHEAP beneficiary households from the 2020 RECS.

NC = No cases in the 2020 RECS household sample.

W = Withheld due to the small number of sample cases.

\* = This figure should be viewed with caution because of the small number of sample cases.

**Table A-4. Home Heating: Percent of Households Using Major Types of Heating Fuels, by All, Non-Low Income, Low Income, and LIHEAP Beneficiary Households, by Census Region and Main Heating Fuel Type, 2020<sup>i</sup>**

Census Region	Natural Gas <sup>ii</sup>	Electricity	Fuel Oil/Kerosene	LPG	Other <sup>iii</sup>
US - all households	50.8%	34.5%	4.0%	4.2%	1.9%
US - non-low income households	54.1%	32.0%	3.9%	4.2%	1.7%
US - low income households <sup>iv</sup>	43.9%	39.6%	4.1%	4.2%	2.3%
US - LIHEAP beneficiary households <sup>v</sup>	47.6%	34.6%	8.8%	4.6%	2.2%
Northeast - all households	55.8%	18.2%	18.6%	4.5%	2.4%
Northeast - non-low income households	57.0%	16.0%	19.3%	4.8%	2.5%
Northeast - low income households	53.7%	22.3%	17.2%	3.9%	2.1%
Northeast - LIHEAP beneficiary households	49.3%	18.7%	23.6%	5.4%	2.0%
Midwest - all households	69.6%	19.2%	1.0%	7.8%	1.9%
Midwest - non-low income households	73.7%	15.3%	0.9%	8.4%	1.6%
Midwest - low income households	61.0%	27.3%	1.4%	6.7%	2.5%
Midwest - LIHEAP beneficiary households	63.9%	28.2%	0.0%	5.0%	1.7%
South - all households	33.2%	55.0%	1.0%	3.0%	1.3%
South - non-low income households	36.9%	52.7%	0.9%	2.5%	0.9%
South - low income households	25.6%	59.7%	1.2%	4.0%	2.2%
South - LIHEAP beneficiary households	26.4%	59.8%	2.8%	4.4%	3.4%
West - all households	58.2%	27.5%	0.4%	2.6%	2.4%
West - non-low income households	61.8%	25.4%	0.3%	2.7%	2.4%
West - low income households	50.3%	32.0%	0.6%	2.4%	2.5%
West - LIHEAP beneficiary households	50.9%	40.3%	0.1%	1.6%	1.5%

<sup>i</sup> Data derived from the 2020 Residential Energy Consumption Survey (RECS), Energy Information Administration, U.S. Department of Energy. Represents main heating fuel used in 2020.

<sup>ii</sup> The sum of percentages across fuel types may not equal 100 percent due to rounding and excluding households reporting no main fuel.

<sup>iii</sup> This category includes households using wood, coal, and other minor fuels as a main heating source. It excludes households reporting no main fuel.

<sup>iv</sup> Households with income at or below the maximum in Section 2605(b)(2)(B) of Pub. L. 97-35.

<sup>v</sup> Includes verified LIHEAP beneficiary households from the 2020 RECS.

**Table A-5. Home Heating: Average Consumption Per Household, by All Fuels and Specified Fuels, by All, Non-Low Income, Low Income, and LIHEAP Beneficiary Households, by Census Region, FY 2022<sup>i</sup>**

Census Region	All Fuels <sup>ii</sup> (MMBtus) <sup>iii</sup>	Natural Gas (MMBtus)	Electricity (MMBtus)	Fuel Oil/Kerosene (MMBtus)	LPG (MMBtus)
US - all households	34.1	48.8	12.2	67.8	53.3
US - non-low income households	37.1	50.9	13.0	72.4	55.7
US - low income households <sup>iv</sup>	28.0	43.3	11.0	58.8	48.4
US - LIHEAP beneficiary households <sup>v</sup>	36.8	50.9	14.2	55.3	58.3
Northeast - all households	49.4	56.3	14.1	68.5	53.8
Northeast - non-low income households	53.9	60.1	15.2	73.6	55.5
Northeast - low income households	41.0	48.7	12.6	57.8	49.9
Northeast - LIHEAP beneficiary households	43.6	47.0	18.8	56.4	65.0*
Midwest - all households	57.5	67.8	19.6	79.6	70.0
Midwest - non-low income households	62.4	70.7	22.8	84.8*	70.0
Midwest - low income households	47.3	60.7	15.9	72.8*	70.1
Midwest - LIHEAP beneficiary households	50.2	64.8	17.5	NC	76.8*
South - all households	20.4	37.9	11.3	56.0	34.5
South - non-low income households	22.2	39.4	11.9	54.7	36.4
South - low income households	16.7	33.5	10.3	58.1	32.0
South - LIHEAP beneficiary households	19.6	36.9	12.2	W	27.4*
West - all households	22.3	31.3	9.4	61.8	39.8
West - non-low income households	24.8	33.4	10.1	68.9	42.3
West - low income households	16.9	25.7	8.3	53.0	33.6
West - LIHEAP beneficiary households	21.5	33.5	8.9	W	W

<sup>i</sup> Developed from the 2020 Residential Energy Consumption Survey (RECS), Energy Information Administration, U.S. Department of Energy, and adjusted for FY 2022 for heating degree days.

<sup>ii</sup> Weighted average of natural gas, electricity, fuel oil, and liquefied petroleum gas space heating consumption. Consumption data are not collected for other fuels.

<sup>iii</sup> A British thermal unit (Btu) is the amount of energy necessary to raise the temperature of 1 pound of water 1 degree Fahrenheit. MMBtus refer to values in millions of Btus.

<sup>iv</sup> Households with income at or below the maximum in Section 2605(b)(2)(B) of Pub. L. 97-35.

<sup>v</sup> Includes verified LIHEAP beneficiary households from the 2020 RECS.

NC = No cases in the 2020 RECS household sample.

W = Withheld due to the small number of sample cases.

\* = This figure should be viewed with caution because of the small number of sample cases.

**Table A-6a. Home Heating: Average Annual Expenditures by Amount and Mean Group Burden, by All, Non-Low Income, Low Income, and LIHEAP Beneficiary Households, by Census Region and Main Heating Fuel Type, FY 2022**

Census Region	All Fuels <sup>i</sup>	All Fuels <sup>ii</sup>	Natural Gas Heat	Natural Gas Heat	Electric Heat	Electric Heat	Fuel Oil/Kero Heat	Fuel Oil/Kero Heat	LPG Heat	LPG Heat
US - all households	\$695	0.7%	\$739	0.7%	\$469	0.5%	\$2,182	2.1%	\$1,558	1.5%
US - non-low income households	\$739	0.6%	\$771	0.6%	\$490	0.4%	\$2,341	1.7%	\$1,608	1.2%
US - low income households <sup>iii</sup>	\$605	2.7%	\$659	2.9%	\$434	1.9%	\$1,873	8.2%	\$1,455	6.4%
US - LIHEAP beneficiary households <sup>iv</sup>	\$802	4.0%	\$757	3.8%	\$556	2.8%	\$1,777	8.8%	\$1,933	9.6%
Northeast - all households	\$1,161	1.0%	\$975	0.8%	\$662	0.6%	\$2,170	1.9%	\$1,871	1.6%
Northeast - non-low income households	\$1,263	0.8%	\$1,045	0.7%	\$703	0.4%	\$2,348	1.5%	\$1,878	1.2%
Northeast - low income households	\$972	3.7%	\$837	3.2%	\$606	2.3%	\$1,800	6.9%	\$1,852	7.1%
Northeast - LIHEAP beneficiary households	\$1,099	5.1%	\$771	3.6%	\$823	3.8%	\$1,793	8.3%	\$2,576*	12.0%*
Midwest - all households	\$912	0.9%	\$868	0.9%	\$736	0.7%	\$2,624	2.7%	\$1,697	1.7%
Midwest - non-low income households	\$963	0.8%	\$899	0.7%	\$835	0.7%	\$2,810*	2.2%*	\$1,702	1.3%
Midwest - low income households	\$806	3.5%	\$791	3.5%	\$620	2.7%	\$2,377*	10.4%*	\$1,683	7.4%
Midwest - LIHEAP beneficiary households	\$837	4.0%	\$864	4.2%	\$662	3.2%	NC	NC	\$1,920*	9.2%*
South - all households	\$508	0.5%	\$660	0.7%	\$419	0.5%	\$2,023	2.2%	\$1,223	1.3%
South - non-low income households	\$532	0.4%	\$683	0.6%	\$434	0.4%	\$1,998	1.6%	\$1,270	1.0%
South - low income households	\$458	2.2%	\$590	2.9%	\$391	1.9%	\$2,065	10.0%	\$1,163	5.7%
South - LIHEAP beneficiary households	\$538	3.3%	\$659	4.0%	\$451	2.7%	W	W	\$1,039*	6.3%*
West - all households	\$431	0.4%	\$487	0.4%	\$355	0.3%	\$2,187	1.9%	\$1,370	1.2%
West - non-low income households	\$472	0.3%	\$522	0.4%	\$383	0.3%	\$2,440	1.7%	\$1,475	1.0%
West - low income households	\$341	1.4%	\$394	1.7%	\$307	1.3%	\$1,876	7.9%	\$1,109	4.7%
West - LIHEAP beneficiary households	\$413	2.0%	\$480	2.4%	\$353	1.7%	W	W	W	W

<sup>i</sup> Expenditures shown in this table are derived from the 2020 Residential Energy Consumption Survey (RECS), Energy Information Administration, U.S. Department of Energy. The 2020 RECS data have been adjusted for heating degree days and fuel price estimates for FY 2022. Expenditures represent the costs for fuel oil and LPG delivered, and billed costs for natural gas and electricity used. RECS expenditure data are not collected for other fuels.

<sup>ii</sup> Represents the percent of household income used for home heating energy expenditures. National and regional mean incomes are calculated from the 2022 CPS ASEC, which reports income for calendar year 2022. Mean group home heating burden is computed as mean group energy expenditures (from RECS) divided by mean group income (from CPS ASEC). See text in Appendix A for a discussion of energy burden.



<sup>iii</sup> Households with annual incomes at or below the maximum in Section 2605(b)(2)(B) of Pub. L. 97-35.

<sup>iv</sup> Includes verified LIHEAP beneficiary households from the 2020 RECS.

NC = No cases in the 2020 RECS household sample.

W = Withheld due to the small number of sample cases.

\* = This figure should be viewed with caution because of the small number of sample cases.

**Table A-6b. Home Heating: Average Annual Expenditures by Amount and Mean Individual Burden, by All, Non-Low Income, Low Income, and LIHEAP Beneficiary Households, by Census Region and Main Heating Fuel Type, FY 2022**

Census Region	All Fuels <sup>i</sup>	All Fuels <sup>ii</sup>	Natural Gas Heat	Natural Gas Heat	Electric Heat	Electric Heat	Fuel Oil/Kero Heat	Fuel Oil/Kero Heat	LPG Heat	LPG Heat
US - all households	\$695	4.4%	\$739	3.9%	\$469	5.3%	\$2,182	6.5%	\$1,558	4.9%
US - non-low income households	\$739	0.8%	\$771	0.8%	\$490	0.6%	\$2,341	2.2%	\$1,608	1.8%
US - low income households <sup>iii</sup>	\$605	11.6%	\$659	11.8%	\$434	13.1%	\$1,873	14.9%	\$1,455	11.5%
US - LIHEAP beneficiary households <sup>iv</sup>	\$802	16.1%	\$757	15.8%	\$556	14.4%	\$1,777	18.7%	\$1,933	21.5%
Northeast - all households	\$1,161	4.7%	\$975	4.2%	\$662	4.8%	\$2,170	6.2%	\$1,871	4.6%
Northeast - non-low income households	\$1,263	1.1%	\$1,045	0.9%	\$703	0.7%	\$2,348	2.1%	\$1,878	1.8%
Northeast - low income households	\$972	11.2%	\$837	10.7%	\$606	10.2%	\$1,800	14.7%	\$1,852	11.1%
Northeast - LIHEAP beneficiary households	\$1,099	13.3%	\$771	9.9%	\$823	11.4%	\$1,793	19.5%	\$2,576*	23.3%*
Midwest - all households	\$912	5.1%	\$868	4.6%	\$736	7.1%	\$2,624	11.7%	\$1,697	5.1%
Midwest - non-low income households	\$963	1.1%	\$899	1.0%	\$835	1.0%	\$2,810*	3.9%*	\$1,702	1.8%
Midwest - low income households	\$806	13.4%	\$791	13.6%	\$620	14.2%	\$2,377*	22.0%*	\$1,683	13.7%
Midwest - LIHEAP beneficiary households	\$837	17.9%	\$864	18.1%	\$662	16.5%	NC	NC	\$1,920*	33.5%*
South - all households	\$508	4.5%	\$660	3.8%	\$419	5.2%	\$2,023	6.5%	\$1,223	5.9%
South - non-low income households	\$532	0.6%	\$683	0.8%	\$434	0.5%	\$1,998	2.2%	\$1,270	1.8%
South - low income households	\$458	12.3%	\$590	12.9%	\$391	13.8%	\$2,065	13.4%	\$1,163	11.2%
South - LIHEAP beneficiary households	\$538	19.0%	\$659	21.2%	\$451	16.3%	W	W	\$1,039*	5.6%*
West - all households	\$431	3.2%	\$487	3.0%	\$355	4.7%	\$2,187	5.4%	\$1,370	3.1%
West - non-low income households	\$472	0.5%	\$522	0.5%	\$383	0.4%	\$2,440	2.6%	\$1,475	1.7%
West - low income households	\$341	9.0%	\$394	9.6%	\$307	11.9%	\$1,876	8.9%	\$1,109	6.4%
West - LIHEAP beneficiary households	\$413	13.1%	\$480	19.4%	\$353	7.6%	W	W	W	W

<sup>i</sup> Expenditures shown in this table are derived from the 2020 Residential Energy Consumption Survey (RECS), Energy Information Administration, U.S. Department of Energy. The 2020 RECS data have been adjusted for heating degree days and fuel price estimates for FY 2022. Expenditures represent the costs for fuel oil and LPG delivered, and billed costs for natural gas and electricity used. RECS expenditure data are not collected for other fuels.

<sup>ii</sup> Represents the percent of household income used for home heating energy expenditures. For individual households, FY 2022 income is estimated by inflating income reported in the 2020 RECS by the consumer price index (CPI) and FY 2022 energy expenditures are estimated by adjusting energy expenditures reported in the 2020 RECS for changes in weather and energy prices. FY 2022 home heating energy burden for each household is computed by computing the mean of the individual values. See text in Appendix A for a discussion of energy burden.

<sup>iii</sup> Households with annual incomes at or below the maximum in Section 2605(b)(2)(B) of Pub. L. 97-35.

<sup>iv</sup> Includes verified LIHEAP beneficiary households from the 2020 RECS.

NC = No cases in the 2020 RECS household sample.

W = Withheld due to the small number of sample cases.

\* = This figure should be viewed with caution because of the small number of sample cases.

**Table A-6c. Home Heating: Average Annual Expenditures by Amount and Median Individual Burden, by All, Non-Low Income, Low Income, and LIHEAP Beneficiary Households, by Census Region and Main Heating Fuel Type, FY 2022**

Census Region	All Fuels <sup>i</sup>	All Fuels <sup>ii</sup>	Natural Gas Heat	Natural Gas Heat	Electric Heat	Electric Heat	Fuel Oil/Kero Heat	Fuel Oil/Kero Heat	LPG Heat	LPG Heat
US - all households	\$695	0.7%	\$739	0.8%	\$469	0.6%	\$2,182	2.6%	\$1,558	2.0%
US - non-low income households	\$739	0.5%	\$771	0.6%	\$490	0.3%	\$2,341	1.7%	\$1,608	1.4%
US - low income households <sup>iii</sup>	\$605	2.1%	\$659	2.5%	\$434	1.6%	\$1,873	6.5%	\$1,455	4.9%
US - LIHEAP beneficiary households <sup>iv</sup>	\$802	3.8%	\$757	4.3%	\$556	2.5%	\$1,777	9.0%	\$1,933	9.7%
Northeast - all households	\$1,161	1.2%	\$975	1.1%	\$662	0.7%	\$2,170	2.4%	\$1,871	1.8%
Northeast - non-low income households	\$1,263	0.8%	\$1,045	0.7%	\$703	0.4%	\$2,348	1.6%	\$1,878	1.3%
Northeast - low income households	\$972	3.0%	\$837	2.8%	\$606	2.0%	\$1,800	6.1%	\$1,852	6.6%
Northeast - LIHEAP beneficiary	\$1,099	4.1%	\$771	3.3%	\$823	2.2%	\$1,793	8.3%	\$2,576*	15.0%*
Midwest - all households	\$912	1.2%	\$868	1.1%	\$736	1.2%	\$2,624	5.2%	\$1,697	2.1%
Midwest - non-low income households	\$963	0.8%	\$899	0.8%	\$835	0.7%	\$2,810*	3.0%*	\$1,702	1.5%
Midwest - low income households	\$806	3.0%	\$791	3.1%	\$620	2.2%	\$2,377*	11.6%*	\$1,683	5.4%
Midwest - LIHEAP beneficiary households	\$837	5.0%	\$864	5.9%	\$662	3.5%	NC	NC	\$1,920*	16.3%*
South - all households	\$508	0.6%	\$660	0.7%	\$419	0.5%	\$2,023	2.9%	\$1,223	2.2%
South - non-low income households	\$532	0.4%	\$683	0.6%	\$434	0.3%	\$1,998	2.1%	\$1,270	1.1%
South - low income households	\$458	1.7%	\$590	2.5%	\$391	1.5%	\$2,065	7.3%	\$1,163	4.7%
South - LIHEAP beneficiary households	\$538	3.2%	\$659	4.1%	\$451	2.6%	W	W	\$1,039*	4.0%*
West - all households	\$431	0.4%	\$487	0.5%	\$355	0.4%	\$2,187	2.9%	\$1,370	1.6%
West - non-low income households	\$472	0.3%	\$522	0.4%	\$383	0.2%	\$2,440	2.2%	\$1,475	1.3%
West - low income households	\$341	1.0%	\$394	1.3%	\$307	1.0%	\$1,876	5.6%	\$1,109	3.7%
West - LIHEAP beneficiary households	\$413	2.6%	\$480	3.3%	\$353	2.1%	W	W	W	W

<sup>i</sup> Expenditures shown in this table are derived from the 2020 Residential Energy Consumption Survey (RECS), Energy Information Administration, U.S. Department of Energy. The 2020 RECS data have been adjusted for heating degree days and fuel price estimates for FY 2022. Expenditures represent the costs for fuel oil and LPG delivered, and billed costs for natural gas and electricity used. RECS expenditure data are not collected for other fuels.

<sup>ii</sup> Represents the percent of household income used for home heating energy expenditures. For individual households, FY 2022 income is estimated by inflating income reported in the 2020 RECS by the consumer price index (CPI) and FY 2022 energy expenditures are estimated by adjusting energy expenditures reported in the 2020 RECS for changes in weather and energy prices. FY 2022 home heating energy burden for each household is computed by computing the median of the individual values. See text in Appendix A for a discussion of energy burden.

<sup>iii</sup> Households with annual incomes at or below the maximum in Section 2605(b)(2)(B) of Pub. L. 97-35.

<sup>iv</sup> Includes verified LIHEAP beneficiary households from the 2020 RECS.

NC = No cases in the 2020 RECS household sample.

W = Withheld due to the small number of sample cases.

\* = This figure should be viewed with caution because of the small number of sample cases.

**Table A-7. Home Cooling: Percent of Households that Cool, Average Annual Consumption per Household, Average Annual Expenditures per Household, Mean Group Burden, Mean Individual Burden, and Median Individual Burden for Households that Cooled, by All, Non-Low Income, Low Income, and LIHEAP Beneficiary Households, by Census Region, FY 2022**

Census Region	Percent that Cool <sup>i</sup>	Consumption <sup>ii</sup> (In MMBtus)	Expenditures <sup>ii</sup>	Mean Group Burden <sup>iii</sup>	Mean Individual Burden <sup>iii</sup>	Median Individual Burden <sup>iii</sup>
US - all households	94.8%	9.6	\$403	0.4%	3.5%	0.4%
US - non-low income households	96.1%	10.5	\$441	0.3%	0.5%	0.3%
US - low income households <sup>iv</sup>	92.3%	7.6	\$323	1.4%	10.0%	1.1%
US - LIHEAP beneficiary households <sup>v</sup>	93.2%	6.4	\$279	1.4%	12.4%	1.3%
Northeast - all households	94.4%	5.3	\$302	0.3%	2.7%	0.3%
Northeast - non-low income households	96.0%	5.8	\$329	0.2%	0.3%	0.2%
Northeast - low income households	91.5%	4.2	\$248	1.0%	7.4%	0.7%
Northeast - LIHEAP beneficiary households	94.4%	4.3	\$244	1.1%	8.1%	0.9%
Midwest - all households	97.2%	6.5	\$282	0.3%	2.9%	0.3%
Midwest - non-low income households	98.5%	7.1	\$308	0.2%	0.3%	0.2%
Midwest - low income households	94.5%	5.2	\$226	1.0%	8.6%	0.8%
Midwest - LIHEAP beneficiary households	94.2%	4.4	\$192	0.9%	10.7%	1.1%
South - all households	98.2%	14.5	\$551	0.6%	4.6%	0.7%
South - non-low income households	99.3%	15.9	\$602	0.5%	0.7%	0.5%
South - low income households	96.0%	11.5	\$442	2.1%	13.0%	1.9%
South - LIHEAP beneficiary households	94.3%	11.6	\$436	2.7%	19.2%	2.5%
West - all households	87.1%	7.3	\$341	0.3%	2.8%	0.3%
West - non-low income households	88.4%	8.0	\$374	0.3%	0.4%	0.2%
West - low income households	84.5%	5.8	\$266	1.1%	8.2%	0.7%
West - LIHEAP beneficiary households	84.0%	5.7	\$228	1.1%	14.0%	0.9%

<sup>i</sup> Cooling includes central and room air-conditioning as well as non-air-conditioning cooling devices (e.g., ceiling fans, evaporative coolers). Excludes households that do not cool or cool in ways other than those recorded by the 2020 RECS (e.g., table and window fans.).

<sup>ii</sup> Consumption and expenditures are derived from the 2020 Residential Energy Consumption Survey (RECS), Energy Information Administration, U.S. Department of Energy. The 2020 RECS data have been adjusted for cooling degree days and electricity price estimates for FY 2022. Expenditures represent billed costs for electricity used for home cooling.

<sup>iii</sup> Represents the percent of household income used for home cooling energy expenditures.

<sup>iv</sup> Households with annual incomes at or below the maximum in Section 2605(b)(2)(B) of Pub. L. 97-35.

<sup>v</sup> Includes verified LIHEAP beneficiary households from the 2020 RECS.

## Appendix B: Income Eligible Household Estimates

OCS encourages LIHEAP grant recipients to use performance measurement systems to manage LIHEAP programs. HHS has developed targeting performance indicators to support measurement of LIHEAP targeting at the grant recipient level. For several years, OCS has furnished state grant recipients with state-level estimates of the number of LIHEAP income eligible households, including the number of vulnerable households and the number of households by poverty level. State grant recipients can use these estimates with their own data on LIHEAP beneficiary characteristics to compute reciprocity targeting performance statistics.

State-level estimates of the number of income eligible households for FY 2022 were developed using the American Community Survey (ACS). The Census Bureau recommends the use of the ACS for the state-level income and poverty analysis.<sup>14</sup> OCS also uses the estimates from the ACS and household beneficiary data from the states' *LIHEAP Household Report* to develop state-level targeting indexes.

The 2017-2021 five-year ACS Public Use Microdata Sample (PUMS) data file is used to develop more precise estimates of the number of income eligible households than those that would have been obtained using the 2021 single-year ACS PUMS data.<sup>15</sup>

The federal maximum LIHEAP income standard is the greater of 60 percent of the state median income or 150 percent of HHS Poverty Guidelines.

Tables B-1 and B-2 show estimates of the number of LIHEAP income eligible households by vulnerability group,<sup>16</sup> derived from the 2017-2021 five-year ACS, using the federal maximum income standard and the FY 2022 state income standards, respectively. The state income standards are the income levels that the states set to define LIHEAP income eligibility. These state income standards may vary by LIHEAP component; however, they must fall between 110 percent of HHS Poverty Guidelines and the federal maximum income standard.

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<sup>14</sup> For an explanation, and to better understand the differences between the ACS and CPS ASEC, please visit the Census Bureau's Guidance for Data Users regarding "Which Data Source to Use" for poverty and income research at the following website: <https://www.census.gov/topics/income-poverty/poverty/guidance/data-sources.html>.

<sup>15</sup> The Census Bureau recommends multi-year data estimates from the ACS instead of estimates from the 1-year ACS when the precision of the estimates is of primary importance. (See the Census Bureau's Guidance for Data Users regarding estimates from the ACS at the following website: <https://www.census.gov/programs-surveys/acs/guidance/estimates.html>). In prior *Notebooks*, state-level estimates of the income eligible population were derived from the Census Bureau's 3-year ACS PUMS product. However, in 2015, the Census Bureau discontinued publication of its 3-year ACS PUMS. For the *FY 2015 Notebook* and the *FY 2016 Notebook*, the methodology chosen to develop state-level estimates of the income eligible population was the 3-year average of 1-year ACS PUMS files, which produced comparable estimates to the discontinued 3-year ACS PUMS. To maintain consistency with the Census Bureau's published ACS PUMS data, beginning with the *FY 2017 Notebook*, the methodology chosen to develop state-level estimates of the income eligible population was the 5-year ACS PUMS data published by the Census Bureau. The *FY 2022 Notebook* uses the most recent 5-year (2017-2021) ACS PUMS file to develop state-level estimates of the income eligible population.

<sup>16</sup> The Census Bureau changed the questions on disability in ACS in 2008. Since the new questions were not comparable to those in previous years, the reader should exercise caution in comparing the estimates of households with members with a disability with those in previous *Notebooks*.

Similarly, Tables B-3 through B-4 show estimates of the number of LIHEAP income eligible households by poverty group, derived from the 2017-2021 five-year ACS, using the using the federal maximum income standard and the FY 2022 state income standards, respectively.



**Table B-1. State-Level Estimates of the Number of LIHEAP Income Eligible Households Using the Federal Maximum LIHEAP Income Standard by Vulnerability Category<sup>i ii iii</sup>**  
(2017-2021 ACS)

State	LIHEAP Eligible Households <sup>v</sup>	LIHEAP Eligible Households with at Least 1 Member 60+ Years	LIHEAP Eligible Households with at Least One Child Less than Six Yrs. Old	LIHEAP Eligible Households with at Least One Member with a Disability <sup>v</sup>	LIHEAP Eligible Households with No Vulnerable Members
Alabama	580,987	251,841	88,423	259,591	149,566
Alaska	67,759	26,344	15,051	25,418	18,754
Arizona	644,545	281,892	118,727	235,122	176,381
Arkansas	323,760	136,589	55,570	157,181	74,422
California	3,454,014	1,496,248	603,159	1,192,220	1,061,689
Colorado	550,600	225,068	84,970	183,545	180,487
Connecticut	434,017	200,337	56,759	156,905	128,790
Delaware	105,884	47,419	15,782	35,769	32,219
Dist. of Columbia	85,689	32,655	10,155	34,852	29,013
Florida	2,029,811	1,016,458	286,079	739,072	539,346
Georgia	1,019,754	414,019	181,192	384,812	299,784
Hawaii	116,819	57,967	20,540	39,016	30,788
Idaho	145,935	60,307	27,647	59,802	37,742
Illinois	1,419,256	618,354	219,119	500,317	431,135
Indiana	690,146	284,503	112,885	281,905	192,412
Iowa	342,993	150,951	51,186	125,491	98,075
Kansas	305,593	126,349	52,031	123,843	82,940
Kentucky	517,183	220,913	84,086	261,959	112,114
Louisiana	581,318	245,028	90,354	251,462	157,752
Maine	164,421	85,378	17,401	78,143	32,653
Maryland	624,468	279,315	101,893	224,345	180,615
Massachusetts	842,751	412,716	102,249	342,483	218,856
Michigan	1,145,560	499,491	171,037	479,540	300,671
Minnesota	613,035	280,246	93,105	222,738	171,151
Mississippi	332,351	141,064	53,328	154,501	82,605
Missouri	677,168	292,462	103,197	291,842	176,571
Montana	120,245	56,893	15,643	44,287	33,875
Nebraska	199,001	83,957	32,864	73,240	59,245
Nevada	273,710	112,707	46,107	100,044	83,839
New Hampshire	148,725	77,752	16,621	60,070	35,441
New Jersey	1,032,242	491,859	152,808	351,401	297,159
New Mexico	212,002	90,242	34,027	91,366	56,461
New York	2,280,158	1,085,222	322,462	876,285	615,781
North Carolina	1,105,634	479,523	176,999	430,745	310,036
North Dakota	90,326	36,058	14,044	27,971	31,485
Ohio	1,367,904	594,642	213,876	584,104	345,856
Oklahoma	390,855	148,815	72,865	172,901	105,861
Oregon	425,876	191,791	59,801	177,354	116,998
Pennsylvania	1,519,744	745,144	207,673	656,834	359,277
Rhode Island	128,248	62,679	15,872	57,425	28,918
South Carolina	535,969	240,241	82,937	214,279	146,082
South Dakota	86,345	39,103	13,477	31,337	24,736
Tennessee	701,137	300,469	112,761	316,383	177,835
Texas	2,715,064	1,009,009	563,985	938,004	862,986

State	Total Number of LIHEAP Eligible Households <sup>iv</sup>	LIHEAP Eligible	LIHEAP Eligible	LIHEAP Eligible	LIHEAP Eligible
		Households with at Least 1 Member 60+ Years	Households with at Least One Child Less than Six Yrs. Old	Households with at Least One Member with a Disability <sup>v</sup>	Households with No Vulnerable Members
Utah	212,692	71,162	50,089	70,108	65,765
Vermont	72,444	36,169	7,670	32,554	16,408
Virginia	880,226	389,845	141,114	327,736	248,975
Washington	726,884	315,830	124,537	282,381	197,825
West Virginia	218,622	100,602	27,507	112,680	47,610
Wisconsin	647,411	294,154	91,019	238,410	177,082
Wyoming	60,958	25,657	9,739	22,998	17,400
All states	33,968,239	14,963,439	5,422,422	13,132,771	9,459,467

<sup>i</sup> State estimates are subject to sampling error and may not sum to U.S. total due to rounding.

<sup>ii</sup> The federal maximum LIHEAP income standard is the greater of 60 percent of the state median income estimates or 150 percent of the HHS Poverty Guidelines.

<sup>iii</sup> A household can be counted under more than 1 vulnerability category.

<sup>iv</sup> The 2017-2021 ACS estimate of the total number of all U.S. households is 124,011,027.

<sup>v</sup> The Census Bureau changed the questions on disability in ACS in 2008. The definition above includes individuals aged 15 years and older with any of the 6 difficulty types (hearing, vision, cognitive, ambulatory, self-care, and independent living) reported in ACS, individuals ages 15 through 64 who received Supplemental Security Income in the past year, and non-widowed individuals ages 19 through 61 who received Social Security income in the past year. The reader should exercise caution in comparing these estimates with those in previous Notebooks.

**Table B-2. State-Level Estimates of the Number of LIHEAP Income Eligible Households Using State Maximum LIHEAP Income Standards by Vulnerability Category<sup>i ii iii</sup>**  
(2017-2021 ACS)

State	State Income Guidelines for Four-Member Household as % of HHS Poverty Guidelines	Total Number of LIHEAP Eligible Households <sup>iv</sup>	LIHEAP Eligible Households with at Least 1 Member 60+ Years	LIHEAP Eligible Households with at Least One Child Less than Six Yrs. Old	LIHEAP Eligible Households with at Least One Member with a Disability <sup>v</sup>	LIHEAP Eligible Households with No Vulnerable Members
Alabama	150%	459,359	190,804	74,699	210,442	115,266
Alaska	150%	47,844	18,951	11,220	18,829	11,942
Arizona	180% <sup>vi vii</sup>	644,381	281,831	118,598	235,049	176,361
Arkansas	157% <sup>vi viii</sup>	323,760	136,589	55,570	157,181	74,422
California	212% <sup>vi ix</sup>	3,453,435	1,496,053	602,676	1,192,015	1,061,620
Colorado	228% <sup>vi ix</sup>	550,596	225,064	84,966	183,545	180,487
Connecticut	273% <sup>vii ix</sup>	434,017	200,337	56,759	156,905	128,790
Delaware	200% <sup>x</sup>	86,292	36,331	14,161	29,390	26,146
Dist. of Columbia	273% <sup>vi ix</sup>	85,689	32,655	10,155	34,852	29,013
Florida	175% <sup>vi vi</sup>	2,029,428	1,016,296	285,866	738,858	539,282
Georgia	182% <sup>vi ix</sup>	1,019,233	413,799	180,731	384,447	299,746
Hawaii	150%	77,557	39,122	14,093	28,558	18,705
Idaho	169% <sup>vi xi</sup>	145,935	60,307	27,647	59,802	37,742
Illinois	200% <sup>xii</sup>	1,221,576	520,220	198,764	439,456	365,433
Indiana	188% <sup>vi ix</sup>	689,734	284,498	112,583	281,847	192,315
Iowa	200%	312,094	135,140	48,018	116,358	88,364
Kansas	150%	194,459	71,265	37,281	82,445	52,071
Kentucky	150%	419,508	172,877	72,872	218,735	86,719
Louisiana	180% <sup>vi ix</sup>	581,212	245,014	90,264	251,356	157,752
Maine	204% <sup>vi xiii</sup>	164,421	85,378	17,401	78,143	32,653
Maryland	175% <sup>xiv</sup>	380,944	179,219	62,882	153,436	95,226
Massachusetts	284% <sup>vi ix</sup>	842,751	412,716	102,249	342,483	218,856
Michigan	110%	497,332	187,540	81,466	223,895	128,857
Minnesota	246% <sup>vi ix</sup>	613,035	280,246	93,105	222,738	171,151
Mississippi	151% <sup>vi ix</sup>	331,110	140,701	52,368	153,577	82,483
Missouri	193% <sup>vi ix</sup>	676,998	292,462	103,034	291,762	176,571
Montana	193% <sup>vi xv</sup>	120,244	56,893	15,642	44,286	33,875
Nebraska	150%	123,041	50,888	21,550	48,387	33,494
Nevada	150%	211,298	84,886	37,130	79,613	62,805
New Hampshire	263% <sup>vi ix</sup>	148,725	77,752	16,621	60,070	35,441
New Jersey	279% <sup>vi ix</sup>	1,032,242	491,859	152,808	351,401	297,159
New Mexico	150%	205,976	86,798	33,968	89,331	54,366
New York	227% <sup>vi ix</sup>	2,280,066	1,085,181	322,370	876,252	615,781
North Carolina	130%	687,800	281,185	120,453	279,585	185,099
North Dakota	228% <sup>vi ix</sup>	90,317	36,058	14,035	27,971	31,485
Ohio	199% <sup>vi ix</sup>	1,367,633	594,602	213,634	584,097	345,837
Oklahoma	130%	272,540	97,213	53,878	121,534	73,655
Oregon	202% <sup>vi ix</sup>	425,733	191,777	59,734	177,245	116,998
Pennsylvania	150%	900,825	408,345	133,270	416,907	207,558
Rhode Island	234% <sup>vi ix</sup>	128,248	62,679	15,872	57,425	28,918
South Carolina	150%	430,818	186,749	70,733	175,129	116,399
South Dakota	200% <sup>xvi</sup>	83,821	37,535	13,462	30,525	24,029
Tennessee	173% <sup>vi ix</sup>	700,565	300,169	112,322	316,115	177,835

State	State Income Guidelines for Four-Member Household as % of HHS Poverty Guidelines	Total Number of LIHEAP Eligible Households <sup>iv</sup>	LIHEAP Eligible Households with at Least 1 Member 60+ Years	LIHEAP Eligible Households with at Least One Child Less than Six Yrs. Old	LIHEAP Eligible Households with at Least One Member with a Disability <sup>v</sup>	LIHEAP Eligible Households with No Vulnerable Members
Texas	186% <sup>vi</sup>	2,715,064	1,009,009	563,985	938,004	862,986
Utah	150%	141,668	48,068	33,800	49,554	41,744
Vermont	213% <sup>vi ix</sup>	72,444	36,169	7,670	32,554	16,408
Virginia	150%	472,916	200,649	80,214	195,475	123,936
Washington	150%	401,083	165,406	71,545	166,358	104,380
West Virginia	168% <sup>vi ix</sup>	218,583	100,602	27,468	112,677	47,610
Wisconsin	217% <sup>vi ix</sup>	647,306	294,146	90,928	238,352	177,082
Wyoming	207% <sup>vi ix</sup>	60,930	25,640	9,739	22,998	17,389
All states	Not applicable	30,222,586	13,165,673	4,902,259	11,777,949	8,380,242

<sup>i</sup> State estimates are subject to sampling error and may not sum to U.S. total due to rounding.

<sup>ii</sup> State income guidelines can vary from 110 percent of the HHS Poverty Guidelines up to the federal maximum LIHEAP income standard and can be different for different components of LIHEAP assistance. The table shows the estimates of LIHEAP income eligible households for heating assistance. The state maximum LIHEAP income standards for a family of 4 were obtained from ACF's LIHEAP Performance Data Form – Module 1 (Grantee Survey) and confirmed with other program resources.

<sup>iii</sup> A household can be counted under more than 1 vulnerability category.

<sup>iv</sup> The 2017-2021 ACS estimate of the total number of all U.S. households is 124,011,027.

<sup>v</sup> The Census Bureau changed the questions on disability in ACS in 2008. The definition above includes individuals aged 15 years and older with any of the 6 difficulty types (hearing, vision, cognitive, ambulatory, self-care, and independent living) reported in ACS, individuals ages 15 through 64 who received Supplemental Security Income in the past year, and non-widowed individuals ages 19 through 61 who received Social Security income in the past year. The reader should exercise caution in comparing these estimates with those in previous Notebooks.

<sup>vi</sup> These states use a percent of state median income as the state income guideline. The figures reported are the conversion to a percent of the HHS Poverty Guidelines for 4-member households.

<sup>vii</sup> The state income guideline is 60 percent of the state median income for households with 1-8 members and 150 percent of HHS Poverty Guidelines for households with 9 or more members.

<sup>viii</sup> The state income guideline is 60 percent of the state median income for households with 1-6 members and 150 percent of HHS Poverty Guidelines for households with 7 or more members.

<sup>ix</sup> These states use 60 percent of the state median income as the state income guideline for all household sizes.

<sup>x</sup> The state income guideline is 200 percent of the HHS Poverty Guidelines for Households (HHSPG) with 1-7 members and 60 percent of the state median income as the state income guideline for households with 8 or more members.

<sup>xi</sup> The state income guideline is 60 percent of the state median income for households with 1-7 members and 150 percent of the HHS Poverty Guidelines for Households (HHSPG) with 8 or more members.

<sup>xii</sup> The state income guideline is 200 percent of the HHS Poverty Guidelines for Households (HHSPG) with 1-9 members, 60 percent of the state median income for households with 10-14 members, and 150 percent of the HHSPG with 15 or more members.

<sup>xiii</sup> The state income guideline is 60 percent of the state median income for households with 1-10 members and 150 percent of HHS Poverty Guidelines for households with 11 or more members.

<sup>xiv</sup> The state income guideline is 175 percent of the HHS Poverty Guidelines for Households (HHSPG) or 200 percent of the HHSPG with 1 or more older adult members.

<sup>xv</sup> The state income guideline is 60 percent of the state median income for households with 1-9 members and 150 percent of the HHS Poverty Guidelines for Households (HHSPG) with 10 or more members.

<sup>xvi</sup> The state income guideline is 200 percent of the HHS Poverty Guidelines for Households (HHSPG) with 1-4 members, 198.94 percent of the HHSPG with 5 members, 197.49 percent of the HHSPG with 6 members, 179.12 percent of the HHSPG with 7 members, 164.49 percent of the HHSPG with 8 members, 152.56 percent of the HHSPG with 9 members, 150 percent of the HHSPG with 10 or more members.

**Table B-3. State-Level Estimates of the Number of LIHEAP Income Eligible Households Using the Federal Maximum LIHEAP Income Standard Categorized by Income as a Percentage of HHS Poverty Guidelines<sup>i ii</sup>**  
(2017-2021 ACS)

State	Total Number of LIHEAP Eligible Households <sup>iii</sup>	Number of LIHEAP Eligible Households at or Below Poverty Guidelines	Number of LIHEAP Eligible Households >100%-125% Poverty Guidelines	Number of LIHEAP Eligible Households >125%-150% Poverty Guidelines	Number of LIHEAP Eligible Households over 150% Poverty Guidelines
Alabama	580,987	271,032	98,183	90,144	121,628
Alaska	67,759	28,970	8,910	9,964	19,915
Arizona	644,545	282,432	104,209	104,499	153,405
Arkansas	323,760	163,914	62,734	65,771	31,341
California	3,454,014	1,331,022	463,607	455,687	1,203,698
Colorado	550,600	176,466	59,805	67,131	247,198
Connecticut	434,017	121,362	41,374	41,910	229,371
Delaware	105,884	35,110	13,278	12,646	44,850
Dist. of Columbia	85,689	38,587	6,831	6,997	33,274
Florida	2,029,811	900,664	339,790	346,697	442,660
Georgia	1,019,754	459,277	160,887	163,047	236,543
Hawaii	116,819	47,611	14,381	15,565	39,262
Idaho	145,935	61,289	24,855	30,239	29,552
Illinois	1,419,256	515,228	167,619	169,561	566,848
Indiana	690,146	277,689	100,906	105,615	205,936
Iowa	342,993	116,910	47,711	45,621	132,751
Kansas	305,593	111,023	39,942	43,494	111,134
Kentucky	517,183	251,735	85,504	82,269	97,675
Louisiana	581,318	292,193	88,291	87,060	113,774
Maine	164,421	55,204	24,996	21,996	62,225
Maryland	624,468	181,082	56,573	59,663	327,150
Massachusetts	842,751	252,472	83,037	78,473	428,769
Michigan	1,145,560	443,103	145,227	155,261	401,969
Minnesota	613,035	168,167	69,594	66,059	309,215
Mississippi	332,351	192,624	65,231	60,400	14,096
Missouri	677,168	265,019	102,752	102,682	206,715
Montana	120,245	44,652	18,152	18,919	38,522
Nebraska	199,001	67,129	26,390	29,522	75,960
Nevada	273,710	122,928	42,490	45,880	62,412
New Hampshire	148,725	34,557	14,446	14,469	85,253
New Jersey	1,032,242	296,788	95,876	96,851	542,727
New Mexico	212,002	128,350	40,927	36,699	6,026
New York	2,280,158	899,327	275,286	259,001	846,544
North Carolina	1,105,634	469,181	183,686	173,547	279,220
North Dakota	90,326	29,064	10,608	10,331	40,323
Ohio	1,367,904	547,782	181,938	186,298	451,886
Oklahoma	390,855	190,448	67,531	69,780	63,096
Oregon	425,876	160,682	57,458	62,623	145,113
Pennsylvania	1,519,744	527,958	182,688	190,179	618,919
Rhode Island	128,248	43,942	16,233	13,755	54,318
South Carolina	535,969	254,122	87,758	88,938	105,151
South Dakota	86,345	30,522	12,531	13,387	29,905
Tennessee	701,137	327,103	118,930	119,723	135,381

<b>State</b>	<b>Total Number of LIHEAP Eligible Households<sup>iii</sup></b>	<b>Number of LIHEAP Eligible Households at or Below Poverty Guidelines</b>	<b>Number of LIHEAP Eligible Households &gt;100%-125% Poverty Guidelines</b>	<b>Number of LIHEAP Eligible Households &gt;125%-150% Poverty Guidelines</b>	<b>Number of LIHEAP Eligible Households over 150% Poverty Guidelines</b>
Texas	2,715,064	1,203,704	419,562	414,991	676,807
Utah	212,692	76,211	31,429	34,028	71,024
Vermont	72,444	23,731	9,468	9,872	29,373
Virginia	880,226	279,266	96,054	97,596	407,310
Washington	726,884	232,940	82,532	85,611	325,801
West Virginia	218,622	109,016	36,889	36,508	36,209
Wisconsin	647,411	206,434	77,387	81,821	281,769
Wyoming	60,958	22,087	8,315	7,967	22,589
<b>All states</b>	<b>33,968,239</b>	<b>13,368,109</b>	<b>4,670,791</b>	<b>4,686,747</b>	<b>11,242,592</b>

<sup>i</sup> State estimates are subject to sampling error and may not sum to U.S. total due to rounding.

<sup>ii</sup> The federal maximum LIHEAP income standard is the greater of 60 percent of state median income estimates or 150 percent of the HHS Poverty Guidelines.

<sup>iii</sup> The 2017-2021 ACS estimate of the total number of all U.S. households is 124,011,027.

**Table B-4. State-Level Estimates of the Number of LIHEAP Income Eligible Households Using the State Maximum LIHEAP Income Standards Categorized by Income as a Percentage of HHS Poverty Guidelines<sup>i ii</sup>**  
(2017-2021 ACS)

State	State Income Guidelines for Four-Member Household as % of HHS Poverty Guidelines	Total Number of LIHEAP Eligible Households <sup>iii</sup>	Number of LIHEAP			
			Number of LIHEAP Eligible Households at or Below Poverty Guidelines	Eligible Households >100%-125% Poverty Guidelines	Number of LIHEAP Eligible Households >125%-150% Poverty Guidelines	Number of LIHEAP Eligible Households over 150% Poverty Guidelines
Alabama	150%	459,359	271,032	98,183	90,144	0
Alaska	150%	47,844	28,970	8,910	9,964	0
Arizona	180% <sup>iv v</sup>	644,381	282,432	104,209	104,335	153,405
Arkansas	157% <sup>iv vi</sup>	323,760	163,914	62,734	65,771	31,341
California	212% <sup>iv vii</sup>	3,453,435	1,331,022	463,536	455,179	1,203,698
Colorado	228% <sup>iv vii</sup>	550,596	176,466	59,805	67,127	247,198
Connecticut	273% <sup>iv vii</sup>	434,017	121,362	41,374	41,910	229,371
Delaware	200% <sup>viii</sup>	86,292	35,110	13,278	12,646	25,258
Dist. of Columbia	273% <sup>iv vii</sup>	85,689	38,587	6,831	6,997	33,274
Florida	175% <sup>iv v</sup>	2,029,428	900,664	339,790	346,314	442,660
Georgia	182% <sup>iv vii</sup>	1,019,233	459,277	160,853	162,560	236,543
Hawaii	150%	77,557	47,611	14,381	15,565	0
Idaho	169% <sup>iv ix</sup>	145,935	61,289	24,855	30,239	29,552
Illinois	200% <sup>x</sup>	1,221,576	515,228	167,619	169,561	369,168
Indiana	188% <sup>iv vii</sup>	689,734	277,689	100,906	105,203	205,936
Iowa	200%	312,094	116,910	47,711	45,621	101,852
Kansas	150%	194,459	111,023	39,942	43,494	0
Kentucky	150%	419,508	251,735	85,504	82,269	0
Louisiana	180% <sup>iv vii</sup>	581,212	292,193	88,291	86,954	113,774
Maine	204% <sup>iv xi</sup>	164,421	55,204	24,996	21,996	62,225
Maryland	175% <sup>xii</sup>	380,944	181,082	56,573	59,663	83,626
Massachusetts	284% <sup>iv vii</sup>	842,751	252,472	83,037	78,473	428,769
Michigan	110%	497,332	443,103	54,229	0	0
Minnesota	246% <sup>iv vii</sup>	613,035	168,167	69,594	66,059	309,215
Mississippi	151% <sup>iv vii</sup>	331,110	192,624	64,982	59,408	14,096
Missouri	193% <sup>iv vii</sup>	676,998	265,019	102,752	102,512	206,715
Montana	193% <sup>iv xiii</sup>	120,244	44,652	18,152	18,918	38,522
Nebraska	150%	123,041	67,129	26,390	29,522	0
Nevada	150%	211,298	122,928	42,490	45,880	0
New Hampshire	263% <sup>iv vii</sup>	148,725	34,557	14,446	14,469	85,253
New Jersey	279% <sup>iv vii</sup>	1,032,242	296,788	95,876	96,851	542,727
New Mexico	150%	205,976	128,350	40,927	36,699	0
New York	227% <sup>iv vii</sup>	2,280,066	899,327	275,286	258,909	846,544
North Carolina	130%	687,800	469,181	183,686	34,933	0
North Dakota	228% <sup>iv vii</sup>	90,317	29,064	10,608	10,322	40,323
Ohio	199% <sup>iv vii</sup>	1,367,633	547,782	181,938	186,027	451,886
Oklahoma	130%	272,540	190,448	67,531	14,561	0
Oregon	202% <sup>iv vii</sup>	425,733	160,682	57,458	62,480	145,113
Pennsylvania	150%	900,825	527,958	182,688	190,179	0
Rhode Island	234% <sup>iv vii</sup>	128,248	43,942	16,233	13,755	54,318
South Carolina	150%	430,818	254,122	87,758	88,938	0
South Dakota	200% <sup>xiv</sup>	83,821	30,522	12,531	13,387	27,381

State	State Income Guidelines for Four-Member Household as % of HHS Poverty Guidelines	Total Number of LIHEAP Eligible Households <sup>iii</sup>	Number of LIHEAP Eligible Households at or Below Poverty Guidelines	Number of LIHEAP Eligible		
				Households >100%-125% Poverty Guidelines	Number of LIHEAP Eligible Households >125%-150% Poverty Guidelines	Number of LIHEAP Eligible Households over 150% Poverty Guidelines
Tennessee	173% <sup>iv vii</sup>	700,565	327,103	118,874	119,207	135,381
Texas	186% <sup>iv</sup>	2,715,064	1,203,704	419,562	414,991	676,807
Utah	150%	141,668	76,211	31,429	34,028	0
Vermont	213% <sup>iv vii</sup>	72,444	23,731	9,468	9,872	29,373
Virginia	150%	472,916	279,266	96,054	97,596	0
Washington	150%	401,083	232,940	82,532	85,611	0
West Virginia	168% <sup>iv vii</sup>	218,583	109,016	36,886	36,472	36,209
Wisconsin	217% <sup>iv vii</sup>	647,306	206,434	77,387	81,716	281,769
Wyoming	207% <sup>iv vii</sup>	60,930	22,087	8,315	7,939	22,589
All states	Not applicable	30,222,586	13,368,109	4,579,380	4,333,226	7,941,871

<sup>i</sup> State estimates are subject to sampling error and may not sum to U.S. total due to rounding.

<sup>ii</sup> State income guidelines can vary from 110 percent of the HHS Poverty Guidelines up to the federal maximum LIHEAP income standard and can be different for different components of LIHEAP assistance. The table shows the estimates of LIHEAP income eligible households for heating assistance. The state maximum LIHEAP income standards for a family of 4 were obtained from ACF's LIHEAP Performance Data Form – Module 1 (Grantee Survey) and confirmed with other program resources.

<sup>iii</sup> The 2017-2021 ACS estimate of the total number of all U.S. households is 124,011,027.

<sup>iv</sup> These states use a percent of state median income as the state income guideline. The figures reported are the conversion to a percent of the HHS Poverty Guidelines for 4-member households.

<sup>v</sup> The state income guideline is 60 percent of the state median income for households with 1-8 members and 150 percent of HHS Poverty Guidelines for households with 9 or more members.

<sup>vi</sup> The state income guideline is 60 percent of the state median income for households with 1-6 members and 150 percent of HHS Poverty Guidelines for households with 7 or more members.

<sup>vii</sup> These states use 60 percent of the state median income as the state income guideline for all household sizes.

<sup>viii</sup> The state income guideline is 200 percent of the HHS Poverty Guidelines for Households (HHSPG) with 1-7 members and 60 percent of the state median income as the state income guideline for households with 8 or more members.

<sup>ix</sup> The state income guideline is 60 percent of the state median income for households with 1-7 members and 150 percent of the HHS Poverty Guidelines for Households (HHSPG) with 8 or more members.

<sup>x</sup> The state income guideline is 200 percent of the HHS Poverty Guidelines for Households (HHSPG) with 1-9 members, 60 percent of the state median income for households with 10-14 members, and 150 percent of the HHSPG with 15 or more members.

<sup>xi</sup> The state income guideline is 60 percent of the state median income for households with 1-10 members and 150 percent of HHS Poverty Guidelines for households with 11 or more members.

<sup>xii</sup> The state income guideline is 175 percent of the HHS Poverty Guidelines for Households (HHSPG) or 200 percent of the HHSPG with 1 or more older adult members.

<sup>xiii</sup> The state income guideline is 60 percent of the state median income for households with 1-9 members and 150 percent of the HHS Poverty Guidelines for Households (HHSPG) with 10 or more members.

<sup>xiv</sup> The state income guideline is 200 percent of the HHS Poverty Guidelines for Households (HHSPG) with 1-4 members, 198.94 percent of the HHSPG with 5 members, 197.49 percent of the HHSPG with 6 members, 179.12 percent of the HHSPG with 7 members, 164.49 percent of the HHSPG with 8 members, 152.56 percent of the HHSPG with 9 members, 150 percent of the HHSPG with 10 or more members.