

Low Income Home Energy Data

For Fiscal Year 2021



U.S. DEPARTMENT OF
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Division of Energy Assistance
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CHILDREN & FAMILIES

Low Income Home Energy Data

For Fiscal Year 2021

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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 2015 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 2015. All fiscal year (FY) 2021 residential energy consumption and expenditures figures for this report have been derived from the 2015 RECS data that were adjusted to reflect FY 2021 weather and fuel prices, as described in Appendix A.

Residential Energy Data

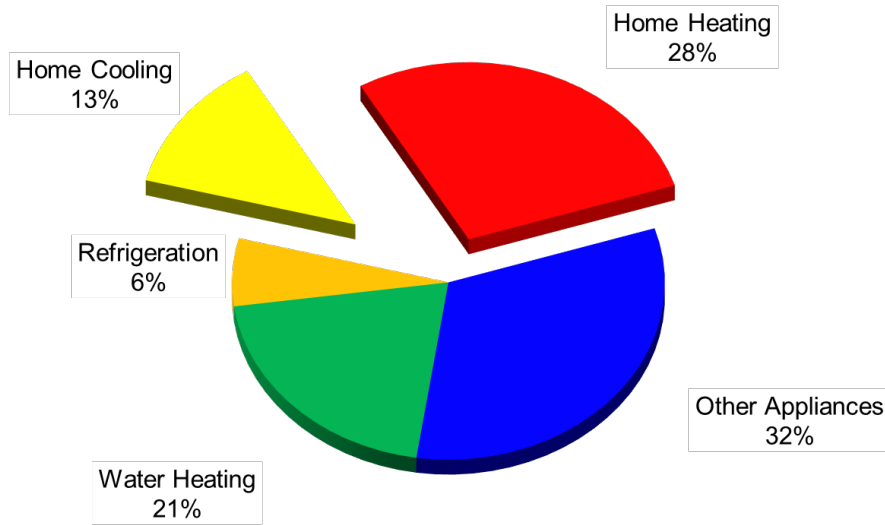
In FY 2021, average residential energy expenditures for all households were \$1,983 and the mean individual energy burden was 5.2 percent of income.¹ Low income households had average energy expenditures of \$1,682, about 15 percent lower than the average for all households.² The mean individual energy burden for low income households was 11.1 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 \$1,882, about 12 percent higher than the average for all low income households. The mean individual energy burden for LIHEAP beneficiaries was 11.8 percent, 0.7 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 41 percent of residential energy expenditures for low income households in FY 2021. Refrigerators and freezers represented about 6 percent of residential energy expenditures, water heating represented about 21 percent of residential energy expenditures, and other appliances represented about 32 percent of residential energy expenditures.

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

² 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 2021



Home Heating Data

The 3 most common heating fuels in 2015 were natural gas (49 percent), electricity (35 percent), and fuel oil (5 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.

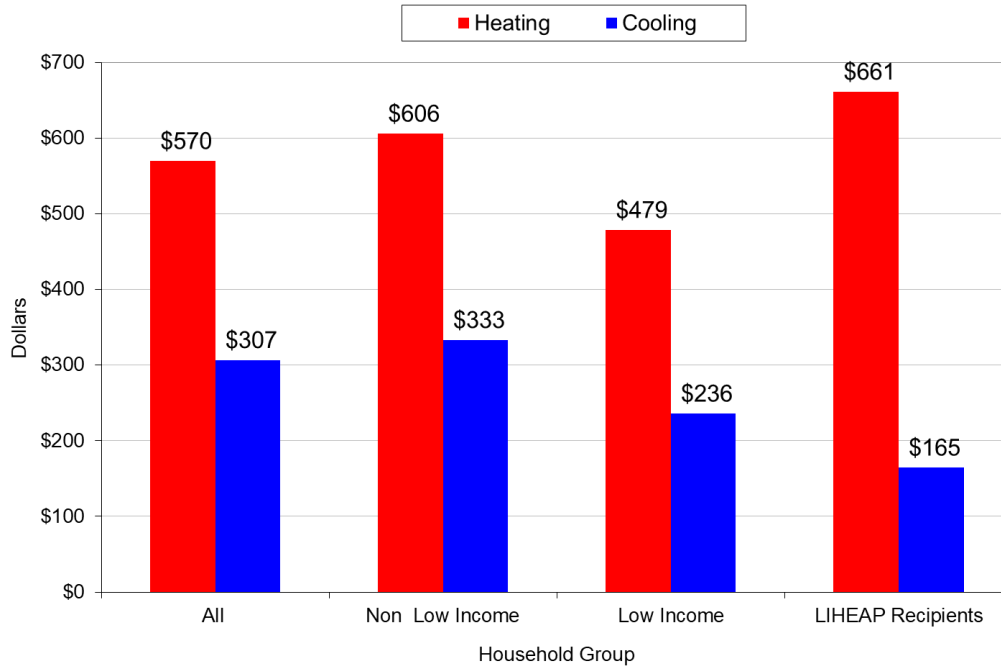
In FY 2021, as shown in Figures 2 and 3, average home heating expenditures for all households were \$570 and the mean individual home heating burden was 1.5 percent. Low income households had average home heating expenditures of \$479; this average was about 16 percent lower than that for all households. The mean individual home heating burden for low income households was 3.2 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 \$661, about 38 percent higher than the average for low income households and about 16 percent higher than the average for all households. Mean individual home heating burden for LIHEAP beneficiary households was 4.3 percent, almost 3 times the average for all households, and 34 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 2015, nearly 94 percent of all households cooled their homes using 1 of the methods recorded by the RECS.³ Low income and LIHEAP beneficiary households were less likely to cool their homes than were non-low income households; 90.4 percent of low income households and 92.9 percent of LIHEAP beneficiary households cooled their homes using one of these methods.

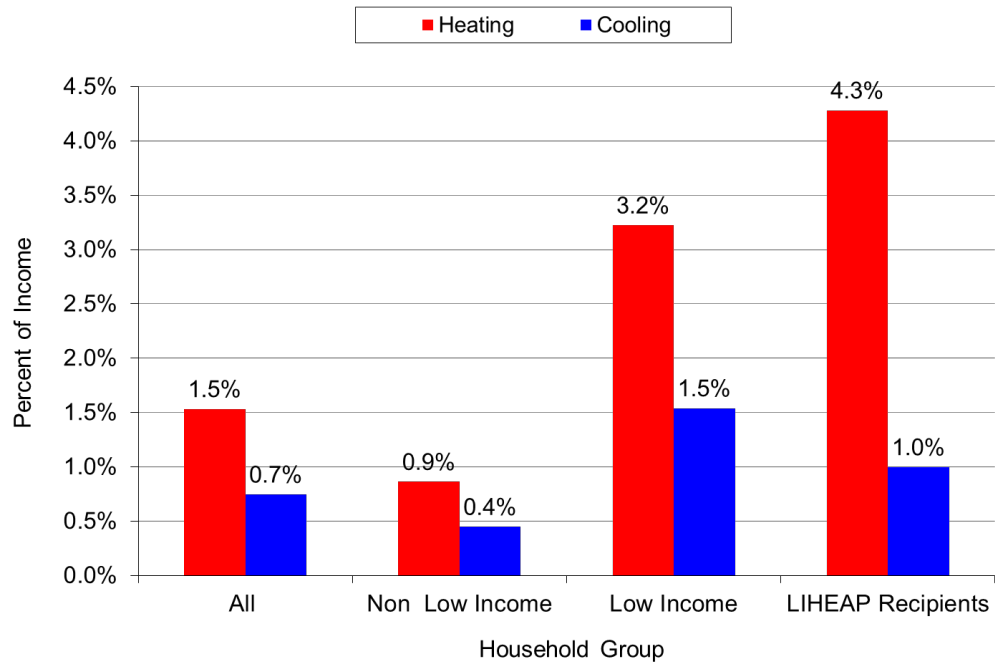
As Figures 2 and 3 show, in FY 2021, for households that cooled, average home cooling expenditures for all households were \$307 and the mean individual home cooling burden was 0.7 percent. Low income households had average home cooling expenditures of \$236; this average was about 23 percent lower than that for all households. The mean individual home cooling burden for low income households was 1.5 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 \$165, about 30 percent lower than the average for low income households and about 46 percent lower than the average for all households. The mean individual home cooling burden for LIHEAP beneficiary households was 1 percent, 43 percent higher than the mean individual home cooling burden for all households.

Figure 2. Mean Home Heating and Home Cooling Expenditures by All Households, Non-Low Income Households, Low Income Households, and LIHEAP Beneficiary Households, FY 2021



³ The 2015 RECS records cooling methods such as central or room air-conditioning as well as non-air-conditioning cooling devices (e.g., ceiling fans and evaporative coolers).

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 2021



I. Introduction

The Low Income Home Energy Assistance Program (LIHEAP) is authorized by the Low-Income Home Energy Assistance Act of 1981, as amended, 42 U.S.C. § 8621 *et seq.* 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 authority 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.” 42 U.S.C. § 8621(a). 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 2015 Residential Energy Consumption Survey (RECS), which has energy consumption and expenditures data for calendar year 2015. For this report, the 2015 residential energy, home heating, and home cooling consumption and expenditures have been adjusted to reflect FY 2021 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.

II. 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.⁴ In FY 2021, average residential energy consumption for all households was 76.6 million British thermal units (MMBtus) and average expenditures were \$1,983. The mean individual residential energy burden for all households was 5.2 percent of income.

Low income households had average residential energy consumption of 63.9 MMBtus (about 17 percent less than all households) and average energy expenditures of \$1,682 (about 15 percent less than all households). Their mean individual residential energy burden was 11.1 percent, over twice that for all households and over three times that for non-low income households.

Average residential energy expenditures for LIHEAP beneficiary households were \$1,882, about 12 percent higher than that for all low income households. The mean individual residential energy burden was 11.8 percent, 0.7 percentage points higher than that for all low income households.

Households consume residential energy for a variety of uses that include 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 2021, home heating was 28 percent of the residential energy bill for low income households and home cooling made up 13 percent.

Table 1a. Residential Energy: Average Annual Household Consumption, Expenditures, and Burden by All Households, by Main Heating Fuel Type, United States, FY 2021ⁱ

Main Heating Fuel	Fuel Consumption (MMBtus) ⁱⁱ	Fuel Expenditures	Mean Individual Burden ⁱⁱⁱ	Median Individual Burden ^{iv}	Mean Group Burden ^v
All fuels	76.6	\$1,983	5.2%	3.2%	2.0%
Natural gas	95.4	\$2,032	4.8%	3.0%	2.1%
Electricity	51.1	\$1,787	5.5%	3.5%	1.8%
Fuel oil/kerosene	105.9	\$2,918	7.7%	4.5%	3.0%
LPG ^{vi}	93.4	\$2,757	6.2%	4.0%	2.8%

⁴ 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.

Low Income Home Energy Data for FY 2021: II. Residential Energy Data

Table 1b. Residential Energy: Average Annual Household Consumption, Expenditures, and Burden by Non-Low Income Households, by Main Heating Fuel Type, United States, FY 2021ⁱ

Main Heating Fuel	Fuel Consumption (MMBtus) ⁱⁱ	Fuel Expenditures	Mean Individual Burden ⁱⁱⁱ	Median Individual Burden ^{iv}	Mean Group Burden ^v
All fuels	81.7	\$2,103	2.9%	2.5%	1.7%
Natural gas	99.4	\$2,129	2.8%	2.4%	1.7%
Electricity	54.3	\$1,906	2.9%	2.4%	1.5%
Fuel oil/kerosene	113.9	\$3,163	4.1%	3.6%	2.5%
LPG ^{vi}	99.8	\$2,915	3.8%	3.2%	2.3%

Table 1c. Residential Energy: Average Annual Household Consumption, Expenditures, and Burden by Low Income Households, by Main Heating Fuel Type, United States, FY 2021ⁱ

Main Heating Fuel	Fuel Consumption (MMBtus) ⁱⁱ	Fuel Expenditures	Mean Individual Burden ⁱⁱⁱ	Median Individual Burden ^{iv}	Mean Group Burden ^v
All fuels	63.9	\$1,682	11.1%	9.3%	7.7%
Natural gas	82.8	\$1,729	11.0%	8.9%	7.9%
Electricity	45.2	\$1,563	10.6%	9.5%	7.1%
Fuel oil/kerosene	87.7	\$2,359	16.1%	13.6%	10.8%
LPG ^{vi}	71.4	\$2,212	14.5%	14.1%	10.1%

Table 1d. Residential Energy: Average Annual Household Consumption, Expenditures, and Burden by LIHEAP Beneficiary Households, by Main Heating Fuel Type, United States, FY 2021ⁱ

Main Heating Fuel	Fuel Consumption (MMBtus) ⁱⁱ	Fuel Expenditures	Mean Individual Burden ⁱⁱⁱ	Median Individual Burden ^{iv}	Mean Group Burden ^v
All fuels	80.8	\$1,882	11.8%	10.8%	9.7%
Natural gas	100.4	\$1,927	11.6%	10.5%	9.9%
Electricity	44.8	\$1,546	11.1%	10.5%	8.0%
Fuel oil/kerosene*	87.2	\$2,254	14.3%	12.8%	11.6%
LPG ^{vi*}	82.0	\$2,568	13.2%	12.2%	13.3%

ⁱ Data are derived from the 2015 RECS, adjusted to reflect FY 2021 heating degree days, cooling degree days, and fuel prices. Data represent residential energy used from October 2020 through September 2021. See also Tables A-2, A-3a-A-3c, and Appendix A.

ⁱⁱ 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.

ⁱⁱⁱ Mean individual burden is calculated by taking the mean, or average, of individual energy burdens, as calculated from FY 2021 adjusted RECS data. See Appendix A for information on calculation of energy burden.

^{iv} Median individual burden is calculated by taking the median of individual energy burdens, as calculated from FY 2021 adjusted RECS data.

^v Mean group energy burden has been calculated by (1) calculating average residential energy expenditures from the 2015 RECS for each group of households; (2) adjusting those figures for FY 2021; and (3) dividing the adjusted figures by the average income for each group of households from the 2021 CPS ASEC.

Low Income Home Energy Data for FY 2021: II. Residential Energy Data

^{vi} 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.

Low Income Home Energy Data for FY 2021: II. Residential Energy Data

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 35 percent of their annual residential expenditures for space heating, 7 percentage points more than did the average low income household. LIHEAP beneficiary households spent eight percent for space cooling, five 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 2021ⁱ

End Use	All Households	Non-Low Income Households	Low Income Households	LIHEAP Beneficiary Households
Space heating	29%	29%	28%	35%
Space cooling	15%	15%	13%	8%
Water heating	16%	15%	21%	20%
Refrigeration	7%	7%	6%	6%
Appliances	34%	35%	32%	32%
All uses	100%	100%	100%	100%

ⁱ Data are derived from the 2015 RECS, adjusted to reflect FY 2021 heating degree days, cooling degree days, and fuel prices. Data represent residential energy used from October 2020 through September 2021. Percentages may not add to 100 percent due to rounding.

III. 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 2015, about half of the non-low income households and LIHEAP beneficiary households used natural gas as their main heating fuel, while about 41.8 percent of low income households used natural gas as their main heating fuel. LIHEAP beneficiary households used natural gas at the highest rate among household groups, 52.6 percent. More than 30 percent of households in each group, except LIHEAP beneficiary households, used electricity as their main heating fuel. Low income households used electricity at the highest rate among household groups, 42.2 percent, and LIHEAP beneficiary households used electricity at the lowest rate among household groups, 29.2 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, 2015ⁱ

Heating Fuel	All Households	Non-Low Income Households	Low Income Households	LIHEAP Beneficiary Households
Natural gas	48.8%	51.6%	41.8%	52.6%
Electricity	34.6%	31.6%	42.2%	29.2%
Fuel oil/kerosene	4.9%	4.8%	5.3%	9.6%
LPG	4.2%	4.6%	3.3%	4.9%
Other ⁱⁱ	3.1%	3.4%	2.3%	2.7%

ⁱ Data are derived from the 2015 RECS. Percentages may not add to 100 percent due to rounding. See also Table A-4, Appendix A.

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

Based on the 2009 RECS and 2015 RECS, the percent of non-low income households using electricity as their main heating source stayed about the same in 2015 (31.6 percent) compared to 2009 (31.9 percent). In contrast, low income households increased their use of electricity as the main heat source from 36.7 percent in April 2009 to 42.2 percent in 2015. Use of electricity as the main heat source by LIHEAP beneficiary households remained about the same in 2015 (29.2 percent) compared to 2009 (29.3 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 2021, average home heating consumption for all households was 33.6 MMBtus, average expenditures were \$570, and mean individual home heating burden was 1.5 percent.

Low income households had average home heating consumption of 26.1 MMBtus (about 22 percent less than the average for all households) and average home heating expenditures of \$479 (about 16 percent less than the average for all households). The mean individual home heating

Low Income Home Energy Data for FY 2021: III. Home Heating Data

burden for low income households was 3.2 percent, over twice as much as the average home heating burden for all households and almost four times the average home heating burden for non-low income households.

Average home heating consumption for LIHEAP beneficiary households was 40.9 MMBtus (about 22 percent higher than the average for all households) and average home heating expenditures were \$661 (about 16 percent higher than the average for all households). Mean individual home heating burden for LIHEAP households was 4.3 percent, about 34 percent higher (or 1.1 percentage points higher) than the average for low income households and nearly 3 times the average for all households. Average home heating consumption for LIHEAP beneficiary households was about 57 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 2021ⁱ

Main Heating Fuel	Fuel Consumption (MMBtus) ⁱⁱ	Fuel Expenditures	Mean Individual Burden ⁱⁱⁱ	Median Individual Burden ^{iv}	Mean Group Burden ^v
All fuels	33.6	\$570	1.5%	0.8%	0.6%
N	47.9	\$592	1.4%	0.8%	0.6%
Electricity	14.1	\$493	1.6%	0.8%	0.5%
Fuel oil/kerosene	64.5	\$1,229	3.3%	1.8%	1.3%
LPG ^{vi}	44.7	\$1,013	2.4%	1.4%	1.0%

Table 4b. Home Heating: Average Annual Household Consumption, Expenditures, and Burden by Non-Low Income Households, by Fuel Type, United States, FY 2021ⁱ

Main Heating Fuel	Fuel Consumption (MMBtus) ⁱⁱ	Fuel Expenditures	Mean Individual Burden ⁱⁱⁱ	Median Individual Burden ^{iv}	Mean Group Burden ^v
All fuels	36.6	\$606	0.9%	0.6%	0.5%
Natural gas	50.4	\$620	0.9%	0.6%	0.5%
Electricity	14.9	\$521	0.8%	0.5%	0.4%
Fuel oil/kerosene	70.9	\$1,358	1.9%	1.4%	1.1%
LPG ^{vi}	47.7	\$1,068	1.4%	1.1%	0.8%

Table 4c. Home Heating: Average Annual Household Consumption, Expenditures, and Burden by Low Income Households, by Fuel Type, United States, FY 2021ⁱ

Main Heating Fuel	Fuel Consumption (MMBtus) ⁱⁱ	Fuel Expenditures	Mean Individual Burden ⁱⁱⁱ	Median Individual Burden ^{iv}	Mean Group Burden ^v
All fuels	26.1	\$479	3.2%	2.1%	2.2%
Natural gas	40.1	\$504	3.2%	2.1%	2.3%
Electricity	12.6	\$440	3.1%	2.0%	2.0%
Fuel oil/kerosene	49.7	\$936	6.5%	4.5%	4.3%
LPG ^{vi}	34.1	\$824	5.7%	3.6%	3.8%

Low Income Home Energy Data for FY 2021: III. Home Heating Data

Table 4d. Home Heating: Average Annual Household Consumption, Expenditures, and Burden by LIHEAP Beneficiary Households, by Fuel Type, United States, FY 2021ⁱ

Main Heating Fuel	Fuel Consumption (MMBtus) ⁱⁱ	Fuel Expenditures	Mean Individual Burden ⁱⁱⁱ	Median Individual Burden ^{iv}	Mean Group Burden ^v
All fuels	40.9	\$661	4.3%	3.1%	3.4%
Natural gas	55.4	\$662	4.1%	2.9%	3.4%
Electricity	16.2	\$579	4.2%	3.2%	3.0%
Fuel oil/kerosene*	46.5	\$853	5.5%	3.7%	4.4%
LPG ^{vi} *	40.8	\$1,045	6.1%	4.0%	5.4%

ⁱ Data are derived from the 2015 RECS, adjusted to reflect FY 2021 heating degree days and fuel prices. Data represent home heating energy used from October 2020 through September 2021. See also Tables A-5, A-6a-A-6c, and Appendix A.

ⁱⁱ 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.

ⁱⁱⁱ Mean individual burden is calculated by taking the mean, or average, of individual heating energy burdens, as calculated from FY 2021 adjusted RECS data. See Appendix A for information on energy burden calculation.

^{iv} Median individual burden is calculated by taking the median of individual heating energy burdens, as calculated from FY 2021 adjusted RECS data.

^v Mean group heating energy burden is calculated by (1) computing average home heating energy expenditures from the 2015 RECS for each group of households; (2) adjusting those figures for FY 2021; and (3) dividing the adjusted figures by the average income for each group of households from the 2021 CPS ASEC.

^{vi} 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.

IV. 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 94 percent of all households in 2015 cooled their homes in ways recorded by the 2015 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, 2015ⁱ

Presence of Cooling	All Households	Non-Low Income Households	Low Income Households	LIHEAP Beneficiary Households
Coolingⁱⁱ	94.1%	95.6%	90.4%	92.9%
Noneⁱⁱⁱ	5.9%	4.4%	9.6%	7.1%

ⁱ Data are derived from the 2015 RECS. See also Table A-7, Appendix A.

ⁱⁱ 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).

ⁱⁱⁱ Represents households that do not cool or cool in ways other than those recorded by the 2015 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 2021, average home cooling consumption for all households that cooled was 7.6 MMBtus, average expenditures were \$307 and mean individual home cooling burden was 0.7 percent.

For low income households that cooled, average home cooling energy consumption was 5.9 MMBtus (about 22 percent less than the average for all households) and average home cooling expenditures were \$236 (about 23 percent less than the average for all households). The mean individual home cooling burden for low income households was 1.5 percent, more than twice the average home cooling burden of all households and almost 4 times that of non-low income households.

For households that cooled, average home cooling consumption for LIHEAP beneficiary households was 4.0 MMBtus—about half of that for all households and 32 percent less than that for the average low income household—and average home cooling expenditures were \$165, about 46 percent less than that for all households and 30 percent less than that for the average low income household). Mean individual home cooling burden for LIHEAP beneficiary households was 1 percent, 25 percent higher than the average for all households.

Low Income Home Energy Data for FY 2021: IV. Home Cooling Data

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 2021ⁱ

Household Group	Fuel Consumption (MMBtus) ⁱⁱ	Fuel Expenditures	Mean Individual Burden ⁱⁱⁱ	Median Individual Burden ^{iv}	Mean Group Burden ^v
All households	7.6	\$307	0.7%	0.4%	0.3%
Non-low income households	8.2	\$333	0.4%	0.3%	0.3%
Low income households	5.9	\$236	1.5%	0.9%	1.1%
LIHEAP beneficiary households	4.0	\$165	1.0%	0.6%	0.8%

ⁱ Data are derived from the 2015 RECS, adjusted to reflect FY 2021 cooling degree days and fuel prices. Data represent residential energy used from October 2020 through September 2021. See also Table A-7, Appendix A.

ⁱⁱ 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.

ⁱⁱⁱ Mean individual burden is calculated by taking the mean, or average, of individual cooling energy burdens, as calculated from FY 2021 adjusted RECS data. See Appendix A for information on energy burden calculation.

^{iv} Median individual burden is calculated by taking the median of individual cooling energy burdens, as calculated from FY 2021 adjusted RECS data.

^v Mean group cooling energy burden is calculated by (1) computing average home cooling energy expenditures from the 2015 RECS for each group of households; (2) adjusting those figures for FY 2021; and (3) dividing the adjusted figures by the average income for each group of households from the 2021 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 2015 Residential Energy Consumption Survey (RECS) and updated for FY 2021. 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 most recent RECS was conducted in 2015. Significant methodological changes were introduced in the 2015 RECS, including changes to end-use modeling procedures, particularly for electricity usage, and changes that impact the ability to characterize low income households. Therefore, readers should use caution when comparing this report to prior versions, which utilized prior iterations of the RECS.

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 who rent their homes. 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 mails questionnaires to 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 is used to impute missing data.⁵

⁵ 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).

The 2015 RECS is the fourteenth survey in the series of surveys.⁶ For the 2015 RECS, 5,686 households were interviewed, including 321 verified LIHEAP beneficiary households. For the tabulations in this report, 2015 RECS consumption and expenditure data were updated using price and weather data to represent consumption and expenditures for FY 2021.

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. (In the 2015 RECS, heating fuel categories for fuel oil and kerosene were combined, whereas in the 2009 RECS, these heating fuel categories were presented separately.)
- 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 of RECS data provide estimates of the amounts of fuels going to various end uses, including home heating and cooling.

While the updated 2015 RECS data provide the most comprehensive data on residential energy use by low income households, several significant limitations must be addressed:⁷

- The 2015 RECS data for calendar year 2015 were updated to FY 2021 (October 1, 2020 to September 30, 2021), using procedures that adjust the 2015 data to reflect the weather and fuel prices for FY 2021. These procedures are comparable to those used for the FY 1986 - FY 2020 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).
- EIA introduced significant methodological changes in the 2015 RECS, including changes to end-use modeling procedures, particularly for electricity usage and changes to the income categories used to collect income information from respondents. The less detailed income information that was collected compared to prior iterations of the RECS makes it difficult to accurately characterize which households are low income versus which households are not. Therefore, readers should use caution when comparing this report to prior versions, which utilized prior iterations of the RECS.
- 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

⁶ For more information about the RECS sample design, see EIA's RECS webpage:

<https://www.eia.gov/consumption/residential/about.php>

⁷ 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/2015/index.php?view=methodology>.

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 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 2021 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.⁸
- Because income information was collected in less detail in the 2015 RECS, households were classified in the 2015 RECS as eligible or ineligible for LIHEAP based on whether their income was above or below the approximate. This differs from prior versions of this report based on the 2009 RECS, where the income information that was collected was sufficient to classify households as eligible or ineligible for LIHEAP based on the federal maximum statutory income eligibility criteria (the greater of 150 percent of U.S. Department of Health and Human Services (HHS) Poverty Guidelines or 60 percent of the state median income). The change in the income categories in the 2015 RECS likely results in an undercounting of LIHEAP income eligible households, therefore, households identified as LIHEAP beneficiaries in the 2015 RECS, but not classified as income eligible based on their income category, were reclassified as income eligible for LIHEAP based on having received LIHEAP assistance during the time period of the 2015 RECS.
- 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.

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

Average Home Energy Consumption and Expenditures

Average heating and cooling consumption and expenditure estimates for FY 2021 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 2015 RECS sample case using FY 2021 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 2015 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.⁹

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.¹⁰ 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.

⁹ 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).

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

2. Then, the mean of these energy burden ratios is computed for the population.¹¹ 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 four 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 four percent.

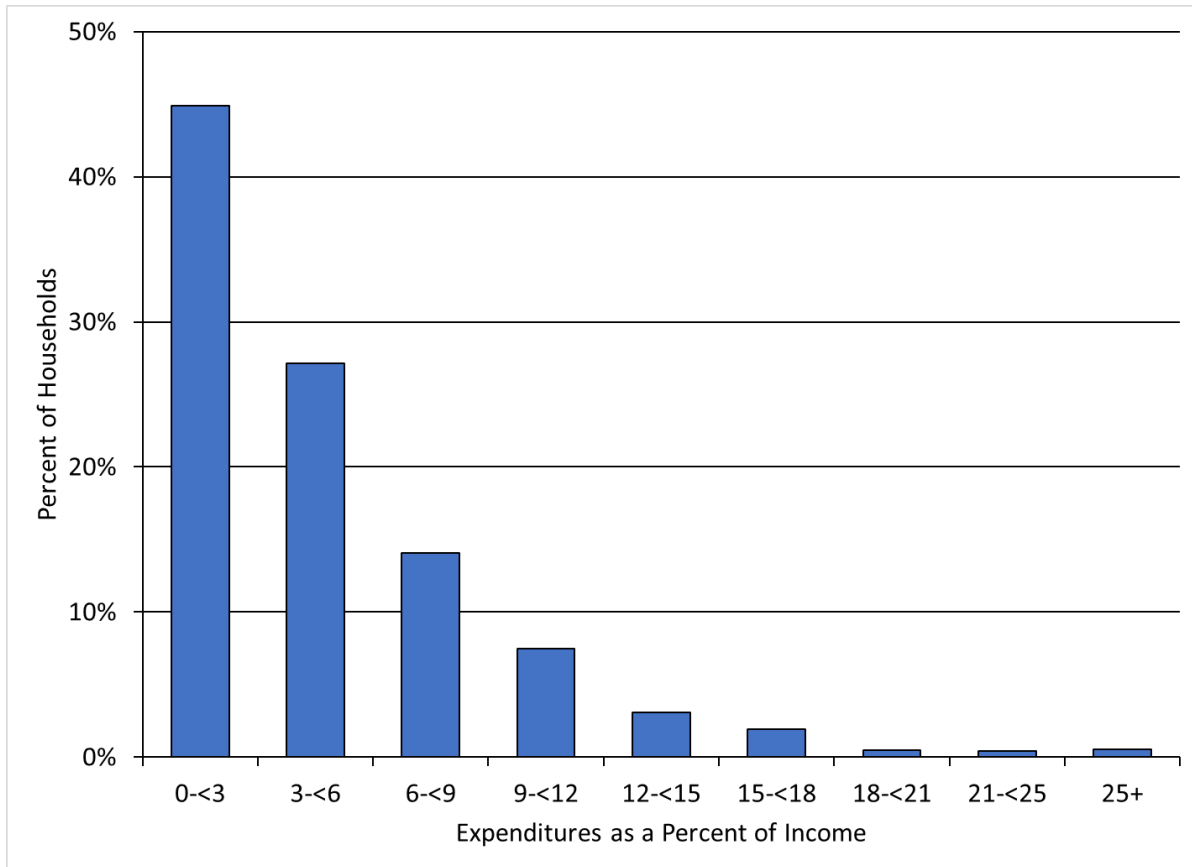
According to the 2015 RECS, the mean residential energy burden for all LIHEAP federally eligible households, in 2015, using the first approach (mean individual burden) was 11.6 percent. Using the energy bill estimates from the 2015 RECS and income estimates from the 2015 CPS ASEC, the mean residential energy burden under the second approach (mean group burden) was 8.4 percent. The disparity between the two statistics is because the lowest income households spend a greater share of their income on residential energy than do higher income households.¹² 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 11.6 percent. The median of the distribution of residential energy burdens from the 2015 RECS survey was 9.7 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.

¹¹ 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.

¹² For example, 2015 RECS households with incomes of \$20,000 or less had average residential energy expenditures of \$1,423, while those with incomes between \$40,000 and \$59,999 had average residential energy expenditures of \$1,781. Thus, households that had more than twice as much income spent only 25 percent more on energy.

Figure A-1. Distribution of LIHEAP Income Eligible Households by Home Energy Burden, 2015



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 more 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 have resulted in categorizing more households as income eligible for LIHEAP than the CPS ASEC. However, given the limitations with how the income information was collected in the 2015 RECS, the procedures to classify households in the 2015 RECS as income eligible for LIHEAP result in too few households being categorized as low income. Based on the 2015 RECS, 33.5 million households were estimated to be LIHEAP income eligible households in 2015. Based on the 2015 CPS ASEC, the estimate of LIHEAP income eligible households for 2015 was 38.3 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 2015 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 2015 were adjusted for weather differences between 2015 and FY 2021. The following equation was applied to each household in the microsimulation data file.

$$\begin{aligned} \text{FY 2021 Projected British thermal unit (Btus)} = & \quad (2015 \text{ estimated heat use} * \text{HDD change}) + \\ & (2015 \text{ estimated cooling use} * \text{CDD change}) + \\ & (2015 \text{ estimated water heat use} + 2015 \text{ estimated appliance use}) \end{aligned}$$

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

$$\text{Preliminary Expenditures} = 2015 \text{ Expenditures} * (\text{FY 2021 Projected Usage}/2015 \text{ Actual Usage})$$

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

¹³ Price factors were developed using price data obtained from the Energy Information Administration for electricity, natural gas, 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*, January 2022, and electricity consumption data is from the *Electric Power Monthly*, November 2021. Natural gas price and consumption data used for calculating price factors are from the *Monthly Energy Review*, January 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*, January 2022.

Low Income Home Energy Data for FY 2021: Appendix A: Home Energy Estimates

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 2015 to FY 2021. For example, electricity prices increased by about 7.2 percent from 2015 to FY 2021.

Table A-1. National Price Factors for FY 2021

Fuel	Price Factors for FY21 Projections
Electricity	1.0716
Natural gas	1.0911
Fuel oil / kerosene	0.9889
Liquefied petroleum gas (LPG)	0.9984

Expenditure data were adjusted using national price factors for FY 2021. 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.

Low Income Home Energy Data for FY 2021: Appendix A: Home Energy Estimates

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 2021ⁱ

Census Region	All Fuelsⁱⁱ (MMBtus)ⁱⁱⁱ	Natural Gas (MMBtus)	Electricity (MMBtus)	Fuel Oil/Kerosene (MMBtus)	LPG (MMBtus)
US - all households	76.6	95.4	51.1	105.9	93.4
US - non-low income households	81.7	99.4	54.3	113.9	99.8
US - low income households ^{iv}	63.9	82.8	45.2	87.7	71.4
US - LIHEAP beneficiary households ^v	80.8	100.4	44.8	87.2*	82.0*
Northeast - all households	90.3	98.3	42.1	107.0	92.5
Northeast - non-low income households	95.1	102.3	44.3	116.6	99.5
Northeast - low income households	79.7	89.7	38.3	86.3	W
Northeast - LIHEAP beneficiary households	85.5	97.1	31.5*	88.1*	W
Midwest - all households	94.5	108.2	48.5	122.4	103.6
Midwest - non-low income households	100.8	112.3	53.3	W	107.1
Midwest - low income households	75.4	93.4	40.3	W	83.2*
Midwest - LIHEAP beneficiary households	93.6	113.8	42.5	W	W
South - all households	68.4	95.9	53.9	96.7	93.4
South - non-low income households	73.1	101.6	56.9	99.7*	98.9
South - low income households	57.2	79.3	47.9	W	75.0*
South - LIHEAP beneficiary households	64.2	85.7	48.5	NC	73.4*
West - all households	61.8	75.2	47.3	113.6	73.7
West - non-low income households	65.7	78.3	49.7	W	83.2
West - low income households	51.5	63.2	43.4	W	W
West - LIHEAP beneficiary households	66.6	81.1*	51.7*	NC	W

ⁱ Developed from the 2015 Residential Energy Consumption Survey (RECS), Energy Information Administration, U.S. Department of Energy, and adjusted for FY 2021 for heating and cooling degree days.

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

ⁱⁱⁱ 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.

^{iv} Households with income at or below the maximum in Section 2605(b)(2)(B) of Pub. L. 97-35.

Low Income Home Energy Data for FY 2021: Appendix A: Home Energy Estimates

^v Includes verified LIHEAP beneficiary households from the 2015 RECS.

NC = No cases in the 2015 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.

Low Income Home Energy Data for FY 2021: Appendix A: Home Energy Estimates

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 2021

Census Region	All Fuels ⁱ	All Fuels ⁱⁱ	Natural		Electric Heat	Electric Heat	Fuel	Fuel	LPG Heat	LPG Heat
			Gas Heat	Natural Gas Heat			Oil/Kero Heat	Oil/Kero Heat		
US - all households	\$1,983	2.0%	\$2,032	2.1%	\$1,787	1.8%	\$2,918	3.0%	\$2,757	2.8%
US - non-low income households	\$2,103	1.7%	\$2,129	1.7%	\$1,906	1.5%	\$3,163	2.5%	\$2,915	2.3%
US - low income households ⁱⁱⁱ	\$1,682	7.7%	\$1,729	7.9%	\$1,563	7.1%	\$2,359	10.8%	\$2,212	10.1%
US - LIHEAP beneficiary households ^{iv}	\$1,882	9.7%	\$1,927	9.9%	\$1,546	8.0%	\$2,254*	11.6%*	\$2,568*	13.3%*
Northeast - all households	\$2,344	2.2%	\$2,192	2.0%	\$1,862	1.7%	\$2,955	2.7%	\$3,012	2.8%
Northeast - non-low income households	\$2,506	1.7%	\$2,301	1.6%	\$2,050	1.4%	\$3,254	2.3%	\$3,260	2.3%
Northeast - low income households	\$1,985	7.9%	\$1,956	7.8%	\$1,530	6.1%	\$2,312	9.3%	W	W
Northeast - LIHEAP beneficiary	\$2,009	9.1%	\$1,948	8.8%	\$1,314*	6.0%*	\$2,284*	10.3%*	W	W
Midwest - all households	\$1,923	2.0%	\$1,936	2.0%	\$1,632	1.7%	\$2,891	3.0%	\$2,784	2.9%
Midwest - non-low income households	\$2,029	1.6%	\$2,010	1.6%	\$1,777	1.4%	W	W	\$2,876	2.3%
Midwest - low income households	\$1,596	7.2%	\$1,672	7.5%	\$1,382	6.2%	W	W	\$2,245*	10.1%*
Midwest - LIHEAP beneficiary households	\$1,873	10.4%	\$1,990	11.1%	\$1,541	8.6%	W	W	W	W
South - all households	\$2,030	2.3%	\$2,252	2.5%	\$1,905	2.1%	\$2,665	3.0%	\$2,734	3.1%
South - non-low income households	\$2,150	1.8%	\$2,390	2.0%	\$2,015	1.7%	\$2,736*	2.3%*	\$2,820	2.4%
South - low income households	\$1,747	8.9%	\$1,848	9.4%	\$1,679	8.6%	W	W	\$2,447*	12.5%*
South - LIHEAP beneficiary households	\$1,852	11.9%	\$1,938	12.4%	\$1,675	10.7%	NC	NC	\$2,629*	16.8%*
West - all households	\$1,678	1.6%	\$1,812	1.7%	\$1,495	1.4%	\$3,194	3.1%	\$2,466	2.4%
West - non-low income households	\$1,796	1.4%	\$1,924	1.5%	\$1,568	1.2%	W	W	\$2,836	2.1%
West - low income households	\$1,372	5.9%	\$1,379	5.9%	\$1,382	5.9%	W	W	W	W
West - LIHEAP beneficiary households	\$1,554	7.7%	\$1,543*	7.6%*	\$1,424*	7.0%*	NC	NC	W	W

ⁱ Estimates are derived from the 2015 Residential Energy Consumption Survey (RECS), Energy Information Administration, U.S. Department of Energy. The 2015 RECS data have been adjusted for heating degree days, cooling degree days, and fuel price estimates for FY 2021. 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.

ⁱⁱ Represents the percent of household's income used for residential energy expenditures. National and regional mean incomes are calculated from the 2021 CPS ASEC, which reports income for calendar year 2020. 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.

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

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^{iv} Includes verified LIHEAP beneficiary households from the 2015 RECS.

NC = No cases in the 2015 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.

Low Income Home Energy Data for FY 2021: Appendix A: Home Energy Estimates

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 2021

Census Region	All Fuels ⁱ	All Fuels ⁱⁱ	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	\$1,983	5.2%	\$2,032	4.8%	\$1,787	5.5%	\$2,918	7.7%	\$2,757	6.2%
US - non-low income households	\$2,103	2.9%	\$2,129	2.8%	\$1,906	2.9%	\$3,163	4.1%	\$2,915	3.8%
US - low income households ⁱⁱⁱ	\$1,682	11.1%	\$1,729	11.0%	\$1,563	10.6%	\$2,359	16.1%	\$2,212	14.5%
US - LIHEAP beneficiary households ^{iv}	\$1,882	11.8%	\$1,927	11.6%	\$1,546	11.1%	\$2,254*	14.3%*	\$2,568*	13.2%*
Northeast - all households	\$2,344	6.1%	\$2,192	5.7%	\$1,862	5.0%	\$2,955	7.9%	\$3,012	5.5%
Northeast - non-low income	\$2,506	3.2%	\$2,301	2.8%	\$2,050	2.8%	\$3,254	4.2%	\$3,260	4.0%
Northeast - low income households	\$1,985	12.5%	\$1,956	12.0%	\$1,530	8.9%	\$2,312	16.0%	W	W
Northeast - LIHEAP beneficiary	\$2,009	12.2%	\$1,948	11.8%	\$1,314*	8.5%*	\$2,284*	14.5%*	W	W
Midwest - all households	\$1,923	4.9%	\$1,936	4.7%	\$1,632	5.5%	\$2,891	4.5%	\$2,784	5.5%
Midwest - non-low income households	\$2,029	3.0%	\$2,010	3.0%	\$1,777	2.8%	W	W	\$2,876	4.1%
Midwest - low income households	\$1,596	10.6%	\$1,672	10.9%	\$1,382	10.1%	W	W	\$2,245*	13.3%*
Midwest - LIHEAP beneficiary	\$1,873	12.1%	\$1,990	12.2%	\$1,541	12.6%	W	W	W	W
South - all households	\$2,030	5.6%	\$2,252	5.4%	\$1,905	5.7%	\$2,665	7.2%	\$2,734	6.7%
South - non-low income households	\$2,150	3.1%	\$2,390	3.1%	\$2,015	3.1%	\$2,736*	3.4%*	\$2,820	3.8%
South - low income households	\$1,747	11.6%	\$1,848	12.2%	\$1,679	11.2%	W	W	\$2,447*	16.4%*
South - LIHEAP beneficiary households	\$1,852	11.4%	\$1,938	10.8%	\$1,675	11.1%	NC	NC	\$2,629*	14.7%*
West - all households	\$1,678	4.2%	\$1,812	3.5%	\$1,495	5.2%	\$3,194	6.8%	\$2,466	7.4%
West - non-low income households	\$1,796	2.3%	\$1,924	2.3%	\$1,568	2.2%	W	W	\$2,836	2.8%
West - low income households	\$1,372	9.1%	\$1,379	8.3%	\$1,382	9.9%	W	W	W	W
West - LIHEAP beneficiary households	\$1,554	10.9%	\$1,543*	9.5%*	\$1,424*	11.0%*	NC	NC	W	W

ⁱ Estimates are derived from the 2015 Residential Energy Consumption Survey (RECS), Energy Information Administration, U.S. Department of Energy. The 2015 RECS data have been adjusted for heating degree days, cooling degree days, and fuel price estimates for FY 2021. 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.

ⁱⁱ Represents the percent of household income used for residential energy expenditures. For individual households, FY 2021 income is estimated by inflating income reported in the 2015 RECS by the consumer price index (CPI) and FY 2021 energy expenditures are estimated by adjusting energy expenditures reported in the 2015 RECS for changes in weather and energy prices. FY 2021 residential energy burden for each household is computed as estimated FY 2021 residential energy expenditures divided by estimated

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FY 2021 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.

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

^{iv} Includes verified LIHEAP beneficiary households from the 2015 RECS.

NC = No cases in the 2015 RECS household sample.

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

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Low Income Home Energy Data for FY 2021: Appendix A: Home Energy Estimates

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 2021

Census Region	All Fuels ⁱ	All Fuels ⁱⁱ	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	\$1,983	3.2%	\$2,032	3.0%	\$1,787	3.5%	\$2,918	4.5%	\$2,757	4.0%
US - non-low income households	\$2,103	2.5%	\$2,129	2.4%	\$1,906	2.4%	\$3,163	3.6%	\$2,915	3.2%
US - low income households ⁱⁱⁱ	\$1,682	9.3%	\$1,729	8.9%	\$1,563	9.5%	\$2,359	13.6%	\$2,212	14.1%
US - LIHEAP beneficiary households ^{iv}	\$1,882	10.8%	\$1,927	10.5%	\$1,546	10.5%	\$2,254*	12.8%*	\$2,568*	12.2%*
Northeast - all households	\$2,344	3.8%	\$2,192	3.5%	\$1,862	3.1%	\$2,955	4.5%	\$3,012	3.8%
Northeast - non-low income	\$2,506	2.7%	\$2,301	2.3%	\$2,050	2.4%	\$3,254	3.7%	\$3,260	3.2%
Northeast - low income households	\$1,985	10.2%	\$1,956	9.7%	\$1,530	9.5%	\$2,312	13.1%	W	W
Northeast - LIHEAP beneficiary	\$2,009	10.5%	\$1,948	10.5%	\$1,314*	9.0%*	\$2,284*	12.8%*	W	W
Midwest - all households	\$1,923	3.2%	\$1,936	3.1%	\$1,632	3.6%	\$2,891	3.8%	\$2,784	4.0%
Midwest - non-low income households	\$2,029	2.6%	\$2,010	2.6%	\$1,777	2.3%	W	W	\$2,876	3.6%
Midwest - low income households	\$1,596	8.9%	\$1,672	9.0%	\$1,382	8.9%	W	W	\$2,245*	9.9%*
Midwest - LIHEAP beneficiary	\$1,873	11.0%	\$1,990	11.0%	\$1,541	12.3%	W	W	W	W
South - all households	\$2,030	3.6%	\$2,252	3.6%	\$1,905	3.6%	\$2,665	4.2%	\$2,734	4.3%
South - non-low income households	\$2,150	2.6%	\$2,390	2.7%	\$2,015	2.6%	\$2,736*	3.6%*	\$2,820	3.2%
South - low income households	\$1,747	10.0%	\$1,848	10.3%	\$1,679	9.9%	W	W	\$2,447*	18.0%*
South - LIHEAP beneficiary	\$1,852	11.1%	\$1,938	10.3%	\$1,675	10.2%	NC	NC	\$2,629*	12.2%*
West - all households	\$1,678	2.4%	\$1,812	2.3%	\$1,495	2.9%	\$3,194	6.4%	\$2,466	4.3%
West - non-low income households	\$1,796	1.8%	\$1,924	1.9%	\$1,568	1.8%	W	W	\$2,836	2.5%
West - low income households	\$1,372	7.2%	\$1,379	6.7%	\$1,382	8.2%	W	W	W	W
West - LIHEAP beneficiary	\$1,554	9.8%	\$1,543*	9.6%*	\$1,424*	9.5%*	NC	NC	W	W

ⁱ Estimates are derived from the 2015 Residential Energy Consumption Survey (RECS), Energy Information Administration, U.S. Department of Energy. The 2015 RECS data have been adjusted for heating degree days, cooling degree days, and fuel price estimates for FY 2021. 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.

ⁱⁱ Represents the percent of household income used for residential energy expenditures. For individual households, FY 2021 income is estimated by inflating income reported in the 2015 RECS by the consumer price index (CPI) and FY 2021 energy expenditures are estimated by adjusting energy expenditures reported in the 2015 RECS for changes in weather and energy prices. FY 2021 residential energy burden for each household is computed as estimated FY 2021 residential energy expenditures divided by estimated

Low Income Home Energy Data for FY 2021: Appendix A: Home Energy Estimates

FY 2021 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.

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

^{iv} Includes verified LIHEAP beneficiary households from the 2015 RECS.

NC = No cases in the 2015 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.

Low Income Home Energy Data for FY 2021: Appendix A: Home Energy Estimates

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, 2015ⁱ

Census Region	Natural Gas ⁱⁱ	Electricity	Fuel Oil/Kerosene	LPG	Other ⁱⁱⁱ
US - all households	48.8%	34.6%	4.9%	4.2%	3.1%
US - non-low income households	51.6%	31.6%	4.8%	4.6%	3.4%
US - low income households ^{iv}	41.8%	42.2%	5.3%	3.3%	2.3%
US - LIHEAP beneficiary households ^v	52.6%	29.2%	9.6%	4.9%	2.7%
Northeast - all households	54.3%	13.3%	22.6%	4.1%	5.6%
Northeast - non-low income households	53.9%	12.4%	22.4%	4.5%	6.8%
Northeast - low income households	55.2%	15.4%	23.1%	3.2%	2.9%
Northeast - LIHEAP beneficiary households	52.4%	12.6%	27.1%	2.3%	5.7%
Midwest - all households	70.9%	20.6%	0.4%	5.8%	2.3%
Midwest - non-low income households	73.5%	17.3%	0.4%	6.6%	2.2%
Midwest - low income households	63.0%	30.6%	0.2%	3.4%	2.8%
Midwest - LIHEAP beneficiary households	68.9%	27.0%	0.6%	3.0%	0.6%
South - all households	30.8%	55.9%	1.9%	4.2%	1.9%
South - non-low income households	32.6%	53.6%	2.0%	4.6%	2.2%
South - low income households	26.4%	61.5%	1.6%	3.2%	1.4%
South - LIHEAP beneficiary households	36.6%	50.0%	0.0%	9.4%	1.2%
West - all households	52.6%	29.7%	0.5%	2.9%	3.8%
West - non-low income households	58.0%	25.1%	0.5%	2.6%	4.1%
West - low income households	38.8%	41.7%	0.5%	3.6%	3.0%
West - LIHEAP beneficiary households	43.8%	42.3%	0.0%	8.4%	2.5%

ⁱ Data derived from the 2015 Residential Energy Consumption Survey (RECS), Energy Information Administration, U.S. Department of Energy. Represents main heating fuel used in 2015.

ⁱⁱ The sum of percentages across fuel types may not equal 100% due to rounding and excluding households reporting no main fuel.

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

^{iv} Households with income at or below the maximum in Section 2605(b)(2)(B) of Pub. L. 97-35.

^v Includes verified LIHEAP beneficiary households from the 2015 RECS.

Low Income Home Energy Data for FY 2021: Appendix A: Home Energy Estimates

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 2021ⁱ

Census Region	All Fuelsⁱⁱ (MMBtus)ⁱⁱⁱ	Natural Gas (MMBtus)	Electricity (MMBtus)	Fuel Oil/Kerosene (MMBtus)	LPG (MMBtus)
US - all households	33.6	47.9	14.1	64.5	44.7
US - non-low income households	36.6	50.4	14.9	70.9	47.7
US - low income households ^{iv}	26.1	40.1	12.6	49.7	34.1
US - LIHEAP beneficiary households ^v	40.9	55.4	16.2	46.5*	40.8*
Northeast - all households	49.1	54.3	14.2	66.0	49.6
Northeast - non-low income households	53.3	58.3	15.9	74.1	55.1
Northeast - low income households	40.0	45.7	11.3	48.7	W
Northeast - LIHEAP beneficiary households	44.0	52.2	11.0*	47.0*	W
Midwest - all households	52.9	63.8	19.6	85.6	53.9
Midwest - non-low income households	57.0	66.6	22.0	W	55.7
Midwest - low income households	40.3	53.8	15.5	W	43.3*
Midwest - LIHEAP beneficiary households	56.0	71.2	20.2	W	W
South - all households	22.1	38.6	13.2	53.7	40.0
South - non-low income households	23.8	40.7	13.7	54.4*	41.7
South - low income households	17.9	32.3	12.0	W	34.4*
South - LIHEAP beneficiary households	24.4	38.7	14.4	NC	32.2*
West - all households	21.3	30.4	13.1	59.7	31.6
West - non-low income households	23.5	32.4	13.3	W	34.0
West - low income households	15.7	22.7	12.7	W	W
West - LIHEAP beneficiary households	25.8	29.9*	18.9*	NC	W

ⁱ Developed from the 2015 Residential Energy Consumption Survey (RECS), Energy Information Administration, U.S. Department of Energy, and adjusted for FY 2021 for heating degree days.

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

ⁱⁱⁱ 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.

^{iv} Households with income at or below the maximum in Section 2605(b)(2)(B) of Public Law 97-35.

^v Includes verified LIHEAP beneficiary households from the 2015 RECS.

Low Income Home Energy Data for FY 2021: Appendix A: Home Energy Estimates

NC = No cases in the 2015 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.

Low Income Home Energy Data for FY 2021: Appendix A: Home Energy Estimates

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 2021

Census Region	All Fuels ⁱ	All Fuels ⁱⁱ	Natural Gas		Electric		Fuel Oil/Kero	Fuel Oil/Kero	LPG Heat	LPG Heat
			Heat	Gas Heat	Heat	Heat	Heat	Heat		
US - all households	\$570	0.6%	\$592	0.6%	\$493	0.5%	\$1,229	1.3%	\$1,013	1.0%
US - non-low income households	\$606	0.5%	\$620	0.5%	\$521	0.4%	\$1,358	1.1%	\$1,068	0.8%
US - low income households ⁱⁱⁱ	\$479	2.2%	\$504	2.3%	\$440	2.0%	\$936	4.3%	\$824	3.8%
US - LIHEAP beneficiary households ^{iv}	\$661	3.4%	\$662	3.4%	\$579	3.0%	\$853*	4.4%*	\$1,045*	5.4%*
Northeast - all households	\$842	0.8%	\$734	0.7%	\$648	0.6%	\$1,256	1.2%	\$1,366	1.3%
Northeast - non-low income households	\$920	0.6%	\$785	0.5%	\$718	0.5%	\$1,423	1.0%	\$1,555	1.1%
Northeast - low income households	\$671	2.7%	\$625	2.5%	\$523	2.1%	\$896	3.6%	W	W
Northeast - LIHEAP beneficiary households	\$704	3.2%	\$680	3.1%	\$477*	2.2%*	\$862*	3.9%*	W	W
Midwest - all households	\$690	0.7%	\$686	0.7%	\$654	0.7%	\$1,523	1.6%	\$1,019	1.1%
Midwest - non-low income households	\$730	0.6%	\$713	0.6%	\$723	0.6%	W	W	\$1,046	0.8%
Midwest - low income households	\$568	2.6%	\$590	2.7%	\$533	2.4%	W	W	\$865*	3.9%*
Midwest - LIHEAP beneficiary households	\$763	4.2%	\$770	4.3%	\$764	4.2%	W	W	W	W
South - all households	\$489	0.5%	\$532	0.6%	\$467	0.5%	\$1,067	1.2%	\$928	1.0%
South - non-low income households	\$514	0.4%	\$559	0.5%	\$487	0.4%	\$1,052*	0.9%*	\$940	0.8%
South - low income households	\$431	2.2%	\$453	2.3%	\$426	2.2%	W	W	\$887*	4.5%*
South - LIHEAP beneficiary households	\$540	3.5%	\$540	3.5%	\$512	3.3%	NC	NC	\$916*	5.9%*
West - all households	\$369	0.4%	\$406	0.4%	\$409	0.4%	\$1,078	1.0%	\$803	0.8%
West - non-low income households	\$390	0.3%	\$435	0.3%	\$421	0.3%	W	W	\$846	0.6%
West - low income households	\$314	1.3%	\$292	1.3%	\$392	1.7%	W	W	W	W
West - LIHEAP beneficiary households	\$512	2.5%	\$341*	1.7%*	\$529*	2.6%*	NC	NC	W	W

ⁱ Expenditures shown in this table are derived from the 2015 Residential Energy Consumption Survey (RECS), Energy Information Administration, U.S. Department of Energy. The 2015 RECS data have been adjusted for heating degree days and fuel price estimates for FY 2021. 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.

ⁱⁱ Represents the percent of household income used for home heating energy expenditures. National and regional mean incomes are calculated from the 2021 CPS ASEC, which reports income for calendar year 2020. 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.

Low Income Home Energy Data for FY 2021: Appendix A: Home Energy Estimates

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

^{iv} Includes verified LIHEAP beneficiary households from the 2015 RECS.

NC = No cases in the 2015 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.

Low Income Home Energy Data for FY 2021: Appendix A: Home Energy Estimates

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 2021

Census Region	All Fuels ⁱ	All Fuels ⁱⁱ	Natural		Electric Heat	Electric Heat	Fuel	Fuel	LPG Heat	LPG Heat
			Gas Heat	Natural Gas Heat			Oil/Kero Heat	Oil/Kero Heat		
US - all households	\$570	1.5%	\$592	1.4%	\$493	1.6%	\$1,229	3.3%	\$1,013	2.4%
US - non-low income households	\$606	0.9%	\$620	0.9%	\$521	0.8%	\$1,358	1.9%	\$1,068	1.4%
US - low income households ⁱⁱⁱ	\$479	3.2%	\$504	3.2%	\$440	3.1%	\$936	6.5%	\$824	5.7%
US - LIHEAP beneficiary households ^{iv}	\$661	4.3%	\$662	4.1%	\$579	4.2%	\$853*	5.5%*	\$1,045*	6.1%*
Northeast - all households	\$842	2.2%	\$734	1.9%	\$648	1.7%	\$1,256	3.3%	\$1,366	2.5%
Northeast - non-low income households	\$920	1.2%	\$785	1.0%	\$718	1.0%	\$1,423	1.9%	\$1,555	2.0%
Northeast - low income households	\$671	4.3%	\$625	3.9%	\$523	3.1%	\$896	6.3%	W	W
Northeast - LIHEAP beneficiary households	\$704	4.4%	\$680	4.2%	\$477*	3.0%*	\$862*	5.6%*	W	W
Midwest - all households	\$690	1.8%	\$686	1.7%	\$654	2.2%	\$1,523	2.4%	\$1,019	2.1%
Midwest - non-low income households	\$730	1.1%	\$713	1.1%	\$723	1.2%	W	W	\$1,046	1.5%
Midwest - low income households	\$568	3.9%	\$590	3.9%	\$533	4.1%	W	W	\$865*	5.5%*
Midwest - LIHEAP beneficiary households	\$763	5.1%	\$770	4.8%	\$764	6.4%	W	W	W	W
South - all households	\$489	1.4%	\$532	1.3%	\$467	1.5%	\$1,067	3.1%	\$928	2.4%
South - non-low income households	\$514	0.7%	\$559	0.8%	\$487	0.8%	\$1,052*	1.4%*	\$940	1.2%
South - low income households	\$431	2.9%	\$453	2.8%	\$426	2.9%	W	W	\$887*	6.3%*
South - LIHEAP beneficiary households	\$540	3.2%	\$540	3.0%	\$512	3.2%	NC	NC	\$916*	5.6%*
West - all households	\$369	1.0%	\$406	0.8%	\$409	1.5%	\$1,078	2.5%	\$803	2.9%
West - non-low income households	\$390	0.5%	\$435	0.6%	\$421	0.6%	W	W	\$846	1.0%
West - low income households	\$314	2.2%	\$292	1.8%	\$392	2.9%	W	W	W	W
West - LIHEAP beneficiary households	\$512	4.1%	\$341*	2.4%*	\$529*	4.3%*	NC	NC	W	W

ⁱ Expenditures shown in this table are derived from the 2015 Residential Energy Consumption Survey (RECS), Energy Information Administration, U.S. Department of Energy. The 2015 RECS data have been adjusted for heating degree days and fuel price estimates for FY 2021. 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.

ⁱⁱ Represents the percent of household income used for home heating energy expenditures. For individual households, FY 2021 income is estimated by inflating income reported in the 2015 RECS by the consumer price index (CPI) and FY 2021 energy expenditures are estimated by adjusting energy expenditures reported in the 2015 RECS for changes in weather and energy prices. FY 2021 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.

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

Low Income Home Energy Data for FY 2021: Appendix A: Home Energy Estimates

^{iv} Includes verified LIHEAP beneficiary households from the 2015 RECS.

NC = No cases in the 2015 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.

Low Income Home Energy Data for FY 2021: Appendix A: Home Energy Estimates

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 2021

Census Region	All Fuels ⁱ	All Fuels ⁱⁱ	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	\$570	0.8%	\$592	0.8%	\$493	0.8%	\$1,229	1.8%	\$1,013	1.4%
US - non-low income households	\$606	0.6%	\$620	0.6%	\$521	0.5%	\$1,358	1.4%	\$1,068	1.1%
US - low income households ⁱⁱⁱ	\$479	2.1%	\$504	2.1%	\$440	2.0%	\$936	4.5%	\$824	3.6%
US - LIHEAP beneficiary households ^{iv}	\$661	3.1%	\$662	2.9%	\$579	3.2%	\$853*	3.7%*	\$1,045*	4.0%*
Northeast - all households	\$842	1.2%	\$734	1.0%	\$648	1.2%	\$1,256	1.8%	\$1,366	1.8%
Northeast - non-low income households	\$920	0.9%	\$785	0.7%	\$718	0.7%	\$1,423	1.4%	\$1,555	1.6%
Northeast - low income households	\$671	3.1%	\$625	2.6%	\$523	2.9%	\$896	4.3%	W	W
Northeast - LIHEAP beneficiary households	\$704	3.1%	\$680	2.7%	\$477*	2.9%*	\$862*	3.7%*	W	W
Midwest - all households	\$690	1.0%	\$686	1.0%	\$654	1.1%	\$1,523	2.4%	\$1,019	1.4%
Midwest - non-low income households	\$730	0.8%	\$713	0.8%	\$723	0.7%	W	W	\$1,046	1.2%
Midwest - low income households	\$568	2.8%	\$590	2.8%	\$533	3.0%	W	W	\$865*	3.5%*
Midwest - LIHEAP beneficiary households	\$763	4.0%	\$770	4.0%	\$764	6.2%	W	W	W	W
South - all households	\$489	0.7%	\$532	0.8%	\$467	0.7%	\$1,067	1.2%	\$928	1.4%
South - non-low income households	\$514	0.5%	\$559	0.6%	\$487	0.5%	\$1,052*	1.0%*	\$940	1.0%
South - low income households	\$431	2.0%	\$453	2.2%	\$426	2.0%	W	W	\$887*	5.5%*
South - LIHEAP beneficiary households	\$540	2.0%	\$540	2.0%	\$512	1.8%	NC	NC	\$916*	4.0%*
West - all households	\$369	0.4%	\$406	0.5%	\$409	0.6%	\$1,078	1.3%	\$803	1.4%
West - non-low income households	\$390	0.3%	\$435	0.4%	\$421	0.3%	W	W	\$846	0.6%
West - low income households	\$314	1.2%	\$292	1.2%	\$392	1.6%	W	W	W	W
West - LIHEAP beneficiary households	\$512	2.1%	\$341*	1.7%*	\$529*	3.1%*	NC	NC	W	W

ⁱ Expenditures shown in this table are derived from the 2015 Residential Energy Consumption Survey (RECS), Energy Information Administration, U.S. Department of Energy. The 2015 RECS data have been adjusted for heating degree days and fuel price estimates for FY 2021. 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.

ⁱⁱ Represents the percent of household income used for home heating energy expenditures. For individual households, FY 2021 income is estimated by inflating income reported in the 2015 RECS by the consumer price index (CPI) and FY 2021 energy expenditures are estimated by adjusting energy expenditures reported in the 2015 RECS for changes in weather and energy prices. FY 2021 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.

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ⁱⁱⁱ Households with annual incomes at or below the maximum in Section 2605(b)(2)(B) of Public Law 97-35.

^{iv} Includes verified LIHEAP beneficiary households from the 2015 RECS.

NC = No cases in the 2015 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.

Low Income Home Energy Data for FY 2021: Appendix A: Home Energy Estimates

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 2021

Census Region	Percent That Cool ⁱ	Consumption ⁱⁱ (in MMBtus)	Expenditures ⁱⁱ	Mean Group Burden ⁱⁱⁱ	Mean Individual Burden ⁱⁱⁱ	Median Individual Burden ⁱⁱⁱ
US - all households	94.1%	7.6	\$307	0.3%	0.7%	0.4%
US - non-low income households	95.6%	8.2	\$333	0.3%	0.4%	0.3%
US - low income households ^{iv}	90.4%	5.9	\$236	1.1%	1.5%	0.9%
US - LIHEAP beneficiary households ^v	92.9%	4.0	\$165	0.8%	1.0%	0.6%
Northeast - all households	90.5%	3.8	\$206	0.2%	0.5%	0.2%
Northeast - non-low income	93.3%	4.2	\$225	0.2%	0.3%	0.2%
Northeast - low income households	84.4%	2.9	\$158	0.6%	1.0%	0.6%
Northeast - LIHEAP beneficiary	89.5%	2.4	\$125	0.6%	0.8%	0.5%
Midwest - all households	96.2%	5.5	\$219	0.2%	0.5%	0.3%
Midwest - non-low income households	97.9%	6.0	\$242	0.2%	0.3%	0.3%
Midwest - low income households	91.1%	3.7	\$143	0.6%	0.9%	0.6%
Midwest - LIHEAP beneficiary	92.6%	3.7	\$141	0.8%	0.8%	0.5%
South - all households	98.7%	11.5	\$426	0.5%	1.1%	0.6%
South - non-low income households	99.5%	12.6	\$464	0.4%	0.7%	0.5%
South - low income households	99.8%	8.9	\$333	1.7%	2.2%	1.5%
South - LIHEAP beneficiary households	98.3%	6.5	\$247	1.6%	1.5%	1.0%
West - all households	87.2%	5.7	\$260	0.3%	0.6%	0.2%
West - non-low income households	88.6%	6.1	\$284	0.2%	0.3%	0.2%
West - low income households	83.6%	4.7	\$194	0.8%	1.3%	0.6%
West - LIHEAP beneficiary households	92.4%	3.8	\$154	0.8%	0.9%	0.4%

ⁱ 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 2015 RECS (e.g., table and window fans.).

ⁱⁱ Consumption and expenditures are derived from the 2015 Residential Energy Consumption Survey (RECS), Energy Information Administration, U.S. Department of Energy. The 2015 RECS data have been adjusted for cooling degree days and electricity price estimates for FY 2021. Expenditures represent billed costs for electricity used for home cooling.

ⁱⁱⁱ Represents the percent of household income used for home cooling energy expenditures.

^{iv} Households with annual incomes at or below the maximum in Section 2605(b)(2)(B) of Pub. L. 97-35.

^v Includes verified LIHEAP beneficiary households from the 2015 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 2021 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.¹⁴ 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 2016-2020 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 2020 single-year ACS PUMS data.¹⁵

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,¹⁶ derived from the 2016-2020 five-year ACS, using the federal maximum income standard and the FY 2021 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.

Similarly, Tables B-3 through B-4 show estimates of the number of LIHEAP income eligible households by poverty group, derived from the 2016-2020 five-year ACS, using the using the federal maximum income standard and the FY 2021 state income standards, respectively.

¹⁴ 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>.

¹⁵ 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 2021 Notebook* uses the most recent 5-year (2016-2020) ACS PUMS file to develop state-level estimates of the income eligible population.

¹⁶ 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 a member with a disability with those in previous *Notebooks*.

LIHEAP Home Energy Notebook for FY 2021: Appendix B: Income Eligible Household Estimates

Table B-1. State-Level Estimates of the Number of LIHEAP Income Eligible Households Using the Federal Maximum LIHEAP Income Standard by Vulnerability Category^{i ii iii}
(2016-2020 ACS)

State	Total Number of LIHEAP Eligible Households^{iv}	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^v	LIHEAP Eligible Households with No Vulnerable Members
Alabama	577,975	244,600	89,313	260,191	150,292
Alaska	66,269	24,854	15,969	24,373	18,077
Arizona	651,623	280,393	120,793	238,968	181,632
Arkansas	327,073	134,322	58,486	160,389	75,299
California	3,489,873	1,490,497	637,412	1,205,108	1,067,853
Colorado	539,198	220,475	83,682	182,822	174,222
Connecticut	431,121	197,161	57,460	156,330	127,496
Delaware	102,640	45,234	15,100	34,993	31,571
Dist. of Columbia	76,811	29,974	8,804	31,552	25,187
Florida	2,012,497	997,731	292,682	733,887	533,869
Georgia	1,025,998	408,996	189,367	389,327	299,999
Hawaii	113,689	56,641	19,928	39,403	30,036
Idaho	149,758	59,667	27,744	60,729	40,649
Illinois	1,432,309	618,120	224,994	506,040	436,701
Indiana	700,603	285,808	121,375	286,388	192,106
Iowa	352,063	151,440	53,780	127,324	103,465
Kansas	308,149	124,254	53,678	126,026	84,605
Kentucky	531,667	222,851	88,708	271,403	114,171
Louisiana	588,955	243,845	93,686	252,426	160,642
Maine	165,121	83,957	18,098	78,776	34,027
Maryland	618,293	278,994	103,000	223,464	175,149
Massachusetts	832,593	407,681	102,849	340,612	215,110
Michigan	1,159,876	495,971	179,543	489,980	303,048
Minnesota	623,566	280,429	98,550	225,713	174,914
Mississippi	342,222	140,525	57,368	157,039	87,671
Missouri	687,175	291,765	108,853	299,614	177,657
Montana	123,537	56,016	17,371	46,253	35,595
Nebraska	202,402	82,055	35,211	72,902	61,872
Nevada	279,373	113,175	47,795	101,523	87,004
New Hampshire	150,202	76,021	16,599	60,595	37,508
New Jersey	1,013,841	480,746	151,386	345,534	293,494
New Mexico	220,607	92,668	37,277	92,916	59,343
New York	2,291,897	1,073,224	339,941	878,023	622,234
North Carolina	1,125,151	480,325	185,546	444,262	313,261
North Dakota	94,980	37,290	15,219	29,141	33,303
Ohio	1,391,930	597,151	222,925	595,975	353,296
Oklahoma	398,059	149,874	76,536	175,218	107,564
Oregon	419,474	185,956	61,050	175,963	114,360
Pennsylvania	1,538,208	746,355	214,233	670,418	363,206
Rhode Island	129,483	61,922	15,836	58,402	29,987
South Carolina	537,150	237,151	85,379	216,003	145,491
South Dakota	90,461	40,029	15,347	32,555	25,575
Tennessee	713,325	297,734	119,401	323,152	182,279
Texas	2,670,103	981,716	570,786	924,879	842,848
Utah	212,688	69,470	52,465	68,113	66,160
Vermont	75,617	37,975	8,604	32,889	17,536
Virginia	877,407	382,640	143,501	327,548	249,736
Washington	736,838	314,433	130,884	287,869	198,966
West Virginia	233,327	104,819	32,266	121,294	50,280

LIHEAP Home Energy Notebook for FY 2021: Appendix B: Income Eligible Household Estimates

State	Total Number of LIHEAP Eligible Households^{iv}	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^v	LIHEAP Eligible Households with No Vulnerable Members
Wisconsin	666,748	298,820	96,444	248,842	183,468
Wyoming	61,355	26,099	9,506	22,817	17,911
All states	34,161,280	14,839,849	5,622,730	13,255,963	9,507,725

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

ⁱⁱ 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.

ⁱⁱⁱ A household can be counted under more than 1 vulnerability category.

^{iv} The 2016-2020 ACS estimate of the total number of all U.S. households is 122,354,269.

^v 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.

LIHEAP Home Energy Notebook for FY 2021: Appendix B: Income Eligible Household Estimates

Table B-2. State-Level Estimates of the Number of LIHEAP Income Eligible Households Using State Maximum LIHEAP Income Standards by Vulnerability Category^{i ii iii}
(2016-2020 ACS)

State	State Income Guidelines for Four-Member Household as % of HHS Poverty Guidelines	Total Number of LIHEAP Eligible Households^{iv}	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^v	LIHEAP Eligible Households with No Vulnerable Members
Alabama	150%	486,128	198,894	79,288	222,864	124,748
Alaska	150%	47,396	17,917	11,799	18,622	11,584
Arizona	173% ^{vi vii}	651,623	280,393	120,793	238,968	181,632
Arkansas	149% ^{vi viii}	326,429	134,156	58,196	160,043	75,150
California	202% ^{vi ix}	3,488,206	1,490,068	635,987	1,204,253	1,067,740
Colorado	219% ^{vi ix}	539,159	220,464	83,652	182,813	174,222
Connecticut	265% ^{vi ix}	431,121	197,161	57,460	156,330	127,496
Delaware	200%	87,861	36,965	14,202	30,336	26,673
Dist. of Columbia	241% ^{vi ix}	76,811	29,974	8,804	31,552	25,187
Florida	150%	1,653,129	807,340	255,829	616,069	425,275
Georgia	175% ^{vi ix}	1,025,119	408,570	188,655	388,850	299,965
Hawaii	150%	79,565	39,647	14,933	29,549	19,496
Idaho	161% ^{vi ix}	149,132	59,606	27,233	60,557	40,582
Illinois	200%	1,280,791	541,218	211,643	459,032	385,984
Indiana	182% ^{vi x}	700,584	285,808	121,356	286,388	192,106
Iowa	175%	277,085	115,750	43,867	104,881	79,344
Kansas	150%	212,429	80,545	39,876	90,217	56,691
Kentucky	150%	446,062	179,755	80,211	233,033	91,100
Louisiana	177% ^{vi ix}	588,611	243,771	93,445	252,277	160,582
Maine	195% ^{vi xi}	165,121	83,957	18,098	78,776	34,027
Maryland	175%	364,319	161,724	64,671	146,203	93,581
Massachusetts	274% ^{vi ix}	832,593	407,681	102,849	340,612	215,110
Michigan	110%	528,387	192,942	92,157	239,789	136,067
Minnesota	199% ^{vi xii}	491,872	225,205	76,200	189,197	130,039
Mississippi	147% ^{vi ix}	339,517	140,084	55,527	155,897	87,104
Missouri	135%	438,143	174,494	73,295	202,010	109,731
Montana	185% ^{vi x}	123,537	56,016	17,371	46,253	35,595
Nebraska	130%	106,968	40,878	19,582	41,875	30,362
Nevada	150%	220,891	86,577	40,133	82,313	66,728
New Hampshire	251% ^{vi ix}	150,202	76,021	16,599	60,595	37,508
New Jersey	200%	701,578	326,996	113,531	255,802	190,447
New Mexico	150%	216,077	89,634	37,277	91,447	58,046
New York	220% ^{vi xiii}	2,291,897	1,073,224	339,941	878,023	622,234
North Carolina	130%	742,037	299,623	132,964	304,633	199,186
North Dakota	223% ^{vi ix}	94,970	37,290	15,209	29,141	33,303
Ohio	175%	1,179,673	482,931	202,634	516,119	295,887
Oklahoma	130%	289,741	101,655	59,162	128,451	78,225
Oregon	191% ^{vi ix}	419,322	185,927	60,977	175,828	114,360
Pennsylvania	150%	949,637	426,022	144,366	440,944	218,144
Rhode Island	229% ^{vi ix}	129,483	61,922	15,836	58,402	29,987
South Carolina	150%	450,517	193,707	76,318	183,943	119,907
South Dakota	198% ^{xiv}	89,687	39,583	15,347	32,345	25,257
Tennessee	168% ^{vi ix}	712,456	297,332	118,783	322,615	182,260
Texas	150%	2,097,264	750,722	478,355	749,992	637,246
Utah	150%	151,046	48,687	38,587	50,898	44,858
Vermont	208% ^{vi ix}	75,617	37,975	8,604	32,889	17,536
Virginia	130%	408,585	166,404	69,728	169,470	109,978
Washington	150%	424,862	171,572	78,293	175,703	110,362

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State	State Income Guidelines for Four-Member Household as % of HHS Poverty Guidelines	Total Number of LIHEAP Eligible Households^{iv}	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^v	LIHEAP Eligible Households with No Vulnerable Members
West Virginia	166% ^{vi ix}	233,190	104,819	32,129	121,209	50,280
Wisconsin	210% ^{vi ix}	666,630	298,810	96,347	248,783	183,461
Wyoming	199% ^{vi ix}	61,277	26,026	9,501	22,817	17,911
All states	Not applicable	28,694,337	12,234,442	4,867,600	11,339,608	7,880,284

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

ⁱⁱ 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.

ⁱⁱⁱ A household can be counted under more than 1 vulnerability category.

^{iv} The 2016-2020 ACS estimate of the total number of all U.S. households is 122,354,269.

^v 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.

^{vi} 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.

^{vii} The state income guideline is 60 percent of the state median income for households with 1-7 members and 150 percent of HHS Poverty Guidelines for households with 8 or more members.

^{viii} 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.

^{ix} These states use 60 percent of the state median income as the state income guideline for all household sizes.

^x These states use 60 percent of the state median income as the state income guideline for households with 1-8 members and 150 percent of HHS Poverty Guidelines for households with 9 or more members.

^{xi} The state income guideline is 60 percent of the state median income for households with 1-9 members and 150 percent of HHS Poverty Guidelines for households with 10 or more members.

^{xii} The state income guideline is 50 percent of the state median income.

^{xiii} 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.

^{xiv} The state income guideline is 200 percent of the HHS Poverty Guidelines for Households (HHSPG) with 1-3 members, 198 percent of the HHSPG with 4 members, 196.15 percent of the HHSPG with 5 members, 194.76 percent of the HHSPG with 6 members, 176.67 percent of the HHSPG with 7 members, 162.26 percent of the HHSPG with 8 members, 150.51 percent of the HHSPG with 9 members, and 150 percent of the HHSPG with 10 members.

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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^{i ii}

(2016-2020 ACS)

State	Total Number of LIHEAP Eligible Householdsⁱⁱⁱ	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	577,975	287,806	102,863	95,459	91,847
Alaska	66,269	28,197	9,222	9,977	18,873
Arizona	651,623	302,453	112,201	110,798	126,171
Arkansas	327,073	174,577	70,516	69,222	12,758
California	3,489,873	1,405,582	506,835	482,332	1,095,124
Colorado	539,198	177,773	65,803	71,127	224,495
Connecticut	431,121	123,495	43,228	42,775	221,623
Delaware	102,640	36,739	12,936	12,018	40,947
Dist. of Columbia	76,811	36,971	7,754	6,498	25,588
Florida	2,012,497	927,692	361,443	363,994	359,368
Georgia	1,025,998	483,019	174,739	172,538	195,702
Hawaii	113,689	47,083	15,733	16,749	34,124
Idaho	149,758	67,301	28,128	33,521	20,808
Illinois	1,432,309	535,106	180,047	183,859	533,297
Indiana	700,603	292,306	111,563	117,167	179,567
Iowa	352,063	122,978	50,652	49,712	128,721
Kansas	308,149	117,349	48,873	46,207	95,720
Kentucky	531,667	269,328	91,407	85,327	85,605
Louisiana	588,955	297,494	91,070	86,143	114,248
Maine	165,121	57,549	25,814	24,923	56,835
Maryland	618,293	178,992	57,887	64,181	317,233
Massachusetts	832,593	254,019	83,819	82,348	412,407
Michigan	1,159,876	468,331	158,743	168,778	364,024
Minnesota	623,566	175,249	73,267	74,443	300,607
Mississippi	342,222	205,251	69,085	61,117	6,769
Missouri	687,175	282,165	109,838	113,227	181,945
Montana	123,537	49,255	20,400	19,782	34,100
Nebraska	202,402	71,520	29,014	29,481	72,387
Nevada	279,373	125,471	46,686	48,734	58,482
New Hampshire	150,202	36,056	16,633	15,471	82,042
New Jersey	1,013,841	295,405	99,841	99,971	518,624
New Mexico	220,607	132,909	43,130	40,038	4,530
New York	2,291,897	933,556	281,004	275,167	802,170
North Carolina	1,125,151	503,363	197,708	187,387	236,693
North Dakota	94,980	30,997	11,557	11,707	40,719
Ohio	1,391,930	573,132	194,554	198,696	425,548
Oklahoma	398,059	199,513	74,510	72,224	51,812
Oregon	419,474	165,165	63,515	66,410	124,384
Pennsylvania	1,538,208	550,339	195,846	203,452	588,571
Rhode Island	129,483	46,897	15,940	14,063	52,583
South Carolina	537,150	264,601	94,511	91,405	86,633
South Dakota	90,461	34,371	13,396	14,321	28,373
Tennessee	713,325	346,576	124,355	128,976	113,418
Texas	2,670,103	1,228,957	439,913	428,394	572,839
Utah	212,688	80,584	33,075	37,387	61,642

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State	Total Number of LIHEAP Eligible Householdsⁱⁱⁱ	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
Vermont	75,617	24,838	10,717	11,325	28,737
Virginia	877,407	287,055	98,193	104,011	388,148
Washington	736,838	243,864	89,272	91,726	311,976
West Virginia	233,327	116,475	40,203	40,452	36,197
Wisconsin	666,748	215,688	89,975	92,838	268,247
Wyoming	61,355	22,823	8,555	8,868	21,109
All states	34,161,280	13,934,215	4,995,969	4,976,726	10,254,370

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

ⁱⁱ 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.

ⁱⁱⁱ The 2016-2020 ACS estimate of the total number of all U.S. households is 122,354,269.

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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 Guidelinesⁱ

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(2016-2020 ACS)

State	State Income Guidelines for Four-Member Household as % of HHS Poverty Guidelines	Total Number of LIHEAP Eligible Households ⁱⁱⁱ	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	150%	486,128	287,806	102,863	95,459	0
Alaska	150%	47,396	28,197	9,222	9,977	0
Arizona	173% ^{iv v}	651,623	302,453	112,201	110,798	126,171
Arkansas	149% ^{iv vi}	326,429	174,577	70,516	68,578	12,758
California	202% ^{iv vii}	3,488,206	1,405,582	506,700	480,800	1,095,124
Colorado	219% ^{iv vii}	539,159	177,773	65,803	71,088	224,495
Connecticut	265% ^{iv vii}	431,121	123,495	43,228	42,775	221,623
Delaware	200%	87,861	36,739	12,936	12,018	26,168
Dist. of Columbia	241% ^{iv vii}	76,811	36,971	7,754	6,498	25,588
Florida	150%	1,653,129	927,692	361,443	363,994	0
Georgia	175% ^{iv vii}	1,025,119	483,019	174,627	171,771	195,702
Hawaii	150%	79,565	47,083	15,733	16,749	0
Idaho	161% ^{iv vii}	149,132	67,301	28,053	32,970	20,808
Illinois	200%	1,280,791	535,106	180,047	183,859	381,779
Indiana	182% ^{iv viii}	700,584	292,306	111,563	117,148	179,567
Iowa	175%	277,085	122,978	50,652	49,712	53,743
Kansas	150%	212,429	117,349	48,873	46,207	0
Kentucky	150%	446,062	269,328	91,407	85,327	0
Louisiana	177% ^{iv vii}	588,611	297,494	91,058	85,811	114,248
Maine	195% ^{iv ix}	165,121	57,549	25,814	24,923	56,835
Maryland	175%	364,319	178,992	57,887	64,181	63,259
Massachusetts	274% ^{iv vii}	832,593	254,019	83,819	82,348	412,407
Michigan	110%	528,387	468,331	60,056	0	0
Minnesota	199% ^{iv x}	491,872	175,249	73,256	74,248	169,119
Mississippi	147% ^{iv vii}	339,517	205,251	68,767	58,730	6,769
Missouri	135%	438,143	282,165	109,838	46,140	0
Montana	185% ^{iv viii}	123,537	49,255	20,400	19,782	34,100
Nebraska	130%	106,968	71,520	29,014	6,434	0
Nevada	150%	220,891	125,471	46,686	48,734	0
New Hampshire	251% ^{iv vii}	150,202	36,056	16,633	15,471	82,042
New Jersey	200%	701,578	295,405	99,841	99,971	206,361
New Mexico	150%	216,077	132,909	43,130	40,038	0
New York	220% ^{iv xi}	2,291,897	933,556	281,004	275,167	802,170
North Carolina	130%	742,037	503,363	197,708	40,966	0
North Dakota	223% ^{iv vii}	94,970	30,997	11,557	11,697	40,719
Ohio	175%	1,179,673	573,132	194,554	198,696	213,291
Oklahoma	130%	289,741	199,513	74,510	15,718	0
Oregon	191% ^{iv vii}	419,322	165,165	63,515	66,258	124,384
Pennsylvania	150%	949,637	550,339	195,846	203,452	0
Rhode Island	229% ^{iv vii}	129,483	46,897	15,940	14,063	52,583
South Carolina	150%	450,517	264,601	94,511	91,405	0
South Dakota	198% ^{xii}	89,687	34,371	13,396	14,321	27,599
Tennessee	168% ^{iv vii}	712,456	346,576	124,295	128,167	113,418
Texas	150%	2,097,264	1,228,957	439,913	428,394	0
Utah	150%	151,046	80,584	33,075	37,387	0
Vermont	208% ^{iv vii}	75,617	24,838	10,717	11,325	28,737
Virginia	130%	408,585	287,055	98,193	23,337	0

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State	State Income Guidelines for Four-Member Household as % of HHS Poverty Guidelines	Total Number of LIHEAP Eligible Households ⁱⁱⁱ	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
Washington	150%	424,862	243,864	89,272	91,726	0
West Virginia	166% ^{iv vii}	233,190	116,475	40,200	40,318	36,197
Wisconsin	210% ^{iv vii}	666,630	215,688	89,975	92,720	268,247
Wyoming	199% ^{iv vii}	61,277	22,823	8,555	8,790	21,109
All states	Not applicable	28,694,337	13,934,215	4,896,556	4,426,446	5,437,120

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

ⁱⁱ 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.

ⁱⁱⁱ The 2016-2020 ACS estimate of the total number of all U.S. households is 122,354,269.

^{iv} 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.

^v The state income guideline is 60 percent of the state median income for households with 1-7 members and 150 percent of HHS Poverty Guidelines for households with 8 or more members.

^{vi} 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.

^{vii} These states use 60 percent of the state median income as the state income guideline for all household sizes.

^{viii} These states use 60 percent of the state median income as the state income guideline for households with 1-8 members and 150 percent of HHS Poverty Guidelines for households with 9 or more members.

^{ix} The state income guideline is 60 percent of the state median income for households with 1-9 members and 150 percent of HHS Poverty Guidelines for households with 10 or more members.

^x The state income guideline is 50 percent of the state median income.

^{xi} 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.

^{xii} The state income guideline is 200 percent of the HHS Poverty Guidelines for Households (HHSPG) with 1-3 members, 198 percent of the HHSPG with 4 members, 196.15 percent of the HHSPG with 5 members, 194.76 percent of the HHSPG with 6 members, 176.67 percent of the HHSPG with 7 members, 162.26 percent of the HHSPG with 8 members, 150.51 percent of the HHSPG with 9 members, and 150 percent of the HHSPG with 10 members.