

Low Income Home Energy Data

For Fiscal Year 2019



U.S. DEPARTMENT OF
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Office of Community Services
Division of Energy Assistance
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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
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
P.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) 2019 residential energy consumption and expenditures figures for this report have been derived from the 2015 RECS data that were adjusted to reflect FY 2019 weather and fuel prices, as described in Appendix A.

Residential Energy Data

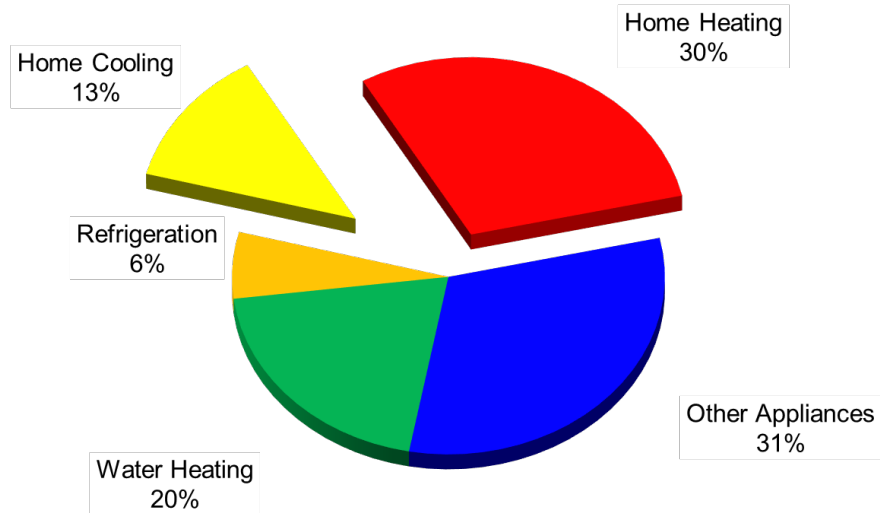
In FY 2019, average residential energy expenditures for all households were \$1,950, and the mean individual energy burden was 5.3 percent of income.¹ Low income households had average energy expenditures of \$1,652, about 15 percent lower than the average for all households.² The mean individual energy burden for low income households was 11.3 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 \$1,869, about 13 percent higher than the average for all low income households. The mean individual energy burden for LIHEAP beneficiaries was 12.3 percent, over twice (7 percentage points higher than) the mean individual energy burden for all households and 9 percent (1 percentage point) higher than the mean individual energy burden for low income households.

LIHEAP assists households with only that portion of residential energy costs that goes for home energy, i.e., home heating and home cooling. As shown in Figure 1, home heating and home cooling represented about 43 percent of residential energy expenditures for low income households in FY 2019. Refrigerators and freezers represented about 6 percent of residential energy expenditures, water heating represented about 20 percent of residential energy expenditures, and other appliances represented about 31 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 United States Residential Energy Expenditures by Low Income Households, by End Use, FY 2019



Home Heating Data

The three 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 through 2015, the share of households using electricity as a main heating fuel increased by a single 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.

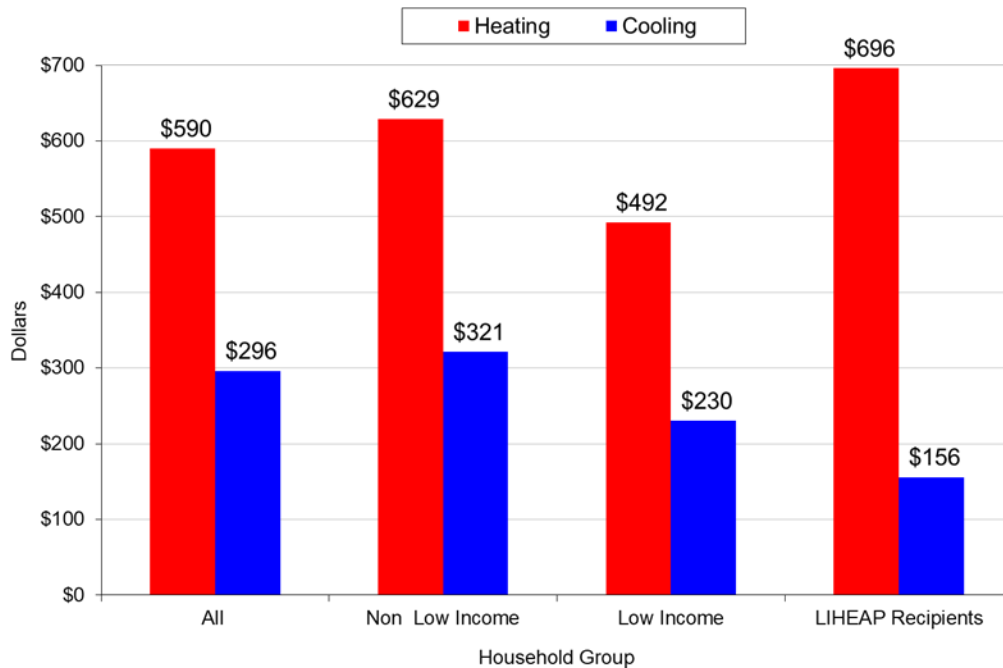
In FY 2019, as shown in Figures 2 and 3, average home heating expenditures for all households were \$590, and the mean individual home heating burden was 1.6 percent. Low income households had average home heating expenditures of \$492; this average was about 17 percent lower than that for all households. The mean individual home heating burden for low income households was 3.5 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 \$696, about 41 percent higher than the average for low income households and about 18 percent higher than the average for all households. Mean individual home heating burden for LIHEAP beneficiary households was 4.7 percent, almost three 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 one 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.

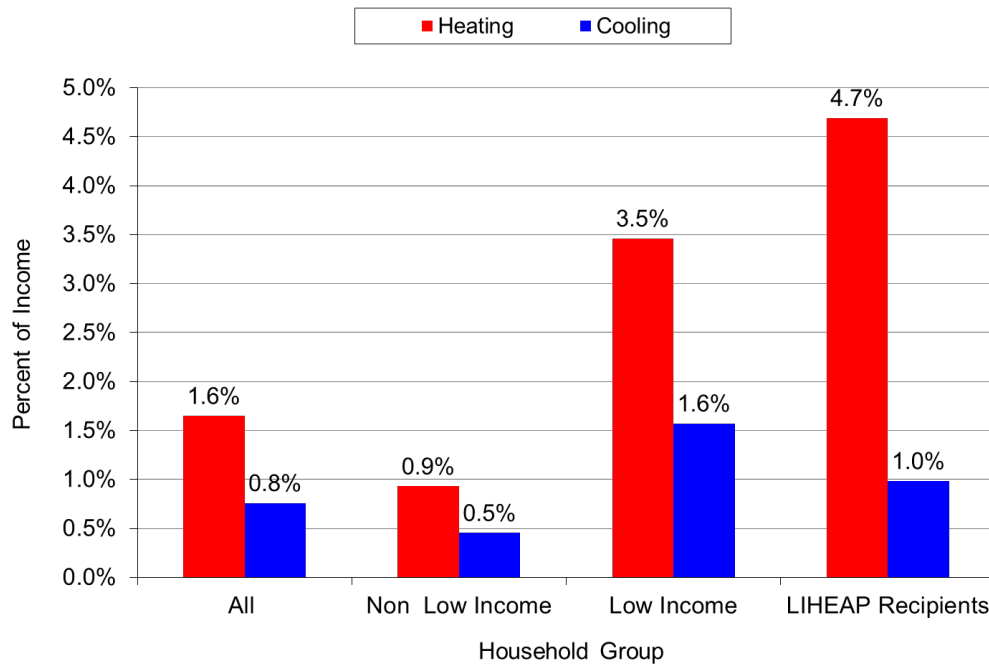
As Figures 2 and 3 show, in FY 2019, for households that cooled, average home cooling expenditures for all households were \$296 and the mean individual home cooling burden was 0.8 percent. Low income households had average home cooling expenditures of \$230; this average was about 22 percent lower than that for all households. The mean individual home cooling burden for low income households was 1.6 percent, twice as much as the mean individual home cooling burden for all households. Average home cooling expenditures for LIHEAP beneficiary households were \$156, about 32 percent lower than the average for low income households and about 47 percent lower than the average for all households. The mean individual home cooling burden for LIHEAP beneficiary households was 1.0 percent, 25 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 2019



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 2019



I. Introduction

The Low Income Home Energy Assistance Program (LIHEAP) is authorized by Title XXVI of the Omnibus Budget Reconciliation Act of 1981 (OBRA), Public Law 97-35, as amended. The Administration for Children and Families (ACF) within the United States 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 United States insular areas.

In 1994, Congress amended the purpose of LIHEAP to clarify that LIHEAP is “to assist low income households, particularly those with the lowest incomes, that pay a high proportion of household income for home energy, primarily in meeting their immediate home energy needs” (The Human Services Amendments of 1994, P.L. 103-252, Sec. 302). Congress further indicated that LIHEAP grant recipients need to reassess their LIHEAP benefit structures to ensure that they are actually targeting those low income households that have the highest energy costs or needs. The Energy Policy Act of 2005 (P.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 2019 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 2019, average residential energy consumption for all households was 79.1 million British thermal units (MMBtus) and average expenditures were \$1,950. The mean individual residential energy burden for all households was 5.3 percent of income.

Low income households had average residential energy consumption of 65.6 MMBtus (about 17 percent less than all households) and average energy expenditures of \$1,652 (about 15 percent less than all households). Their mean individual residential energy burden was 11.3 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 \$1,869, about 13 percent higher than that for all low income households. The mean individual residential energy burden was 12.3 percent, 1 percentage point higher than that for all low income households.

Households consume residential energy for a variety of uses that includes space heating, water heating, space cooling (air-conditioning or circulation), refrigeration, and other appliances. Table 2 furnishes data on the percentage of the residential energy bill that is attributable to each of these five end uses. By statute, LIHEAP targets assistance to home energy expenditures, i.e., to home heating and home cooling costs. In FY 2019, home heating was 30 percent of the residential energy bill for low income households and home cooling made up 13 percent.

⁴ Comparisons are made among the four income groups of all, non-low income, low income, and LIHEAP recipient 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 recipient households represent those low income households that received federal fuel assistance.

Low Income Home Energy Data for FY 2019: II. Residential Energy Data

Table 1a. Residential Energy: Average Annual Household Consumption, Expenditures, and Burden by All Households, by Main Heating Fuel Type, United States, FY 2019ⁱ

Main Heating Fuel	Fuel Consumption (Mmbtus) ⁱⁱ	Fuel Expenditures	Mean Individual Burden ⁱⁱⁱ	Median Individual Burden ^{iv}	Mean Group Burden ^v
All fuels	79.1	\$1,950	5.3%	3.3%	2.2%
Natural gas	98.8	\$1,964	4.8%	3.0%	2.2%
Electricity	52.1	\$1,748	5.6%	3.5%	1.9%
Fuel oil/kerosene	111.4	\$3,170	8.8%	5.2%	3.5%
LPG ^{vi}	96.7	\$2,846	6.7%	4.3%	3.2%

Low Income Home Energy Data for FY 2019: 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 2019ⁱ

Main Heating Fuel	Fuel Consumption (Mmbtus) ⁱⁱ	Fuel Expenditures	Mean Individual Burden ⁱⁱⁱ	Median Individual Burden ^{iv}	Mean Group Burden ^v
All fuels	84.4	\$2,068	3.0%	2.5%	1.8%
Natural gas	103.0	\$2,058	2.8%	2.4%	1.8%
Electricity	55.3	\$1,867	2.9%	2.5%	1.6%
Fuel oil	120.0	\$3,438	4.6%	4.1%	3.0%
LPG ^{vii}	103.3	\$3,010	4.1%	3.5%	2.6%

Table 1c. Residential Energy: Average Annual Household Consumption, Expenditures, and Burden by Low Income Households, by Main Heating Fuel Type, United States, FY 2019ⁱ

Main Heating Fuel	Fuel Consumption (Mmbtus) ⁱⁱ	Fuel Expenditures	Mean Individual Burden ⁱⁱⁱ	Median Individual Burden ^{iv}	Mean Group Burden ^v
All fuels	65.6	\$1,652	11.3%	9.4%	8.1%
Natural gas	85.6	\$1,674	11.1%	8.9%	8.3%
Electricity	45.9	\$1,524	10.8%	9.7%	7.5%
Fuel oil/kerosene	92.0	\$2,559	18.2%	14.6%	12.6%
LPG ^{vii}	73.8	\$2,282	15.7%	14.9%	11.3%

Table 1d. Residential Energy: Average Annual Household Consumption, Expenditures, and Burden by LIHEAP Beneficiary Households, by Main Heating Fuel Type, United States, FY 2019ⁱ

Main Heating Fuel	Fuel Consumption (Mmbtus) ⁱⁱ	Fuel Expenditures	Mean Individual Burden ⁱⁱⁱ	Median Individual Burden ^{iv}	Mean Group Burden ^v
All fuels	84.1	\$1,869	12.3%	11.1%	10.4%
Natural gas	104.9	\$1,877	11.8%	10.6%	10.4%
Electricity	45.7	\$1,515	11.4%	10.6%	8.4%
Fuel oil	92.1	\$2,469	16.2%	14.6%	13.7%
LPG ^{vii*}	84.3	\$2,639	14.2%	12.5%	14.7%

ⁱ Data are derived from the 2015 RECS, adjusted to reflect FY 2019 heating degree days, cooling degree days, and fuel prices. Data represent residential energy used from October 2018 through September 2019. 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 one pound of water one 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 2019 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 2019 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 2019; and (3) dividing the adjusted figures by the average income for each group of households from the 2019 CPS ASEC.

^{vi} These values should be viewed with caution because of the small number of sample cases.

^{vii} Liquefied petroleum gas (LPG) refers to any fuel gas supplied to a residence in liquid compressed form, such as propane or butane.

Low Income Home Energy Data for FY 2019: III. Home Heating Data

Residential energy expenditures of low income households are distributed in roughly the same way as those of all households. However, LIHEAP beneficiaries spent a higher proportion of their annual residential expenditures for space heating and a lower proportion for space cooling than did other groups. LIHEAP beneficiary households spent 37 percent of their annual residential expenditures for space heating, 7 percentage points more than did the average low income household. LIHEAP beneficiary households spent 8 percent for space cooling, 5 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 2019¹

End Use	All Households	Non-Low Income Households	Low Income Households	LIHEAP Beneficiary Households
Space heating	30%	30%	30%	37%
Space cooling	14%	15%	13%	8%
Water heating	16%	14%	20%	19%
Refrigeration	7%	7%	6%	5%
Appliances	33%	34%	31%	30%
All uses	100%	100%	100%	100%

¹ Data are derived from the 2015 RECS, adjusted to reflect FY 2019 heating degree days, cooling degree days, and fuel prices. Data represent residential energy used from October 2018 through September 2019. 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, 2015¹

Main Heating Fuel	All Households	Non-Low Income Households	Low Income Households	LIHEAP 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%

Low Income Home Energy Data for FY 2019: III. Home Heating Data

Main Heating Fuel	All Households	Non-Low Income Households	Low Income Households	LIHEAP Households
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 and excluding households reporting no main fuel. 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 2019, average home heating consumption for all households was 35.9 MMBtus, average expenditures were \$590, and mean individual home heating burden was 1.6 percent.

Low income households had average home heating consumption of 27.7 MMBtus (about 23 percent less than the average for all households) and average home heating expenditures of \$492 (about 17 percent less than the average for all households). The mean individual home heating burden for low income households was 3.5 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 44.3 MMBtus (about 23 percent higher than the average for all households), and average home heating expenditures were \$696 (about 18 percent higher than the average for all households). Mean individual home heating burden for LIHEAP households was 4.7 percent, about 34 percent higher (or 1.2 percentage point higher) than the average for low income households and nearly three times the average for all households. Average home heating consumption for LIHEAP beneficiary households was about 60 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 2019ⁱ

Main Heating Fuel	Fuel Consumption (Mmbtus) ⁱⁱ	Fuel Expenditures	Mean Individual Burden ⁱⁱⁱ	Median Individual Burden ^{iv}	Mean Group Burden ^v
All fuels	35.9	\$590	1.6%	0.8%	0.7%
Natural gas	51.4	\$594	1.5%	0.9%	0.7%
Electricity	14.5	\$490	1.7%	0.8%	0.5%
Fuel oil/kerosene	70.1	\$1,518	4.2%	2.3%	1.7%
LPG ^{vi}	47.8	\$1,146	2.8%	1.7%	1.3%

Low Income Home Energy Data for FY 2019: IV. Home Cooling Data

Table 4b. Home Heating: Average Annual Household Consumption, Expenditures, and Burden by Non-Low Income Households, by Fuel Type, United States, FY 2019ⁱ

Main Heating Fuel	Fuel Consumption (Mmbtus) ⁱⁱ	Fuel Expenditures	Mean Individual Burden ⁱⁱⁱ	Median Individual Burden ^{iv}	Mean Group Burden ^v
All fuels	39.1	\$629	0.9%	0.6%	0.5%
Natural gas	54.1	\$623	0.9%	0.7%	0.5%
Electricity	15.3	\$517	0.8%	0.5%	0.4%
Fuel oil/kerosene	77.1	\$1,677	2.4%	1.8%	1.4%
LPG ^{vii}	51.2	\$1,211	1.7%	1.4%	1.0%

Table 4c. Home Heating: Average Annual Household Consumption, Expenditures, and Burden by Low Income Households, by Fuel Type, United States, FY 2019ⁱ

Main Heating Fuel	Fuel Consumption (Mmbtus) ⁱⁱ	Fuel Expenditures	Mean Individual Burden ⁱⁱⁱ	Median Individual Burden ^{iv}	Mean Group Burden ^v
All fuels	27.7	\$492	3.5%	2.2%	2.4%
Natural gas	42.8	\$505	3.3%	2.3%	2.5%
Electricity	13.0	\$437	3.2%	2.1%	2.2%
Fuel oil/kerosene	54.1	\$1,157	8.4%	5.6%	5.7%
LPG ^{vii}	36.2	\$921	6.7%	4.8%	4.5%

Table 4d. Home Heating: Average Annual Household Consumption, Expenditures, and Burden by LIHEAP Beneficiary Households, by Fuel Type, United States, FY 2019ⁱ

Main Heating Fuel	Fuel Consumption (Mmbtus) ⁱⁱ	Fuel Expenditures	Mean Individual Burden ⁱⁱⁱ	Median Individual Burden ^{iv}	Mean Group Burden ^v
All fuels	44.3	\$696	4.7%	3.3%	3.9%
Natural gas	60.1	\$673	4.3%	3.0%	3.7%
Electricity	17.0	\$585	4.5%	3.7%	3.3%
Fuel	51.7	\$1,080	7.2%	5.3%	6.0%
LPG ^{vii*}	42.7	\$1,144	7.0%	4.1%	6.4%

ⁱ Data are derived from the 2015 RECS, adjusted to reflect FY 2019 heating degree days and fuel prices. Data represent home heating energy used from October 2017 through September 2019. 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 one pound of water one 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 2019 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 2019 adjusted RECS data.

Low Income Home Energy Data for FY 2019: Appendix B: Income-Eligible Household Estimates

^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 2019; and (3) dividing the adjusted figures by the average income for each group of households from the 2019 CPS ASEC.

^{vi} * = This figure should be viewed with caution because of the small number of sample cases.

^{vii} Liquefied petroleum gas (LPG) refers to any fuel gas supplied to a residence in liquid compressed form, such as propane or butane.

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 2019, average home cooling consumption for all households that cooled was 7.8 MMBtus, average expenditures were \$296, and mean individual home cooling burden was 0.8 percent.

For low income households that cooled, average home cooling energy consumption was 6.1 MMBtus (about 22 percent less than the average for all households) and average home cooling expenditures were \$230 (about 22 percent less than the average for all households). The mean individual home cooling burden for low income households was 1.6 percent, twice the average home cooling burden of all households and over three times that of non-low income households.

For households that cooled, average home cooling consumption for LIHEAP beneficiary households was 3.9 MMBtus—half of that for all households and 36 percent less than that for the average low income household—and average home cooling expenditures were \$156, about 47 percent less than that for all households and 32 percent less than that for the average low income household). Mean individual home

Low Income Home Energy Data for FY 2019: IV. Home Cooling Data

cooling burden for LIHEAP beneficiary households was 1.0 percent, 25 percent higher than the average for all households.

Table 6. Home Cooling: Average Annual Household Consumption, Expenditures, and Percent of Income by All, Non-Low Income, Low Income and LIHEAP Beneficiary Households That Cooled, United States, FY 2019ⁱ

Household Group	Fuel Consumption (Mmbtus) ⁱⁱ	Fuel Expenditures	Mean Individual Burden ⁱⁱⁱ	Median Individual Burden ^{iv}	Mean Group Burden ^v
All households	7.8	\$296	0.8%	0.4%	0.3%
Non-Low Income households	8.4	\$321	0.5%	0.3%	0.3%
Low Income households	6.1	\$230	1.6%	0.9%	1.1%
LIHEAP beneficiary	3.9	\$156	1.0%	0.5%	0.9%

ⁱ Data are derived from the 2015 RECS, adjusted to reflect FY 2019 cooling degree days and fuel prices. Data represent residential energy used from October 2018 through September 2019. See also Table A-7, Appendix A.

ⁱⁱ A British thermal unit (Btu) is the amount of energy necessary to raise the temperature of one pound of water one 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 2019 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 2019 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 2019; and (3) dividing the adjusted figures by the average income for each group of households from the 2019 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 2019. 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 United States 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 4 to 6 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

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 2019.

⁵ Regression analysis is a statistical tool for evaluating the relationship of one 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).

⁶ For more information about the RECS sample design, see EIA's RECS webpage: [About the RECS](#).

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 2019 (October 1, 2018 to September 30, 2019), using procedures that adjust the 2015 data to reflect the weather and fuel prices for FY 2019. These procedures are comparable to those used for the FY 1986 - FY 2018 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 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.

⁷ Information about the quality of RECS data is available from the EIA website: [2015 RECS Survey Data Methodology highlights](#).

- 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 2019 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 United States 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 2605(b)(2)(A) of the LIHEAP Act, 42 U.S.C. § 8624(b)(2)(A); (2) became income-ineligible for LIHEAP at the time of the survey; or (3) were deemed eligible for LIHEAP based on incorrectly-reported income. However, the tabulations of LIHEAP households also include survey respondents who were identified as LIHEAP beneficiaries from state LIHEAP administrative data but who reported incomes higher than the maximum statutory income in the RECS survey.

Average Home Energy Consumption and Expenditures

Average heating and cooling consumption and expenditure estimates for FY 2019 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 2019 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.

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

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.
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 4, 5, 7, and 8 percent.
3. The mean of these energy burdens is calculated by adding the percentages (24 percentage points) and dividing by the number of households (four 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 4 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

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).

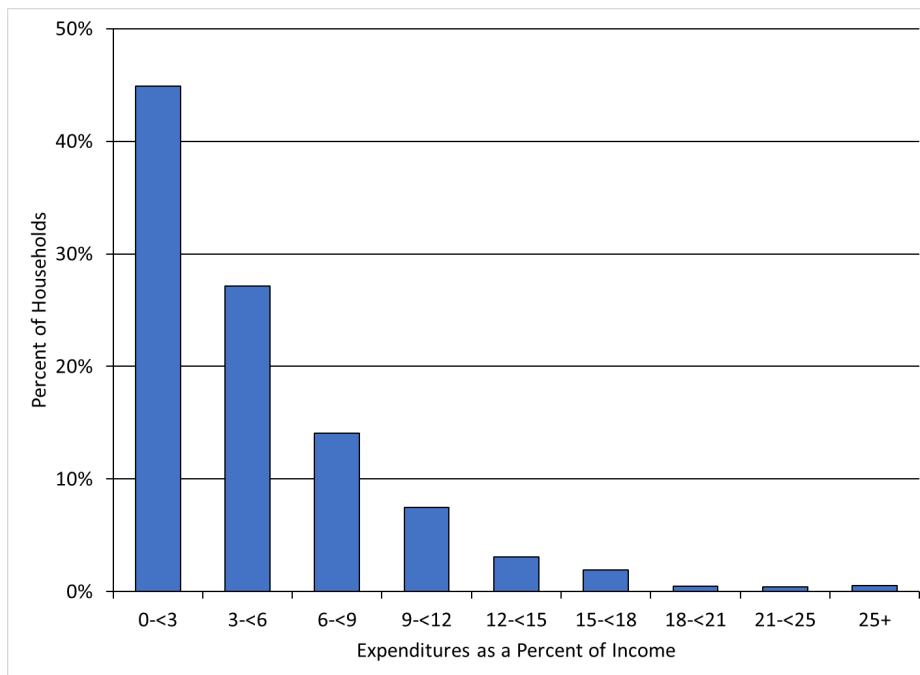
¹⁰ The mean is the sum of all values divided by the number of values. The mean is also referred to as the average.

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.

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 two 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.

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

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.

use of income intervals. Finally, the CPS ASEC collects income more precisely by asking a series of detailed questions on income than the RECS does and also has a larger sample size than the RECS.

Historically, the income collection procedures in the RECS has resulted in categorizing more households as income-eligible for LIHEAP than the CPS ASEC. 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 2019. The following equation was applied to each household in the microsimulation data file.

$$\text{FY 2019 Projected Btus} = \begin{aligned} & (2015 \text{ estimated heat use} * \text{HDD change}) + \\ & (2015 \text{ estimated cooling use} * \text{CDD change}) + \\ & (2015 \text{ estimated water heat use} + 2015 \text{ estimated appliance use}) \end{aligned}$$

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

$$\text{Preliminary Expenditures} = \begin{aligned} & 2015 \text{ Expenditures} * \\ & (\text{FY 2019 Projected Usage}/2015 \text{ Actual Usage}) \end{aligned}$$

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

Table A-1 shows the national price factors that were used. The price factors show the actual change in the average price of a fuel from calendar year 2015 to FY 2019. For example, electricity prices increased by 2.8 percent from 2015 to FY 2019.

Table A-1. National Price Factors for FY 2019

Fuel	Price Factors for FY 2019 Projections
Electricity	1.0280

¹³ Price factors were developed using price data obtained from the Energy Information Administration for electricity, natural gas, and LPG, and the BLS Consumer Price Index for fuel oil. Consumption data were obtained from the Energy Information Administration for all fuels. Electricity price data used for calculating price factors are from the *Monthly Energy Review*, April 2020, and electricity consumption data is from the *Electric Power Monthly*, April 2020. Natural gas price and consumption data used for calculating price factors are from the *Monthly Energy Review*, April 2020. Fuel oil/kerosene price data for calculating prices factors are from the United States 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](#). Fuel oil/kerosene and LPG consumption data are from the *Monthly Energy Review*, April 2020.

Low Income Home Energy Data for FY 2019: Appendix A: Home Energy Estimates

Fuel	Price Factors for FY 2019 Projections
Natural gas	1.0203
Fuel oil / kerosene	1.0745
Liquefied petroleum gas (LPG)	1.1537

Expenditure data were adjusted using national price factors for FY 2019. 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 2 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 2019: 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 2019ⁱ

Census Region	All Fuels ⁱⁱ (MMBtus) ⁱⁱⁱ	Natural Gas (MMBtus)	Electricity (MMBtus)	Fuel Oil/Kerosene (MMBtus)	LPG (MMBtus)
U.S. - all households	79.1	98.8	52.1	111.4	96.7
U.S. - non-low income households	84.4	103.0	55.3	120.0	103.3
U.S. - low income households ^{iv}	65.6	85.6	45.9	92.0	73.8
U.S. - LIHEAP beneficiary households ^v	84.1	104.9	45.7	92.1 ^{*vi}	84.3*
Northeast - all households	94.2	102.0	43.0	113.4	97.7
Northeast - non-low income households	99.2	106.1	45.2	123.6	105.3
Northeast - low income households	83.1	93.1	39.0	91.6	W ^{vii}
Northeast - LIHEAP beneficiary households	89.3	101.2	32.2*	93.1*	W
Midwest - all households	99.4	114.1	50.1	129.6	108.7
Midwest - non-low income households	106.0	118.5	55.1	W	112.3
Midwest - low income households	79.1	98.4	41.6	W	87.6*
Midwest - LIHEAP beneficiary households	99.2	121.0	44.3	W	W
South - all households	69.7	97.6	54.9	98.6	94.6
South - non-low income households	74.6	103.6	58.0	102.0*	100.3
South - low income households	58.0	80.3	48.6	W	75.5*
South - LIHEAP beneficiary households	64.9	86.8	49.0	NC ^{viii}	73.8*
West - all households	62.5	76.6	47.4	107.1	75.9
West - non-low income households	66.6	79.9	49.8	W	85.1
West - low income households	51.8	64.0	43.7	W	W
West - LIHEAP beneficiary households	67.8	82.8*	52.2*	NC	W

ⁱ Developed from the 2015 Residential Energy Consumption Survey (RECS), Energy Information Administration, United States Department of Energy, and adjusted for FY 2019 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 the LIHEAP Act, Act, 42 U.S.C. § 8624(b)(2)(B).

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

^{vi} * = This figure should be viewed with caution because of the small number of sample cases.

^{vii} W = Withheld due to the small number of sample cases.

^{viii} NC = No cases in the 2015 RECS household sample.

Low Income Home Energy Data for FY 2019: 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 2019

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
U.S. - all households	\$1,950	2.2%	\$1,964	2.2%	\$1,748	1.9%	\$3,170	3.5%	\$2,846	3.2%
U.S. - non-low income households	\$2,068	1.8%	\$2,058	1.8%	\$1,867	1.6%	\$3,438	3.0%	\$3,010	2.6%
U.S. - low income households ⁱⁱⁱ	\$1,652	8.1%	\$1,674	8.3%	\$1,524	7.5%	\$2,559	12.6%	\$2,282	11.3%
U.S. - LIHEAP beneficiary households ^{iv}	\$1,869	10.4%	\$1,877	10.4%	\$1,515	8.4%	\$2,469 ^v	13.7%*	\$2,639*	14.7%*
Northeast - all households	\$2,371	2.3%	\$2,121	2.1%	\$1,832	1.8%	\$3,230	3.2%	\$3,222	3.2%
Northeast - non-low income households	\$2,538	1.9%	\$2,226	1.7%	\$2,014	1.5%	\$3,555	2.7%	\$3,500	2.7%
Northeast - low income households	\$2,001	8.5%	\$1,893	8.1%	\$1,507	6.4%	\$2,530	10.8%	W ^{vi}	W
Northeast - LIHEAP beneficiary hh'lds.	\$2,038	10.2%	\$1,891	9.5%	\$1,296*	6.5%*	\$2,500*	12.5%*	W	W
Midwest - all households	\$1,888	2.2%	\$1,884	2.2%	\$1,618	1.9%	\$3,198	3.7%	\$2,876	3.3%
Midwest - non-low income households	\$1,993	1.8%	\$1,955	1.8%	\$1,762	1.6%	W	0.0%	\$2,970	2.7%
Midwest - low income households	\$1,567	7.6%	\$1,631	7.9%	\$1,366	6.6%	W	W	\$2,325*	11.3%*
Midwest - LIHEAP beneficiary hh'lds.	\$1,849	11.2%	\$1,950	11.8%	\$1,542	9.3%	W	W	W	W
South - all households	\$1,999	2.4%	\$2,209	2.7%	\$1,866	2.3%	\$2,818	3.4%	\$2,776	3.4%
South - non-low income households	\$2,120	2.0%	\$2,347	2.2%	\$1,978	1.9%	\$2,899*	2.7%*	\$2,867	2.7%
South - low income households	\$1,710	9.5%	\$1,808	10.1%	\$1,637	9.1%	W	W	\$2,472*	13.8%*
South - LIHEAP beneficiary households	\$1,810	11.8%	\$1,897	12.4%	\$1,627	10.6%	NC ^{vii}	NC	\$2,624*	17.2%*
West - all households	\$1,594	1.6%	\$1,703	1.7%	\$1,436	1.5%	\$3,208	3.3%	\$2,526	2.6%
West - non-low income households	\$1,703	1.4%	\$1,808	1.5%	\$1,502	1.2%	W	W	\$2,873	2.3%
West - low income households	\$1,312	6.1%	\$1,294	6.0%	\$1,331	6.2%	W	W	W	W
West - LIHEAP beneficiary households	\$1,505	7.7%	\$1,457*	7.4%*	\$1,376*	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 2019. 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 2019 CPS ASEC, which reports income for calendar year 2018. 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 the LIHEAP Act, 42 U.S.C. § 8624(b)(2)(B).

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

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

^{vi} W = Withheld due to the small number of sample cases.

^{vii} NC = No cases in the 2015 RECS household sample.

Low Income Home Energy Data for FY 2019: 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 2019

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
U.S. - all households	\$1,950	5.3%	\$1,964	4.8%	\$1,748	5.6%	\$3,170	8.8%	\$2,846	6.7%
U.S. - non-low income households	\$2,068	3.0%	\$2,058	2.8%	\$1,867	2.9%	\$3,438	4.6%	\$3,010	4.1%
U.S. - low income households ⁱⁱⁱ	\$1,652	11.3%	\$1,674	11.1%	\$1,524	10.8%	\$2,559	18.2%	\$2,282	15.7%
U.S. - LIHEAP beneficiary households ^{iv}	\$1,869	12.3%	\$1,877	11.8%	\$1,515	11.4%	\$2,469 ^{*v}	16.2% [*]	\$2,639 [*]	14.2% [*]
Northeast - all households	\$2,371	6.4%	\$2,121	5.8%	\$1,832	5.2%	\$3,230	9.0%	\$3,222	6.2%
Northeast - non-low income households	\$2,538	3.4%	\$2,226	2.9%	\$2,014	2.9%	\$3,555	4.8%	\$3,500	4.5%
Northeast - low income households	\$2,001	13.1%	\$1,893	12.1%	\$1,507	9.2%	\$2,530	18.1%	W ^{vi}	W
Northeast - LIHEAP beneficiary hh'lds.	\$2,038	12.9%	\$1,891	11.9%	\$1,296 [*]	8.7% [*]	\$2,500 [*]	16.4% [*]	W	W
Midwest - all households	\$1,888	5.0%	\$1,884	4.8%	\$1,618	5.6%	\$3,198	5.3%	\$2,876	5.9%
Midwest - non-low income households	\$1,993	3.1%	\$1,955	3.0%	\$1,762	2.9%	W	W	\$2,970	4.4%
Midwest - low income households	\$1,567	10.9%	\$1,631	11.1%	\$1,366	10.4%	W	W	\$2,325 [*]	14.4% [*]
Midwest - LIHEAP beneficiary hh'lds.	\$1,849	12.5%	\$1,950	12.5%	\$1,542	13.2%	W	W	W	W
South - all households	\$1,999	5.7%	\$2,209	5.5%	\$1,866	5.8%	\$2,818	7.9%	\$2,776	7.1%
South - non-low income households	\$2,120	3.1%	\$2,347	3.1%	\$1,978	3.1%	\$2,899 [*]	3.8% [*]	\$2,867	4.0%
South - low income households	\$1,710	11.9%	\$1,808	12.4%	\$1,637	11.4%	W	W	\$2,472 [*]	17.3% [*]
South - LIHEAP beneficiary households	\$1,810	11.6%	\$1,897	11.0%	\$1,627	11.2%	NC ^{vii}	NC	\$2,624 [*]	15.4% [*]
West - all households	\$1,594	4.1%	\$1,703	3.5%	\$1,436	5.2%	\$3,208	7.1%	\$2,526	8.1%
West - non-low income households	\$1,703	2.2%	\$1,808	2.3%	\$1,502	2.2%	W	W	\$2,873	3.0%
West - low income households	\$1,312	9.1%	\$1,294	8.1%	\$1,331	10.0%	W	W	W	W
West - LIHEAP beneficiary households	\$1,505	11.1%	\$1,457 [*]	9.4% [*]	\$1,376 [*]	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 2019. 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 2019 income is estimated by inflating income reported in the 2015 RECS by the consumer price index (CPI) and FY 2019 energy expenditures are estimated by adjusting energy expenditures reported in the 2015 RECS for changes in weather and energy prices. FY 2019 residential energy burden for each household is computed as estimated FY 2019 residential energy expenditures divided by estimated FY 2019 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 the LIHEAP Act, 42 U.S.C. § 8624(b)(2)(B).

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

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

^{vi} W = Withheld due to the small number of sample cases.

^{vii} NC = No cases in the 2015 RECS household sample.

Low Income Home Energy Data for FY 2019: 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 2019

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
U.S. - all households	\$1,950	3.3%	\$1,964	3.0%	\$1,748	3.5%	\$3,170	5.2%	\$2,846	4.3%
U.S. - non-low income households	\$2,068	2.5%	\$2,058	2.4%	\$1,867	2.5%	\$3,438	4.1%	\$3,010	3.5%
U.S. - low income households ⁱⁱⁱ	\$1,652	9.4%	\$1,674	8.9%	\$1,524	9.7%	\$2,559	14.6%	\$2,282	14.9%
U.S. - LIHEAP beneficiary households ^{iv}	\$1,869	11.1%	\$1,877	10.6%	\$1,515	10.6%	\$2,469 ^v	14.6%*	\$2,639*	12.5%*
Northeast - all households	\$2,371	4.0%	\$2,121	3.5%	\$1,832	3.2%	\$3,230	5.2%	\$3,222	4.3%
Northeast - non-low income households	\$2,538	2.8%	\$2,226	2.3%	\$2,014	2.5%	\$3,555	4.1%	\$3,500	3.6%
Northeast - low income households	\$2,001	10.5%	\$1,893	9.7%	\$1,507	9.8%	\$2,530	14.6%	W ^{vi}	W
Northeast - LIHEAP beneficiary households	\$2,038	10.7%	\$1,891	10.6%	\$1,296*	9.2%*	\$2,500*	14.6%*	W	W
Midwest - all households	\$1,888	3.3%	\$1,884	3.1%	\$1,618	3.6%	\$3,198	4.4%	\$2,876	4.2%
Midwest - non-low income households	\$1,993	2.6%	\$1,955	2.6%	\$1,762	2.3%	W	W	\$2,970	4.0%
Midwest - low income households	\$1,567	9.1%	\$1,631	9.1%	\$1,366	9.1%	W	W	\$2,325*	10.4%*
Midwest - LIHEAP beneficiary households	\$1,849	11.2%	\$1,950	11.1%	\$1,542	12.9%	W	W	W	W
South - all households	\$1,999	3.7%	\$2,209	3.6%	\$1,866	3.7%	\$2,818	4.6%	\$2,776	4.5%
South - non-low income households	\$2,120	2.7%	\$2,347	2.8%	\$1,978	2.6%	\$2,899*	3.8%*	\$2,867	3.4%
South - low income households	\$1,710	10.1%	\$1,808	10.6%	\$1,637	10.1%	W	W	\$2,472*	19.0%*
South - LIHEAP beneficiary households	\$1,810	11.4%	\$1,897	11.2%	\$1,627	10.3%	NC ^{vii}	NC	\$2,624*	12.5%*
West - all households	\$1,594	2.4%	\$1,703	2.3%	\$1,436	2.9%	\$3,208	7.1%	\$2,526	4.5%
West - non-low income households	\$1,703	1.8%	\$1,808	1.9%	\$1,502	1.8%	W	W	\$2,873	2.8%
West - low income households	\$1,312	7.2%	\$1,294	6.4%	\$1,331	8.1%	W	W	W	W
West - LIHEAP beneficiary households	\$1,505	9.8%	\$1,457	9.6%	\$1,376	9.7%	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 2019. 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 2019 income is estimated by inflating income reported in the 2015 RECS by the consumer price index (CPI) and FY 2019 energy expenditures are estimated by adjusting energy expenditures reported in the 2015 RECS for changes in weather and energy prices. FY 2019 residential energy burden for each household is computed as estimated FY 2019 residential energy expenditures divided by estimated FY 2019 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 the LIHEAP Act, 42 U.S.C. § 8624(b)(2)(B).

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

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

^{vi} W = Withheld due to the small number of sample cases.

^{vii} NC = No cases in the 2015 RECS household sample.

Low Income Home Energy Data for FY 2019: 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 Gasⁱⁱ	Electricity	Fuel Oil/Kerosen e	LPG	Otherⁱⁱⁱ
U.S. - all households	48.8%	34.6%	4.9%	4.2%	3.1%
U.S. - non-low income households	51.6%	31.6%	4.8%	4.6%	3.4%
U.S. - low income households ^{iv}	41.8%	42.2%	5.3%	3.3%	2.3%
U.S. - 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%* ^{vi}	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 percent 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 the LIHEAP Act, 42 U.S.C. § 8624(b)(2)(B).

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

^{vi} * = This figure should be viewed with caution because of the small number of sample cases.

Low Income Home Energy Data for FY 2019: 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 2019ⁱ

Census Region	All Fuels ⁱⁱ (MMBtus) ⁱⁱⁱ	Natural Gas (MMBtus)	Electricity (MMBtus)	Fuel	
				Oil/Kerosene (MMBtus)	LPG (MMBtus)
U.S. - all households	35.9	51.4	14.5	70.1	47.8
U.S. - non-low income households	39.1	54.1	15.3	77.1	51.2
U.S. - low income households ^{iv}	27.7	42.8	13.0	54.1	36.2
U.S. - LIHEAP beneficiary households ^v	44.3	60.1	17.0	51.7* ^{vi}	42.7*
Northeast - all households	53.2	58.2	15.1	72.8	55.0
Northeast - non-low income households	57.5	62.4	16.9	81.4	61.1
Northeast - low income households	43.5	49.3	12.0	54.3	W ^{vii}
Northeast - LIHEAP beneficiary households	48.0	56.5	11.8*	52.2*	W
Midwest - all households	58.2	70.1	21.4	93.2	59.6
Midwest - non-low income households	62.7	73.2	24.0	W	61.6
Midwest - low income households	44.3	59.1	16.9	W	48.0*
Midwest - LIHEAP beneficiary households	62.0	78.8	22.1	W	W
South - all households	22.0	38.6	13.1	54.5	40.0
South - non-low income households	23.9	40.8	13.7	55.6*	41.8
South - low income households	17.7	31.9	11.9	W	33.8*
South - LIHEAP beneficiary households	24.1	38.2	14.3	NC ^{viii}	31.7*
West - all households	23.1	33.1	14.0	53.1	34.8
West - non-low income households	25.5	35.3	14.2	W	37.2
West - low income households	16.8	24.5	13.7	W	W
West - LIHEAP beneficiary households	27.9	32.6*	20.2*	NC	W

ⁱ Developed from the 2015 Residential Energy Consumption Survey (RECS), Energy Information Administration, U.S. Department of Energy, and adjusted for FY 2019 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 one pound of water one 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 the LIHEAP Act, 42 U.S.C. § 8624(b)(2)(B).

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

^{vi} * = This figure should be viewed with caution because of the small number of sample cases.

^{vii} W = Withheld due to the small number of sample cases.

^{viii} NC = No cases in the 2015 RECS household sample.

Low Income Home Energy Data for FY 2019: 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 2019

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
U.S. - all households	\$590	0.7%	\$594	0.7%	\$490	0.5%	\$1,518	1.7%	\$1,146	1.3%
U.S. - non-low income households	\$629	0.5%	\$623	0.5%	\$517	0.4%	\$1,677	1.4%	\$1,211	1.0%
U.S. - low income households ⁱⁱⁱ	\$492	2.4%	\$505	2.5%	\$437	2.2%	\$1,157	5.7%	\$921	4.5%
U.S. - LIHEAP beneficiary households ^{iv}	\$696	3.9%	\$673	3.7%	\$585	3.3%	\$1,080* ^v	6.0%*	\$1,144*	6.4%*
Northeast - all households	\$933	0.9%	\$739	0.7%	\$667	0.7%	\$1,574	1.5%	\$1,610	1.6%
Northeast - non-low income households	\$1,020	0.8%	\$789	0.6%	\$739	0.6%	\$1,775	1.4%	\$1,828	1.4%
Northeast - low income households	\$740	3.2%	\$632	2.7%	\$539	2.3%	\$1,139	4.9%	W ^{vi}	W
Northeast - LIHEAP beneficiary HH'lds.	\$780	3.9%	\$691	3.5%	\$493*	2.5%*	\$1,091*	5.5%*	W	W
Midwest - all households	\$723	0.8%	\$708	0.8%	\$685	0.8%	\$1,891	2.2%	\$1,185	1.4%
Midwest - non-low income households	\$766	0.7%	\$736	0.7%	\$759	0.7%	W	W	\$1,217	1.1%
Midwest - low income households	\$592	2.9%	\$609	3.0%	\$557	2.7%	W	W	\$999*	4.9%*
Midwest - LIHEAP beneficiary households	\$800	4.8%	\$802	4.8%	\$801	4.8%	W	W	W	W
South - all households	\$472	0.6%	\$498	0.6%	\$447	0.5%	\$1,226	1.5%	\$979	1.2%
South - non-low income households	\$497	0.5%	\$524	0.5%	\$467	0.4%	\$1,219*	1.1%*	\$996	0.9%
South - low income households	\$412	2.3%	\$420	2.3%	\$405	2.3%	W	W	\$920*	5.1%*
South - LIHEAP beneficiary households	\$516	3.4%	\$501	3.3%	\$488	3.2%	NC ^{vii}	NC	\$938*	6.1%*
West - all households	\$383	0.4%	\$416	0.4%	\$427	0.4%	\$1,076	1.1%	\$943	1.0%
West - non-low income households	\$405	0.3%	\$447	0.4%	\$437	0.4%	W	W	\$995	0.8%
West - low income households	\$327	1.5%	\$297	1.4%	\$411	1.9%	W	W	W	W
West - LIHEAP beneficiary households	\$537	2.7%	\$350*	1.8%*	\$544*	2.8%*	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 2019. 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 2019 CPS ASEC, which reports income for calendar year 2018. 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.

ⁱⁱⁱ Households with annual incomes at or below the maximum in Section 2605(b)(2)(B) of the LIHEAP Act, 42 U.S.C. § 8624(b)(2)(B).

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

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

^{vi} W = Withheld due to the small number of sample cases.

^{vii} NC = No cases in the 2015 RECS household sample.

Low Income Home Energy Data for FY 2019: 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 2019

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
U.S. - all households	\$590	1.6%	\$594	1.5%	\$490	1.7%	\$1,518	4.2%	\$1,146	2.8%
U.S. - non-low income households	\$629	0.9%	\$623	0.9%	\$517	0.8%	\$1,677	2.4%	\$1,211	1.7%
U.S. - low income households ⁱⁱⁱ	\$492	3.5%	\$505	3.3%	\$437	3.2%	\$1,157	8.4%	\$921	6.7%
U.S. - LIHEAP beneficiary households ^{iv}	\$696	4.7%	\$673	4.3%	\$585	4.5%	\$1,080* ^v	7.2%*	\$1,144*	7.0%*
Northeast - all households	\$933	2.5%	\$739	2.0%	\$667	1.9%	\$1,574	4.4%	\$1,610	3.0%
Northeast - non-low income households	\$1,020	1.4%	\$789	1.0%	\$739	1.0%	\$1,775	2.5%	\$1,828	2.4%
Northeast - low income households	\$740	5.0%	\$632	4.1%	\$539	3.3%	\$1,139	8.3%	W ^{vi}	W
Northeast - LIHEAP beneficiary households	\$780	5.0%	\$691	4.5%	\$493*	3.2%*	\$1,091*	7.3%*	W	W
Midwest - all households	\$723	2.0%	\$708	1.8%	\$685	2.5%	\$1,891	3.2%	\$1,185	2.5%
Midwest - non-low income households	\$766	1.2%	\$736	1.2%	\$759	1.3%	W	W	7	1.8%
Midwest - low income households	\$592	4.3%	\$609	4.2%	\$557	4.5%	W	W	\$999*	6.6%*
Midwest - LIHEAP beneficiary households	\$800	5.6%	\$802	5.2%	\$801	7.0%	W	W	W	W
South - all households	\$472	1.4%	\$498	1.2%	\$447	1.5%	\$1,226	3.7%	\$979	2.6%
South - non-low income households	\$497	0.7%	\$524	0.7%	\$467	0.8%	\$1,219*	1.7%*	\$996	1.4%
South - low income households	\$412	2.9%	\$420	2.7%	\$405	2.9%	W	W	\$920*	6.8%*
South - LIHEAP beneficiary households	\$516	3.2%	\$501	2.9%	\$488	3.2%	NC ^{vii}	NC	\$938*	6.0%*
West - all households	\$383	1.1%	\$416	0.9%	\$427	1.7%	\$1,076	2.5%	\$943	3.5%
West - non-low income households	\$405	0.6%	\$447	0.6%	\$437	0.7%	W	W	\$995	1.2%
West - low income households	\$327	2.4%	\$297	1.9%	\$411	3.2%	W	W	W	W
West - LIHEAP beneficiary households	\$537	4.5%	\$350*	2.6%*	\$544*	4.6%*	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 2019. 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 2019 income is estimated by inflating income reported in the 2015 RECS by the consumer price index (CPI) and FY 2019 energy expenditures are estimated by adjusting energy expenditures reported in the 2015 RECS for changes in weather and energy prices. FY 2019 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 the LIHEAP Act, 42 U.S.C. § 8624(b)(2)(B).

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

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

^{vi} W = Withheld due to the small number of sample cases.

^{vii} NC = No cases in the 2015 RECS household sample.

Low Income Home Energy Data for FY 2019: 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 2019

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
U.S. - all households	\$590	0.8%	\$594	0.9%	\$490	0.8%	\$1,518	2.3%	\$1,146	1.7%
U.S. - non-low income households	\$629	0.6%	\$623	0.7%	\$517	0.5%	\$1,677	1.8%	\$1,211	1.4%
U.S. - low income households ⁱⁱⁱ	\$492	2.2%	\$505	2.3%	\$437	2.1%	\$1,157	5.6%	\$921	4.8%
U.S. - LIHEAP beneficiary households ^{iv}	\$696	3.3%	\$673	3.0%	\$585	3.7%	\$1,080 ^v	5.3%*	\$1,144*	4.1%*
Northeast - all households	\$933	1.4%	\$739	1.1%	\$667	1.2%	\$1,574	2.4%	\$1,610	2.3%
Northeast - non-low income households	\$1,020	1.0%	\$789	0.8%	\$739	0.8%	\$1,775	1.9%	\$1,828	1.9%
Northeast - low income households	\$740	3.4%	\$632	2.7%	\$539	3.1%	\$1,139	5.6%	W ^{vi}	W
Northeast - LIHEAP beneficiary households	\$780	3.4%	\$691	2.9%	\$493*	3.1%*	\$1,091*	5.3%*	W	W
Midwest - all households	\$723	1.1%	\$708	1.1%	\$685	1.2%	\$1,891	3.0%	\$1,185	1.6%
Midwest - non-low income households	\$766	0.9%	\$736	0.9%	\$759	0.9%	W	W	\$1,217	1.5%
Midwest - low income households	\$592	3.0%	\$609	3.0%	\$557	3.1%	W	W	\$999*	4.5%*
Midwest - LIHEAP beneficiary households	\$800	4.4%	\$802	4.2%	\$801	7.0%	W	W	W	W
South - all households	\$472	0.7%	\$498	0.8%	\$447	0.7%	\$1,226	1.5%	\$979	1.5%
South - non-low income households	\$497	0.5%	\$524	0.6%	\$467	0.5%	\$1,219*	1.2%*	\$996	1.1%
South - low income households	\$412	1.9%	\$420	2.2%	\$405	1.9%	W	W	\$920*	6.1%*
South - LIHEAP beneficiary households	\$516	1.9%	\$501	1.9%	\$488	1.9%	NC ^{vii}	NC	\$938*	4.1%*
West - all households	\$383	0.5%	\$416	0.5%	\$427	0.7%	\$1,076	1.6%	\$943	1.7%
West - non-low income households	\$405	0.3%	\$447	0.4%	\$437	0.4%	W	W	\$995	0.7%
West - low income households	\$327	1.2%	\$297	1.2%	\$411	1.7%	W	W	W	W
West - LIHEAP beneficiary households	\$537	2.3%	\$350*	1.7%*	\$544*	3.3%*	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 2019. 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 2019 income is estimated by inflating income reported in the 2015 RECS by the consumer price index (CPI) and FY 2019 energy expenditures are estimated by adjusting energy expenditures reported in the 2015 RECS for changes in weather and energy prices. FY 2019 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 the LIHEAP Act, 42 U.S.C. § 8624(b)(2)(B).

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

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

^{vi} W = Withheld due to the small number of sample cases.

^{vii} NC = No cases in the 2015 RECS household sample.

Low Income Home Energy Data for FY 2019: 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 2019

Census Region	Percent That Cool ⁱ	Consumption ⁱⁱ (In Mmbtus)	Expenditures ⁱⁱ	Mean Group Burden ⁱⁱⁱ	Mean Individual Burden ⁱⁱⁱ	Median Individual Burden ⁱⁱⁱ
U.S. - all households	94.1%	7.8	\$296	0.3%	0.8%	0.4%
U.S. - non-low income households	95.6%	8.4	\$321	0.3%	0.5%	0.3%
U.S. - low income households ^{iv}	90.4%	6.1	\$230	1.1%	1.6%	0.9%
U.S. - LIHEAP beneficiary households ^v	92.9%	3.9	\$156	0.9%	1.0%	0.5%
Northeast - all households	90.5%	3.6	\$185	0.2%	0.4%	0.2%
Northeast - non-low income households	93.3%	4.0	\$203	0.2%	0.2%	0.2%
Northeast - low income households	84.4%	2.7	\$140	0.6%	0.9%	0.5%
Northeast - LIHEAP beneficiary households	89.5%	2.2	\$109	0.5%	0.7%	0.5%
Midwest - all households	96.2%	5.0	\$192	0.2%	0.4%	0.3%
Midwest - non-low income households	97.9%	5.5	\$212	0.2%	0.3%	0.2%
Midwest - low income households	91.1%	3.4	\$127	0.6%	0.8%	0.5%
Midwest - LIHEAP beneficiary households	92.6%	3.3	\$120	0.7%	0.7%	0.5%
South - all households	98.7%	12.8	\$456	0.6%	1.2%	0.7%
South - non-low income households	99.5%	14.0	\$497	0.5%	0.7%	0.6%
South - low income households	99.8%	9.9	\$356	2.0%	2.5%	1.8%
South - LIHEAP beneficiary households	98.3%	7.4	\$275	1.8%	1.8%	1.1%
West - all households	87.2%	4.5	\$199	0.2%	0.5%	0.2%
West - non-low income households	88.6%	4.9	\$217	0.2%	0.3%	0.1%
West - low income households	83.6%	3.7	\$149	0.7%	1.0%	0.5%
West - LIHEAP beneficiary households	92.4%	2.9	\$114	0.6%	0.7%	0.3%

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, United States Department of Energy. The 2015 RECS data have been adjusted for cooling degree days and electricity price estimates for FY 2019. 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 the LIHEAP Act, 42 U.S.C. § 8624(b)(2)(B).

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

Appendix B: Income-Eligible Household Estimates

ACF encourages LIHEAP grant recipients to use performance measurement systems to manage their federal energy assistance programs. ACF has developed targeting performance indicators to support measurement of LIHEAP targeting at the grant recipient level. For several years, ACF 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 recipient characteristics to compute reciprocity targeting performance statistics.

State-level estimates of the number of income-eligible households for FY 2019 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 ACF also uses the estimates from the ACS and household recipient data from the states' *LIHEAP Household Report* to develop state-level targeting indexes.

The 2014-2018 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 2018 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 2014-2018 five-year ACS, using the federal maximum income standard and the FY 2019 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 2014-2018 five-year ACS, using the using the federal maximum income standard and the FY 2019 state income standards, respectively.

Table B-1. State-Level Estimates of the Number of LIHEAP Income-Eligible Households Using the Federal Maximum LIHEAP Income Standard by Vulnerability Category^{i ii iii}
(2014-2018 ACS)

State	Total Number of LIHEAP Eligible Households ⁱⁱ	LIHEAP Eligible Households with at Least One Person 60+ Years	LIHEAP Eligible Households with at Least One Child Less Than 6 Yrs. Old	LIHEAP Eligible Households with at Least One Person With a Disability ⁱⁱ	LIHEAP Eligible Households with No Vulnerable Members
Alabama	575,106	227,757	92,585	258,891	156,837
Alaska	64,999	21,053	15,919	24,396	19,462

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 the data source to use for poverty and income research at the Census Bureau's [Which Data Source to Use for Poverty webpage](#).

¹⁵ The Census Bureau recommends multi-year data estimates from the ACS instead of estimates from the one-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 Census Bureau's [When to Use 1-year or 5-year Estimates webpage](#). 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 three-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 2019 Notebook* uses the most recent 5-year (2014-2018) 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 disabled individuals with those in previous *Notebooks*.

LIHEAP Home Energy Notebook for FY 2019: Appendix B: Income-Eligible Household Estimates

State	Total Number of LIHEAP Eligible Households¹	LIHEAP Eligible Households with at Least One Person 60+ Years	LIHEAP Eligible Households with at Least One Child Less Than 6 Yrs. Old	LIHEAP Eligible Households with at Least One Person With a Disability²	LIHEAP Eligible Households with No Vulnerable Members
Arizona	637,191	253,135	123,596	225,429	190,765
Arkansas	326,686	125,940	61,826	155,974	78,384
California	3,515,072	1,391,408	694,800	1,202,315	1,106,935
Colorado	557,697	210,735	94,483	186,155	187,982
Connecticut	424,233	186,128	58,112	152,719	127,686
Delaware	101,561	42,617	15,801	34,319	31,338
District of Columbia	78,309	29,456	9,581	32,414	26,686
Florida	1,975,974	917,080	304,653	704,120	556,678
Georgia	1,015,917	374,252	201,665	380,714	306,080
Hawaii	110,693	52,779	20,457	39,783	29,244
Idaho	149,489	53,807	28,681	57,232	43,984
Illinois	1,430,528	593,193	236,818	501,688	446,763
Indiana	690,086	261,092	125,682	281,951	195,854
Iowa	340,625	141,742	52,343	123,682	102,788
Kansas	307,940	115,612	59,289	119,504	89,620
Kentucky	545,139	214,472	92,631	277,640	123,820
Louisiana	596,676	235,728	100,029	253,520	168,966
Maine	160,941	77,392	18,133	77,421	34,165
Maryland	624,821	267,679	107,436	219,983	185,322
Massachusetts	824,818	387,921	106,632	338,788	216,962
Michigan	1,150,627	459,323	188,217	489,316	312,734
Minnesota	607,337	260,541	100,206	219,906	172,722
Mississippi	342,923	132,103	59,636	158,297	90,469
Missouri	676,428	271,735	111,939	293,618	178,949
Montana	115,660	48,236	17,435	44,898	34,065
Nebraska	201,084	77,358	37,542	71,682	62,033
Nevada	257,131	94,505	47,506	91,411	82,986
New Hampshire	143,635	68,172	17,629	57,853	37,285
New Jersey	1,005,775	458,255	158,465	340,538	296,809
New Mexico	222,855	87,237	40,348	92,462	62,224
New York	2,281,482	1,007,619	356,091	863,682	644,419
North Carolina	1,091,569	433,589	189,602	434,324	315,596
North Dakota	88,912	34,739	14,232	29,357	31,087
Ohio	1,385,849	556,690	232,076	589,996	367,297
Oklahoma	401,526	150,846	75,834	176,373	108,270
Oregon	403,275	164,465	65,689	167,575	111,400
Pennsylvania	1,524,708	709,086	213,503	659,273	374,468
Rhode Island	132,290	58,758	18,250	58,258	33,384
South Carolina	519,675	210,896	88,038	214,542	145,894
South Dakota	89,692	38,110	16,301	33,274	25,165
Tennessee	712,256	279,040	126,757	322,755	183,305
Texas	2,587,809	898,786	576,312	896,489	832,171
Utah	206,473	64,452	53,942	66,792	64,550
Vermont	74,884	36,578	8,277	33,019	18,289
Virginia	878,301	364,029	149,101	325,183	258,744
Washington	722,328	283,349	132,781	281,292	205,820
West Virginia	237,729	101,890	33,553	124,552	51,890
Wisconsin	660,108	277,470	101,370	242,624	191,501
Wyoming	60,502	24,416	9,600	21,634	19,007
All States	33,837,324	13,833,251	5,861,384	13,049,613	9,738,854

¹ State estimates are subject to sampling error and may not sum to United States' total due to rounding.

LIHEAP Home Energy Notebook for FY 2019: Appendix B: Income-Eligible Household Estimates

- 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 one vulnerability category.
- iv The 2014-2018 ACS estimate of the total number of all United States households is 119,730,210.
- 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 six 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 2019: 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}

(2014-2018 ACS)

State	State Income Guidelines For 4-Person Household as % of HHS Poverty Guidelines	Total Number of LIHEAP Eligible Households ^{iv}	LIHEAP Eligible Households with at Least One Person 60+ Years	LIHEAP Eligible Households with at Least One Child Less Than 6 Yrs. Old	LIHEAP Eligible Households with at Least One Person With a Disability ^v	LIHEAP Eligible Households with No Vulnerable Members
Alabama	150%	498,171	190,986	85,294	227,043	133,461
Alaska	150%	48,814	15,794	12,359	19,786	13,285
Arizona	164% ^{vi vii}	636,778	253,090	123,308	225,291	190,692
Arkansas	147% ^{vi viii}	322,507	125,438	59,406	154,579	77,365
California	193% ^{vi viii}	3,511,986	1,390,373	692,248	1,201,169	1,106,798
Colorado	165%	377,432	138,702	68,174	132,948	121,572
Connecticut	263% ^{vi viii}	424,233	186,128	58,112	152,719	127,686
Delaware	150%	61,209	23,522	10,399	21,184	18,699
District of Columbia	231% ^{vi viii}	78,309	29,456	9,581	32,414	26,686
Florida	150%	1,684,340	762,746	278,262	608,506	465,978
Georgia	169% ^{vi viii}	1,014,818	373,690	200,729	380,243	306,048
Hawaii	150%	81,819	39,456	16,056	31,460	19,583
Idaho	150%	136,195	46,710	27,697	52,714	39,829
Illinois	150%	932,467	354,248	173,029	345,315	286,534
Indiana	178% ^{vi xi}	690,086	261,092	125,682	281,951	195,854
Iowa	175%	284,552	113,408	46,778	105,481	85,302
Kansas	130%	177,110	59,484	36,390	72,777	50,668
Kentucky	130%	387,096	140,241	71,183	206,118	82,875
Louisiana	176% ^{vi viii}	596,341	235,690	99,774	253,441	168,906
Maine	150% ^{ix}	125,135	62,248	15,035	63,387	22,624
Maryland	175%	366,097	151,556	67,443	141,521	100,421
Massachusetts	263% ^{vi viii}	824,818	387,921	106,632	338,788	216,962
Michigan	110%	551,897	179,940	103,211	248,133	152,224
Minnesota	192% ^{vi x}	483,547	206,894	81,361	182,592	131,677
Mississippi	144% ^{vi viii}	335,004	130,476	55,979	155,607	88,379
Missouri	135%	443,475	163,772	79,697	199,623	114,596
Montana	174% ^{vi xi}	115,660	48,236	17,435	44,898	34,065
Nebraska	130%	111,429	39,091	23,076	42,484	32,368
Nevada	150%	215,998	75,886	42,130	77,641	69,079
New Hampshire	245% ^{vi viii}	143,635	68,172	17,629	57,853	37,285
New Jersey	200%	715,730	318,789	121,639	258,652	199,969
New Mexico	150%	218,100	84,252	40,348	90,747	60,852
New York	213% ^{vi xii}	2,281,482	1,007,619	356,091	863,682	644,419
North Carolina	130%	754,753	277,915	145,890	308,775	211,269
North Dakota	217% ^{vi viii}	88,903	34,739	14,223	29,357	31,087
Ohio	175%	1,202,570	458,396	215,415	521,642	316,292
Oklahoma	130%	293,443	99,676	59,020	129,162	80,461
Oregon	177% ^{vi viii}	402,817	164,346	65,344	167,389	111,354
Pennsylvania	150%	973,876	409,268	151,367	443,574	237,164
Rhode Island	223% ^{vi viii}	132,290	58,758	18,250	58,258	33,384
South Carolina	150%	454,826	178,312	81,422	189,072	127,022
South Dakota	175% ^{xiii}	78,698	32,350	15,576	29,724	21,542
Tennessee	150%	622,582	234,045	117,193	285,603	158,410
Texas	150%	2,109,662	707,981	503,300	743,069	658,709
Utah	150%	154,317	46,158	41,917	51,400	47,138
Vermont	185%	61,581	29,731	7,159	28,275	14,393
Virginia	130%	423,226	161,928	75,439	173,980	118,135
Washington	125%	349,933	121,958	67,395	147,218	97,772
West Virginia	150%	199,618	80,104	29,896	107,337	42,715

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State	State Income Guidelines For 4-Person Household as % of HHS Poverty Guidelines	Total Number of LIHEAP Eligible Households ^{iv}	LIHEAP Eligible Households with at Least One Person 60+ Years	LIHEAP Eligible Households with at Least One Child Less Than 6 Yrs. Old	LIHEAP Eligible Households with at Least One Person With a Disability ^v	LIHEAP Eligible Households with No Vulnerable Members
Wisconsin	204% ^{vi} ^{viii}	660,036	277,470	101,306	242,608	191,501
Wyoming	196% ^{vi} ^{viii}	60,496	24,416	9,594	21,632	19,007
All States	Not applicable	27,899,897	11,062,657	5,041,873	10,948,822	7,940,096

ⁱ State estimates are subject to sampling error and may not sum to United States 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 four were obtained from ACF's LIHEAP Performance Data Form – Module I (Grantee Survey) and confirmed with other program resources.

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

^{iv} The 2014-2018 ACS estimate of the total number of all United States households is 119,730,210.

^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 six 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 four-person households.

^{vii} 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.

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

^{ix} The state income guideline is the lesser of 150 percent of HHS Poverty Guidelines and 60 percent of the state median income, depending on household size. For households with vulnerable members (defined as older adults 60 years or older, very young children less than 2 years old, or susceptible to hypothermia), the state income guideline is the lesser of 170 percent of HHS Poverty Guidelines and 60 percent of the state median income.

^x The state income guideline is the greater of 50 percent of the state median income and 110 percent of HHS Poverty Guidelines, depending upon household size.

^{xi} 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.

^{xii} 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.

^{xiii} The state income guideline is 175 percent of the HHS Poverty Guidelines for households with 1-6 members, 60 percent of the state median income for households with 7 or 8 members, and 150 percent of HHS Poverty Guidelines for households with 9 or more 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}
(2014-2018 ACS)

State	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	575,106	294,899	103,553	99,719	76,935
Alaska	64,999	29,284	9,915	9,615	16,185
Arizona	637,191	316,592	112,131	115,139	93,329
Arkansas	326,686	179,595	69,945	69,250	7,896
California	3,515,072	1,490,994	533,867	532,525	957,686
Colorado	557,697	187,956	70,389	75,767	223,585
Connecticut	424,233	119,601	40,795	43,461	220,376
Delaware	101,561	37,101	12,064	12,044	40,352
District of Columbia	78,309	37,804	8,615	7,348	24,542
Florida	1,975,974	936,694	365,989	381,657	291,634
Georgia	1,015,917	503,054	174,898	174,319	163,646
Hawaii	110,693	49,047	15,871	16,901	28,874
Idaho	149,489	74,131	29,974	32,090	13,294
Illinois	1,430,528	549,341	187,011	196,115	498,061
Indiana	690,086	297,586	113,616	119,762	159,122
Iowa	340,625	122,581	51,375	56,354	110,315
Kansas	307,940	119,022	46,447	50,361	92,110
Kentucky	545,139	273,918	92,244	92,441	86,536
Louisiana	596,676	297,091	97,867	92,312	109,406
Maine	160,941	61,448	25,524	26,041	47,928
Maryland	624,821	177,642	59,254	64,387	323,538
Massachusetts	824,818	255,117	86,571	87,802	395,328
Michigan	1,150,627	484,420	166,009	175,060	325,138
Minnesota	607,337	178,980	74,803	77,877	275,677
Mississippi	342,923	207,368	66,533	65,443	3,579
Missouri	676,428	285,139	110,891	112,756	167,642
Montana	115,660	49,241	20,676	21,055	24,688
Nebraska	201,084	72,623	30,915	32,603	64,943
Nevada	257,131	120,303	46,213	49,482	41,133
New Hampshire	143,635	33,973	16,024	16,985	76,653
New Jersey	1,005,775	292,491	101,735	110,152	501,397
New Mexico	222,855	133,178	42,671	42,251	4,755
New York	2,281,482	940,953	293,005	293,596	753,928
North Carolina	1,091,569	511,185	198,267	196,436	185,681
North Dakota	88,912	29,677	11,569	11,505	36,161
Ohio	1,385,849	583,024	198,301	205,749	398,775
Oklahoma	401,526	196,692	78,913	78,391	47,530
Oregon	403,275	174,950	66,657	71,116	90,552
Pennsylvania	1,524,708	554,133	203,342	216,401	550,832
Rhode Island	132,290	49,637	16,492	16,469	49,692
South Carolina	519,675	262,710	95,142	96,974	64,849
South Dakota	89,692	35,134	14,953	14,517	25,088
Tennessee	712,256	358,478	130,388	133,716	89,674
Texas	2,587,809	1,228,492	443,200	437,970	478,147
Utah	206,473	82,968	32,515	38,834	52,156
Vermont	74,884	22,766	11,503	11,134	29,481

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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
Virginia	878,301	293,443	106,511	109,071	369,276
Washington	722,328	257,461	92,472	99,663	272,732
West Virginia	237,729	115,795	42,041	41,782	38,111
Wisconsin	660,108	221,305	91,456	96,768	250,579
Wyoming	60,502	21,812	8,191	9,204	21,295
All States	33,837,324	14,208,829	5,119,303	5,238,370	9,270,822

ⁱ State estimates are subject to sampling error and may not sum to United States 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 2014-2018 ACS estimate of the total number of all United States households is 119,730,210.

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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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(2014-2018 ACS)

State	State Income Guidelines For 4-Person 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%	498,171	294,899	103,553	99,719	0
Alaska	150%	48,814	29,284	9,915	9,615	0
Arizona	164% ^{iv v}	636,778	316,592	112,131	114,726	93,329
Arkansas	147% ^{iv vi}	322,507	179,595	69,698	65,318	7,896
California	193% ^{iv vi}	3,511,986	1,490,994	533,494	529,812	957,686
Colorado	165%	377,432	187,956	70,389	75,767	43,320
Connecticut	263% ^{iv vi}	424,233	119,601	40,795	43,461	220,376
Delaware	150%	61,209	37,101	12,064	12,044	0
District of Columbia	231% ^{iv vi}	78,309	37,804	8,615	7,348	24,542
Florida	150%	1,684,340	936,694	365,989	381,657	0
Georgia	169% ^{iv vi}	1,014,818	503,054	174,818	173,300	163,646
Hawaii	150%	81,819	49,047	15,871	16,901	0
Idaho	150%	136,195	74,131	29,974	32,090	0
Illinois	150%	932,467	549,341	187,011	196,115	0
Indiana	178% ^{vi xi}	690,086	297,586	113,616	119,762	159,122
Iowa	175%	284,552	122,581	51,375	56,354	54,242
Kansas	130%	177,110	119,022	46,447	11,641	0
Kentucky	130%	387,096	273,918	92,244	20,934	0
Louisiana	176% ^{iv vi}	596,341	297,091	97,856	91,988	109,406
Maine	150% ^{vii}	125,135	61,448	25,524	25,918	12,245
Maryland	175%	366,097	177,642	59,254	64,387	64,814
Massachusetts	263% ^{iv vi}	824,818	255,117	86,571	87,802	395,328
Michigan	110%	551,897	484,420	67,477	0	0
Minnesota	192% ^{iv viii}	483,547	178,980	74,765	77,653	152,149
Mississippi	144% ^{iv vi}	335,004	207,368	66,151	57,906	3,579
Missouri	135%	443,475	285,139	110,891	47,445	0
Montana	174% ^{iv ix}	115,660	49,241	20,676	21,055	24,688
Nebraska	130%	111,429	72,623	30,915	7,891	0
Nevada	150%	215,998	120,303	46,213	49,482	0
New Hampshire	245% ^{iv 6}	143,635	33,973	16,024	16,985	76,653
New Jersey	200%	715,730	292,491	101,735	110,152	211,352
New Mexico	150%	218,100	133,178	42,671	42,251	0
New York	213% ^{iv x}	2,281,482	940,953	293,005	293,596	753,928
North Carolina	130%	754,753	511,185	198,267	45,301	0
North Dakota	217% ^{iv vi}	88,903	29,677	11,569	11,496	36,161
Ohio	175%	1,202,570	583,024	198,301	205,749	215,496
Oklahoma	130%	293,443	196,692	78,913	17,838	0
Oregon	177% ^{iv vi}	402,817	174,950	66,624	70,691	90,552
Pennsylvania	150%	973,876	554,133	203,342	216,401	0
Rhode Island	223% ^{iv vi}	132,290	49,637	16,492	16,469	49,692
South Carolina	150%	454,826	262,710	95,142	96,974	0
South Dakota	175% ^{xi}	78,698	35,134	14,953	14,517	14,094
Tennessee	150%	622,582	358,478	130,388	133,716	0
Texas	150%	2,109,662	1,228,492	443,200	437,970	0

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State	State Income Guidelines For 4-Person 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
Utah	150%	154,317	82,968	32,515	38,834	0
Vermont	185%	61,581	22,766	11,503	11,134	16,178
Virginia	130%	423,226	293,443	106,511	23,272	0
Washington	125%	349,933	257,461	92,472	0	0
West Virginia	150%	199,618	115,795	42,041	41,782	0
Wisconsin	204% ^{iv vi}	660,036	221,305	91,456	96,696	250,579
Wyoming	196% ^{iv vi}	60,496	21,812	8,191	9,198	21,295
All States	Not applicable	27,899,897	14,208,829	5,019,607	4,449,113	4,222,348

ⁱ State estimates are subject to sampling error and may not sum to United States 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 four were obtained from ACF's LIHEAP Performance Data Form – Module I (Grantee Survey).

ⁱⁱⁱ The 2014-2018 ACS estimate of the total number of all United States households is 119,730,210.

^{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 four person households.

^v 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.

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

^{vii} The state income guideline is the lesser of 150 percent of HHS Poverty Guidelines and 60 percent of the state median income, depending on household size. For households with vulnerable members (defined as older adults 60 years or older, very young children less than 2 years old, or susceptible to hypothermia), the state income guideline is the lesser of 170 percent of HHS Poverty Guidelines and 60 percent of the state median income.

^{viii} The state income guideline is the greater of 50 percent of the state median income and 110 percent of HHS Poverty Guidelines, depending upon household size.

^{ix} 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.

^x 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.

^{xi} The state income guideline is 175 percent of the HHS Poverty Guidelines for households with 1-6 members, 60 percent of the state median income for households with 7 or 8 members, and 150 percent of HHS Poverty Guidelines for households with 9 or more members.