

LIHEAP Home Energy Notebook

For Fiscal Year 2007



**U.S. DEPARTMENT OF
HEALTH AND HUMAN SERVICES
Administration for Children and Families
Office of Community Services
Division of Energy Assistance
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II. Home Energy Data

Section II presents home energy consumption and expenditure data. The primary data source for this section is the 2005 RECS, which has energy consumption and expenditures data for calendar year 2005. For this *Notebook*, the 2005 space heating and cooling consumption and expenditures have been adjusted to reflect FY 2007 weather and fuel prices, as described in Appendix A. Therefore, any residential energy or home energy consumption and expenditure data presented in this section for years after 2005 have been adjusted from the 2005 RECS.¹³

National data on total residential energy, home heating, and home cooling are presented below. Regional variations in the national data are included in Appendix A. Home energy trend data are presented in Section III.

Residential energy data

Table 2-1, on the next page, presents data on average annual residential energy consumption, expenditures, and burden by fuel type for all, non low income, low income, and LIHEAP recipient households.¹⁴ In FY 2007, average residential energy consumption for all households was 95.8 million British Thermal Units (mmBTUs) and average expenditures were \$1,986. The mean individual residential energy burden for all households was 7.0 percent of income.

Low income households had average residential energy consumption of 84.4 mmBTUs (11.9 percent less than all households) and average energy expenditures of \$1,715 (13.6 percent less than all households). Their mean individual residential energy burden was 13.5 percent, almost twice that for all households and almost four times that for non low income households.

Average residential energy expenditures for LIHEAP recipient households were \$1,900, about 11 percent higher than that for all low income households. The mean individual residential energy burden was 16.0 percent, 2.5 percentage points higher than that for low income households.

Households consume residential energy for a variety of uses that include space heating, water heating, space cooling (air-conditioning or circulation), refrigeration, and other appliances. Table 2-2 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 expenditures. In FY 2007, home heating was 31 percent of the residential energy bill for low income households, and home cooling made up 12 percent.

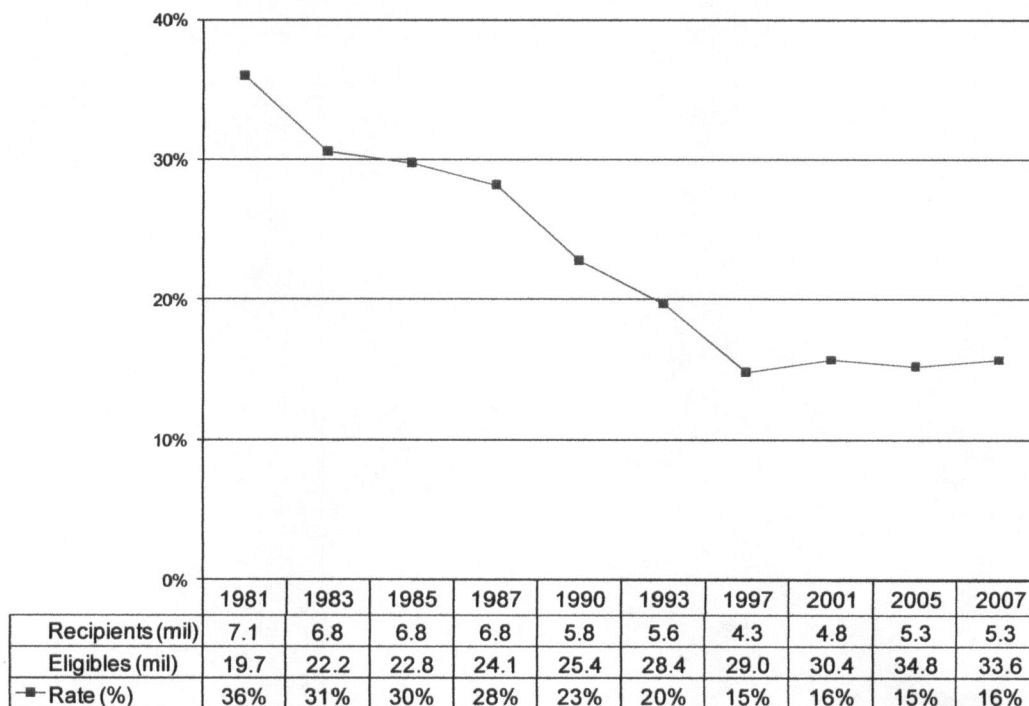
¹³ The FY 2007 *Notebook* is the first to use the 2005 RECS data. The FY 2006 *Notebook* used projections from the 2001 RECS, which had a different sample frame and different procedure than the 2005 RECS. The reader should exercise caution in comparing the results for FY 2007 to those for FY 2006, as some of the observed changes may be due to the changes in the base survey used.

¹⁴ 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 U.S. Non low income households represent those households with annual incomes above the LIHEAP income maximum of the greater of 150 percent of HHS's poverty income guidelines or 60 percent of State median income. Low income households represent those households with annual incomes under the LIHEAP income maximum of the greater of 150 percent of HHS's poverty income guidelines or 60 percent of State median income. LIHEAP recipient households represent those low income households that received Federal fuel assistance.

Trends in LIHEAP

Figures 3-20 through 3-24 furnish information on trends for HHS' energy assistance programs from FY 1981 through FY 2007. Figure 3-20 shows that the percentage of LIHEAP income eligible households that has been assisted has fallen significantly over time but has been steady at about 16 percent in recent years. In FY 1981, 36 percent of eligible households received heating and/or winter crisis assistance benefits, but this number fell to 15 percent in 1997.²⁷ By FY 2007, 16 percent of LIHEAP income eligible households received those benefits. Figure 3-21, on the next page, furnishes statistics on the count of recipients by benefit type.

Figure 3-20. Percentage of LIHEAP/LIHEAP Federally eligible households receiving LIHEAP/LIHEAP heating and/or winter crisis assistance, FY 1981 to FY 2007



NOTE: The FY 1981 estimate of LIHEAP income eligible households is not directly comparable to those of the other years.

SOURCE: HHS Administrative Data — such data for FY 2007 are preliminary; thus the actual figures may differ.

²⁷Note that the Federal income eligibility guidelines for the FY 1981 Low Income Energy Assistance Program (LIEAP) were different from those for subsequent LIHEAP programs included in the table.

LIHEAP Home Energy Notebook for FY 2007: II. Home Energy Data

Table 2-1. Residential energy: Average annual household consumption, expenditures, and burden by all, non low income, low income, and LIHEAP recipient households, by main heating fuel type, United States, FY 2007^{1/} (See also Tables A-3a – A-3c, Appendix A)

Main heating fuel	Fuel consumption (mmBTUs) ^{2/}	Fuel expenditures	Mean individual burden ^{3/}	Median individual burden ^{4/}	Mean group burden ^{5/}
<i>All households</i>					
All fuels	95.8	\$1,986	7.0%	4.2%	3.0%
Natural gas	111.4	\$1,956	6.2%	3.9%	2.9%
Electricity	61.2	\$1,696	6.9%	3.9%	2.5%
Fuel oil	145.6	\$3,248	12.1%	7.2%	4.9%
Kerosene	53.8	\$1,392	9.6%	6.9%	2.1%
LPG ^{6/}	108.6	\$2,640	9.3%	6.3%	4.0%
<i>Non low income households</i>					
All fuels	101.9	\$2,132	3.6%	3.1%	2.5%
Natural gas	116.1	\$2,098	3.4%	2.9%	2.4%
Electricity	66.0	\$1,828	3.3%	2.9%	2.1%
Fuel oil	154.5	\$3,489	5.5%	4.9%	4.0%
Kerosene	60.8	\$1,419	4.3%	4.6%	1.6%
LPG ^{6/}	115.8	\$2,742	5.0%	4.5%	3.2%
<i>Low income households</i>					
All fuels	84.4	\$1,715	13.5%	9.3%	9.9%
Natural gas	101.4	\$1,653	12.2%	8.8%	9.5%
Electricity	53.1	\$1,471	13.1%	8.2%	8.5%
Fuel oil	131.9	\$2,879	22.3%	16.1%	16.6%
Kerosene	52.5	\$1,387	10.6%	8.6%	8.0%
LPG ^{6/}	94.9	\$2,449	17.4%	13.8%	14.1%
<i>LIHEAP recipient households</i>					
All fuels	103.2	\$1,900	16.0%	10.5%	13.3%
Natural gas	112.9	\$1,770	14.6%	10.3%	12.4%
Electricity	49.7	\$1,219	14.9%	9.1%	8.5%
Fuel oil	149.9	\$3,290	24.8%	23.8%	23.0%
Kerosene	76.8	\$1,612	18.7%	13.8%	11.3%
LPG ^{6/}	107.8	\$2,970	17.1%	11.3%	20.8%

^{1/}Data are derived from the 2005 RECS, adjusted to reflect FY 2007 heating degree days, cooling degree days, and fuel prices. Data represent residential energy used from October 2006 through September 2007.

^{2/}A British Thermal Unit (BTU) is the amount of energy necessary to raise the temperature of one pound of water one degree Fahrenheit. MmbTUs or mmBTUs refer to values in millions of BTUs.

^{3/}Mean individual burden is calculated by taking the mean, or average, of individual energy burdens, as calculated from FY 2007 adjusted RECS data. See Appendix A for information on calculation of energy burden.

^{4/}Median individual burden is calculated by taking the median of individual energy burdens, as calculated from FY 2007 adjusted RECS data.

^{5/}Mean group energy burden has been calculated by (1) calculating average residential energy expenditures from the 2005 RECS for each group of households; (2) adjusting those figures for FY 2007; and (3) dividing the adjusted figures by the average income for each group of households from the 2007 CPS ASEC.

^{6/}Liquefied petroleum gas (LPG) refers to any fuel gas supplied to a residence in liquid compressed form,

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 recipient households, by Census region and main heating fuel, FY 2007

Census Region	Main heating fuel											
	All fuels		Natural gas		Electricity		Fuel oil		Kerosene		LPG	
	Dollars ^{1/}	Percent ^{2/}	Dollars	Percent	Dollars	Percent	Dollars	Percent	Dollars	Percent	Dollars	Percent
United States												
All households	\$1,986	3.0%	\$1,956	2.9%	\$1,696	2.5%	\$3,248	4.9%	\$1,392	2.1%	\$2,640	4.0%
Non low income households	\$2,132	2.5%	\$2,098	2.4%	\$1,828	2.1%	\$3,489	4.0%	\$1,419*	1.6%	\$2,742	3.2%
Low income households ^{3/}	\$1,715	9.9%	\$1,653	9.5%	\$1,471	8.5%	\$2,879	16.6%	\$1,387	8.0%	\$2,449	14.1%
LIHEAP recipient households ^{4/}	\$1,900	13.3%	\$1,770	12.4%	\$1,219	8.5%	\$3,290	23.0%	\$1,612*	11.3%	\$2,970	20.8%
Northeast												
All households	\$2,519	3.4%	\$2,212	3.0%	\$1,616	2.2%	\$3,385	4.6%	\$1,091	1.5%	\$3,261	4.4%
Non low income households	\$2,765	2.8%	\$2,435	2.5%	\$1,693	1.7%	\$3,692	3.7%	\$2,120*	2.2%	\$3,304	3.4%
Low income households	\$2,148	11.4%	\$1,841	9.8%	\$1,530	8.1%	\$2,936	15.6%	\$919*	4.9%	\$3,147*	16.7%
LIHEAP recipient households	\$2,364	15.3%	\$1,926	12.5%	\$1,455	9.4%	\$3,345	21.7%	\$1,890*	12.3%	\$2,140*	13.9%
Midwest												
All households	\$1,933	3.0%	\$1,943	3.1%	\$1,344	2.1%	\$2,679	4.2%	\$1,786*	2.8%	\$2,802	4.4%
Non low income households	\$2,059	2.5%	\$2,050	2.5%	\$1,476	1.8%	\$2,929	3.5%	NC	NC	\$2,788	3.4%
Low income households	\$1,721	9.9%	\$1,760	10.1%	\$1,180	6.8%	\$2,364	13.6%	\$1,786*	10.2%	\$2,856	16.4%
LIHEAP recipient households	\$1,803	12.2%	\$1,861	12.5%	\$1,156	7.8%	\$2,810*	18.9%	\$1,510*	10.2%	\$2,522*	17.0%
South												
All households	\$1,956	3.2%	\$2,129	3.5%	\$1,811	2.9%	\$2,553	4.1%	\$1,463	2.4%	\$2,467	4.0%
Non low income households	\$2,098	2.6%	\$2,297	2.9%	\$1,930	2.4%	\$2,384	3.0%	\$1,189*	1.5%	\$2,566	3.2%
Low income households	\$1,686	10.8%	\$1,714	10.9%	\$1,588	10.1%	\$2,921*	18.7%	\$1,540	9.8%	\$2,343	15.0%
LIHEAP recipient households	\$1,842	15.6%	\$1,785	15.1%	\$1,319	11.2%	\$3,022*	25.6%	\$1,562*	13.2%	\$3,372*	28.6%
West												
All households	\$1,637	2.3%	\$1,609	2.2%	\$1,508	2.1%	\$2,965	4.1%	\$1,288*	1.8%	\$2,530	3.5%
Non low income households	\$1,792	1.9%	\$1,756	1.9%	\$1,656	1.8%	\$2,952*	3.2%	NC	NC	\$2,765	3.0%
Low income households	\$1,278	6.9%	\$1,168	6.3%	\$1,272	6.8%	\$3,040*	16.3%	\$1,288*	6.9%	\$2,133	11.4%
LIHEAP recipient households	\$1,195	8.1%	\$1,129	7.7%	\$993	6.7%	\$2,968*	20.1%	NC	NC	\$2,706*	18.4%

^{1/}Estimates are derived from the 2005 Residential Energy Consumption Survey (RECS), Energy Information Administration, U.S. Department of Energy. The 2005 RECS data have been adjusted for heating degree days, cooling degree days, and fuel price estimates for FY 2007. Expenditures represent the costs for fuel oil, kerosene, and LPG delivered and billed costs for natural gas and electricity. Expenditure data are not collected for other fuels.

^{2/}Represents the percent of household's income used for residential energy expenditures. National and regional mean incomes are calculated from the 2007 CPS ASEC, which reports income for calendar year 2006. Mean group residential burden is computed as mean group energy expenditures (from RECS) by mean group income (from CPS ASEC). See text in Appendix A for a discussion of energy burden.

^{3/}Households with annual incomes under the maximum in section 2605(b)(2)(B) of Public Law 97-35.

^{4/}Includes verified LIHEAP recipient households from the 2005 RECS.

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

NC = No cases in the 2005 RECS household sample.

Table A-5. Home heating: Average consumption per household, by all fuels and specified fuels, by all, non low income, low income and LIHEAP recipient households, by Census region, FY 2007^{1/}

	All Fuels ^{2/}	Natural Gas	Electricity	Fuel Oil	Kerosene	LPG
	(In MmBTUs) ^{3/}					
United States						
All households	38.9	50.4	8.5	95.1	20.2	51.8
Non low income households	40.0	50.0	9.0	98.6	25.2*	57.4
Low income households ^{4/}	36.9	51.4	7.7	89.8	19.3	41.4
LIHEAP recipient households ^{5/}	52.9	61.1	8.8	96.8	24.4*	45.2
Northeast						
All households	69.6	66.7	12.4	96.9	15.7	74.6
Non low income households	74.1	69.3	13.4	102.2	22.9*	81.3
Low income households	62.8	62.5	11.3	89.3	14.5*	57.3*
LIHEAP recipient households	68.2	63.6	11.4	94.6	15.7*	46.5*
Midwest						
All households	57.7	66.6	13.9	80.4	46.2*	64.4
Non low income households	59.0	66.9	15.7	72.8	NC	66.9
Low income households	55.5	66.1	11.8	90.1	46.2*	55.4
LIHEAP recipient households	64.3	72.8	10.8	119.2*	4.9*	53.4*
South						
All households	20.8	37.0	7.6	90.8	16.5	42.5
Non low income households	22.1	37.7	8.2	93.5	25.9*	43.6
Low income households	18.4	35.2	6.5	84.9*	13.9	41.1
LIHEAP recipient households	33.4	47.8	7.1	90.0*	28.5*	43.4*
West						
All households	23.5	29.9	7.8	100.4	18.5*	43.6
Non low income households	25.3	30.3	7.9	93.5*	NC	55.7
Low income households	19.2	28.6	7.7	137.0*	18.5*	23.0
LIHEAP recipient households	27.5	37.2	8.1	145.8*	NC	41.7*

^{1/}Developed from the 2005 Residential Energy Consumption Survey (RECS), Energy Information Administration, U.S. Department of Energy, and adjusted for FY 2007.

^{2/}Weighted average of natural gas, electricity, fuel oil, kerosene, and liquefied petroleum gas space heating consumption. Consumption data are not collected for other fuels.

^{3/}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.

^{4/}Households with income under the maximum in section 2605(b)(2)(B) of Public Law 97-35.

^{5/}Includes verified LIHEAP recipient households from the 2005 RECS.

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

NC = No cases in the 2005 RECS household sample.

LIHEAP Home Energy Notebook for FY 2007: Appendix B: Income Eligible Household Estimates

Table B-3. Average of 2006, 2007, and 2008 State-level estimates of the number of LIHEAP income eligible households using the Federal maximum LIHEAP income standard classified by HHS poverty guidelines^{1/2/}

(Three-Year Average of CPS ASEC 2006-2008)

State	Total number of LIHEAP eligible households ³	Number of LIHEAP eligible households by intervals of HHS Poverty Guidelines			
		At or below poverty guidelines	>100% - 125% poverty guidelines	>125% - 150% poverty guidelines	Over 150% poverty guidelines
Alabama	550,398	268,655	90,285	88,845	102,613
Alaska	69,686	28,735	11,785	12,312	16,854
Arizona	630,341	276,456	107,222	100,562	146,101
Arkansas	301,160	152,005	63,771	71,469	13,916
California	3,840,876	1,250,875	683,775	606,271	1,299,956
Colorado	514,153	174,858	72,016	73,174	194,105
Connecticut	457,617	112,788	49,257	53,170	242,402
Delaware	95,394	25,826	10,955	13,127	45,486
District of Columbia	69,861	40,304	10,410	8,712	10,435
Florida	2,013,483	801,536	322,202	357,400	532,345
Georgia	999,434	421,874	147,171	154,568	275,820
Hawaii	109,532	44,781	18,589	15,185	30,977
Idaho	123,765	48,832	27,618	30,030	17,284
Illinois	1,506,838	478,932	185,933	198,312	643,661
Indiana	729,137	274,514	94,248	124,771	235,603
Iowa	324,110	108,296	44,717	56,041	115,056
Kansas	313,277	113,219	41,872	50,365	107,822
Kentucky	508,792	242,598	96,132	97,183	72,879
Louisiana	476,654	246,416	91,088	90,345	48,804
Maine	154,662	56,366	21,945	28,121	48,230
Maryland	607,980	167,952	59,356	71,641	309,032
Massachusetts	872,740	284,158	103,708	92,455	392,420
Michigan	1,218,551	439,448	169,263	151,054	458,785
Minnesota	587,936	144,422	75,157	73,019	295,338
Mississippi	339,311	203,166	66,008	61,590	8,547
Missouri	683,461	242,575	110,098	120,449	210,340
Montana	96,489	47,064	23,967	15,093	10,365
Nebraska	191,140	60,197	33,254	32,164	65,525
Nevada	224,501	80,640	31,926	41,960	69,975
New Hampshire	134,222	28,881	17,649	16,139	71,552
New Jersey	1,037,955	258,259	109,985	111,478	558,233
New Mexico	208,290	111,815	42,373	45,535	8,567
New York	2,478,716	1,006,275	341,851	328,618	801,972
North Carolina	1,061,471	455,833	206,970	189,548	209,120
North Dakota	75,800	28,316	13,048	13,395	21,040
Ohio	1,363,060	532,399	183,472	190,520	456,669
Oklahoma	404,643	188,658	92,233	79,880	43,871
Oregon	401,851	148,920	77,975	66,546	108,410
Pennsylvania	1,489,149	507,619	196,275	236,252	549,003
Rhode Island	129,094	41,592	15,889	15,456	56,157
South Carolina	480,334	207,446	94,434	86,911	91,542
South Dakota	83,527	29,856	16,673	14,796	22,202
Tennessee	715,897	332,467	130,366	134,091	118,974
Texas	2,456,387	1,176,802	478,946	426,228	374,411
Utah	198,661	66,063	33,823	39,940	58,835
Vermont	75,913	22,377	10,988	13,123	29,425
Virginia	816,492	217,216	98,088	119,324	381,864
Washington	674,016	208,311	101,162	96,251	268,292
West Virginia	204,218	106,442	40,062	48,424	9,290
Wisconsin	661,315	207,459	103,466	95,510	254,880
Wyoming	56,989	19,632	9,182	9,543	18,632
All States	33,819,278	12,740,124	5,278,640	5,266,896	10,533,618

^{1/}State estimates are subject to sampling error, and may not sum to U.S. total due to rounding.

^{2/}The greater of 60 percent of State median income estimates or 150 percent of the HHS Poverty Guidelines.

^{3/}The three year CPS ASEC average estimate of the total number of all U.S. households is 115,726,411.