

**HOME ENERGY AFFORDABILITY  
IN CONNECTICUT:**

**The Affordability Gap (2012)**

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## Introduction

Home energy costs pose a crushing burden to Connecticut residents today. Particularly for households with incomes in “deep poverty,” home energy costs threaten not only the ability of Connecticut households to retain access to energy services, but also threaten access to housing, food, medical care and other necessities of life.

Home energy unaffordability in Connecticut is a statewide phenomenon. It affects areas of the state both rural and urban. It affects areas of the state both North and South, both East and West.

The discussion below continues a series of reports looking at home energy affordability in Connecticut. The Home Energy Affordability Gap seeks to quantify the extent of energy unaffordability in Connecticut. The Affordability Gap measures the dollar amount by which actual home energy bills exceed affordable home energy bills. In this respect, “affordability” is examined in terms of home energy burdens, bills as a percentage of income. If a Connecticut household has an annual income of \$12,000 and an annual home energy bill of \$3,000, that household has a home energy burden of 25% ( $\$3,000 / \$12,000 = 0.25$ ). An affordable home energy burden is set at 6%.<sup>1</sup>

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<sup>1</sup> The 6% is a calculated figure. It is based on the premise that utility costs should not exceed 20% of shelter costs. Moreover, it is based on the premise that total shelter costs should not exceed 30% of income. 20% of 30% yields a 6% affordable utility burden.

## Methodology

The Home Energy Affordability Gap calculated for each Connecticut legislative district is determined based on the same fundamental model used for the annual Home Energy Affordability Gap calculated nationwide.<sup>2</sup> The Affordability Gap is that dollar amount by which home energy bills in a specified geographic region exceed what home energy bills would be if they were set equal to an affordable percentage of income. For purposes of the Home Energy

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It is universally accepted that total shelter costs are “unaffordable” if they exceed 30% of income. Total shelter costs include not only rent/mortgage, but all utilities. See generally, Mary Schwartz and Ellen Wilson (2008). “Who Can Afford to Live in a Home: A Look at Data from the 2006 American Community Survey,” U.S. Census Bureau: Washington D.C. They state in relevant part:

The conventional public policy indicator of housing affordability in the United States is the percent of income spent on housing. Housing expenditures that exceed 30 percent of household income have historically been viewed as an indicator of a housing affordability problem. The conventional 30 percent of household income that a household can devote to housing costs before the household is said to be “burdened” evolved from the United States National Housing Act of 1937.

\* \* \*

Because the 30 percent rule was deemed a rule of thumb for the amount of income that a family could spend and still have enough left over for other nondiscretionary spending, it made its way to owner-occupied housing too. Prior to the mid-1990s the federal housing enterprises (Fannie Mae and Freddie Mac) would not purchase mortgages unless the principal, interest, tax, and insurance payment (PITI) did not exceed 28 percent of the borrower’s income for a conventional loan and 29 percent for an FHA insured loan. Because lenders were unwilling to hold mortgages in their portfolios, this simple lender ratio of PITI to income was one of many “hurdles” a prospective borrower needed to overcome to qualify for a mortgage. There are other qualifying ratios as well; most of which hover around 30 percent of income. The amount of debt outstanding and the size and frequency of payments on consumer installment loans and credit cards influence the lender’s subjective estimation of prospective homebuyers’ ability to meet the ongoing expenses of homeownership. Through the mid-1990s, under Fannie Mae guidelines for a conventional loan, total allowable consumer debt could not exceed eight percent of borrower’s income for conventional mortgage loans and 12 percent for FHA-insured mortgages. So through the mid-1990s, underwriting standards reflected the lender’s perception of loan risk. That is, a household could afford to spend nearly 30 percent of income for servicing housing debt and another 12 percent to service consumer debt. Above these thresholds, a household could not afford the home and the lender could not afford the risk. While there are many underwriting standards, none of them made their ways into the public policy lexicon like the 30 percent of income indicator of housing affordability.

The mid to late 1990s ushered in many less stringent guidelines. Many households whose housing costs exceed 30 percent of their incomes are choosing then to devote larger shares of their incomes to larger, more amenity-laden homes. These households often still have enough income left over to meet their non-housing expenses. For them, the 30 percent ratio is not an indicator of a true housing affordability problem but rather a lifestyle choice. But for those households at the bottom rungs of the income ladder, the use of housing costs in excess of 30 percent of their limited incomes as an indicator of a housing affordability problem is as relevant today as it was four decades ago.

<sup>2</sup> See generally, [www.HomeEnergyAffordabilityGap.com](http://www.HomeEnergyAffordabilityGap.com) (last accessed December 6, 2012).

Affordability Gap, a bill is considered “affordable” if it does not exceed six percent (6%) of annual household income.

The Home Energy Affordability Gap is a function of two calculations: (1) household income; and (2) household energy bills. Household income is based on the Federal Poverty Level for the median household size in the geographic region being studied. While the Federal Poverty Level is uniform for the 48 contiguous States, income by geographic area differs by geographic area. Poverty Level is a function of household size. Since median household size differs by geographic area (both between and within states), so, too, does the income used in the calculation of the Home Energy Affordability Gap.<sup>3</sup> For example, 100% of Federal Poverty Level in a geographic area with a median household size of 2.4 persons will be lower than 100% of Federal Poverty Level in a geographic area with a median household size of 3.2 persons.

Home energy bills, calculated for the Home Energy Affordability Gap are a function of the following primary factors:

- Tenure of household (owner/renter).
- Housing unit size (by tenure).
- Heating Degree Days (HDDs) and Cooling Degree Days (CDDs) (by county).
- Household size (by tenure).
- Heating fuel mix (by tenure).
- Energy use intensities (by fuel and end use).

Separate bills are calculated for four end-uses: (1) space-heating; (2) space cooling; (3) domestic hot water; and (4) electric appliances (including lighting and refrigerators). Bills are calculated using the U.S. Department of Energy’s “energy intensities” most recently made publicly available through the U.S. Department of Energy’s Residential Energy Consumption Survey (RECS). The energy intensities for each state are those published for the Census Division in which the state is located. Connecticut, for example, is located in the “New England” Census Division. State-specific demographic data is obtained from the American Community Survey (ACS) published by the U.S. Census Bureau. The analysis uses three-year average ACS data; for example, the “2011” data is the three-year average (2009, 2010, 2011) with the most recent year being the reporting year. Heating Degree Days (HDDs) and Cooling Degree Days (CDDs) are obtained from the National Weather Service’s Climate Prediction Center on a county-by-county basis. State price data for each end-use is obtained from the Energy Information Administration’s (EIA) fuel-specific price reports (e.g., Natural Gas Monthly, Electric Power Monthly).

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<sup>3</sup> The geographic area serving as the basis for the Home Energy Affordability Gap calculation is the county.



Average statewide price data is used in the calculation of the Home Energy Affordability Gap. Price data is used for four primary fuels: natural gas, electricity, fuel oil, and propane (or LPG). Price data for the various fuels underlying the calculation of the Home Energy Affordability Gap is used from the preceding year. For example, the Home Energy Affordability Gap considered in the discussion below uses price data for 2012. Price data from the following time periods is used:

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<b>Heating Prices</b>	
Natural gas	February 2012
Fuel oil	February 2012
Liquefied petroleum gas (LPG)	February 2012
Electricity	February 2012

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Cooling Prices	August 2012
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<b>Non-heating prices</b>	
Natural gas	May 2012
Fuel oil	May 2012
Liquefied petroleum gas (LPG)	May 2012
Electricity	May 2012

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## Change of Series

The Home Energy Affordability Gap results published in this report will not be strictly comparable to those results published in previous Connecticut reports. Changes have been made in the data and in the population studied. In addition, the geographic areas have been re-defined starting with publications generated in 2012. More technical changes have been made in certain demographic data used in this report. Changes from prior reports include:

- Geographic areas: Based on 2010 Census data, both state legislative districts and Congressional districts have been reapportioned. A state legislative district (for either the upper chamber or lower chamber) in 2012, in other words, even though it retains the same district number as in prior years, may not represent the same geographic area as that district represented using the 2000 Census. The same observation is true for Congressional districts.

- Population: The Affordability Gap calculation has been expanded to incorporate households below 200% of the Federal Poverty Level. In prior years, the upper bound of income considered was 185% of Federal Poverty Level. As has been seen over time, however, while the Affordability Gap in early years of the analysis did not reach into the more moderate incomes, in recent years, the Gap has become increasingly more pronounced, both in terms of the number of households facing an Affordability Gap and in terms of how large of a Gap exists in those higher income ranges. Beginning this year, therefore, the upper income tier was modestly expanded for Connecticut.
- Demographic data: The source of underlying demographic data used in the calculation of the Home Energy Affordability Gap has been changed. In previous iterations of the Affordability Gap calculations, the Affordability Gap varied based on changes in prices for specific fuels each year, while holding demographic data constant based on the 2000 Census. In this (and future) Affordability Gap calculations, the demographic data will be based on the three-year American Community Survey (ACS) published by the U.S. Census Bureau.<sup>4</sup>
- Energy usage data: Finally, certain data on energy use intensities have been updated based on more recently published data from the U.S. Department of Energy's Energy Information Administration (EIA/DOE).

The intent of making these changes was to have all such modifications in the underlying data bases and methodology occur in one year, the year in which Census data was updated. The result of making these changes is that the results published in this report will not be comparable to results published in prior years. All future Home Energy Affordability Gap analyses will continue to use these new data sources and methodology.

In light of these introductory comments, the discussion below considers home energy affordability Connecticut in the following sections:

- Part 1 considers statewide home energy affordability in 2012;
- Part 2 considers home energy affordability by income range;
- Part 3 considers home energy affordability by geographic area;
- Part 4 considers some of the patterns and trends of income in Connecticut over time;
- Part 5 presents a special focus on tenants in public and assisted housing.

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<sup>4</sup> Use of the three-year ACS data will allow changes in the Affordability Gap to reflect more than changes in prices each year. It will further reflect changes in Poverty Levels, changes in the penetration of fuels used for home heating, changes in housing tenure (i.e., owner/renter status), changes in household size. Using the 3-year ACS data will smooth out changes, so that long-term trends will be reflected while minimizing year-to-year volatility.

In addition to these sections, this report presents individual appendices consisting of “fact sheets” presenting the 2012 Affordability Gap for each state legislative district (both House and Senate), as well as for each of Connecticut’s Congressional districts.

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## Part 1: Home Energy Affordability in Connecticut in 2012

Home energy in Connecticut is not affordable for a substantial part of the low-income population in 2012. In this Part, we focus on the statewide data setting forth the Home Energy Affordability Gap for Connecticut in 2012.

### An Overview of the Statewide Affordability Gap

The State of Connecticut has a large Home Energy Affordability Gap facing its low-income households, with available resources grossly insufficient to address the problem. As a result of this mismatch between energy bills and the resources needed to pay them, many low-income households incur unpaid bills and experience the termination of service associated with those arrears. In addition, the paid-but-unaffordable bill is a real phenomenon in Connecticut. Even when low-income households pay their bills in a full and timely manner, they often suffer significant adverse hunger, education, employment, health and housing consequences in order to make such payments.<sup>5</sup>

Energy prices have placed a substantial burden on the public and private energy assistance agencies in Connecticut. Current home heating, cooling and electric bills in Connecticut have driven the average per-household Home Energy Affordability Gap for households living with incomes at or below 200% of the Federal Poverty Level (FPL) to crushing levels. The average

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<sup>5</sup> The 2011 Connecticut Home Energy Affordability Gap presented an extensive discussion of these impacts. See, Colton (December 2011). Home Energy Affordability Gap: 2011, Connecticut Legislative Districts, at 14 – 31, prepared for Operation Fuel, Bloomfield (CT).

annual shortfall between actual and affordable home energy bills for households at or below 200% of FPL now reaches nearly \$2,304 per household. The aggregate Home Energy Affordability Gap in Connecticut now reaches more than \$660 million statewide.

This \$662 million is *not* the total low-income home energy bill in Connecticut. Rather, the \$662 million is the dollar amount by which actual home energy bills exceed affordable home energy bills for Connecticut households with income at or below 200% of Federal Poverty Level.

The population of households facing this Affordability Gap is substantial. According to the 2011 American Community Survey, Connecticut had nearly 290,000 households with income at or below 200% of the Federal Poverty Level.

The primary source of energy assistance in Connecticut, the federal Low-Income Home Energy Assistance Program (LIHEAP), is insufficient to address this affordability need. In Fiscal Year 2012 (October 2011 – September 2012), the base federal LIHEAP allocation to Connecticut reached \$79.5 million. That represents a decrease in LIHEAP allocations from the FY2011 level of \$98.3 million. Nationwide, Congress allocated \$3.478 billion in LIHEAP funding for FY2012, compared to \$4.443 billion in the prior year.

For Connecticut, the conclusion is that LIHEAP represents an important, even critical, resource to help meet the state's home energy affordability needs. LIHEAP standing alone, however, is grossly insufficient to fill the state's Home Energy Affordability Gap.<sup>6</sup> In Fiscal Year 2012, Connecticut's allocation of LIHEAP funds would cover roughly 12% of the state's unaffordable home energy bills. Again, it is important to remember that this is not 12% of the *total* home energy bills for low-income households, but rather 12% of the *unaffordable portion* of the total home energy bills.

LIHEAP continues to be severely inadequate in Connecticut. LIHEAP covers a fraction of the Home Energy Affordability Gap for a fraction of income-eligible households.

The appendices attached to this report present Connecticut's 2012 Home Energy Affordability Gap from three perspectives:

- Appendix A presents the Home Energy Affordability Gap for each state legislative district (House) in Connecticut;
- Appendix B presents the Home Energy Affordability Gap for each state legislative district (Senate) in Connecticut; and

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<sup>6</sup> By design, LIHEAP is not intended to meet the full home energy affordability needs of low-income households. By statute, LIHEAP is limited to paying for home heating and cooling bills. It is, in other words, not intended to cover electric bill unrelated to heating and cooling.

- Appendix C presents the Home Energy Affordability Gap for each Congressional district in Connecticut.

In contrast to these detailed statistics, the narrative discussion below highlights different aspects of the Home Energy Affordability Gap. The detailed statistics for each legislative district, however, can be obtained from the relevant appendices.

### Six Important Findings

1. The Home Energy Affordability Gap in Connecticut is substantial on an aggregate basis. In 2012, the aggregate Home Energy Affordability Gap for households with income at or below 200% of the Federal Poverty Level was \$661,629,908.
2. The Home Energy Affordability Gap on an individual household basis is crushing in Connecticut. On average, actual home energy bills exceeded affordable home energy bills for households with income at or below 200% of Federal Poverty Level by \$2,304.
3. The low-income population in Connecticut facing these unaffordable bills is substantial. In 2011, nearly 290,000 Connecticut households lived with income at or below 200% of the Federal Poverty Level.
4. The primary source of energy affordability assistance, the federal Low-Income Home Energy Assistance Program (LIHEAP), is grossly insufficient to fill the state's Home Energy Affordability Gap. In FY2012, Connecticut received a base LIHEAP allocation of \$79.5 million. This LIHEAP allocation was a decrease from the allocation of \$98.3 million in the prior year.
5. Connecticut's LIHEAP allocation was sufficient to pay roughly 12% of the state's Home Energy Affordability Gap. This 12% coverage is not of total home energy bills, but rather of the unaffordable portion of low-income home energy bills.
6. By design, LIHEAP is not intended to cover total low-income home energy bills. By statute, LIHEAP is directed toward helping to pay only home heating and/or cooling bills. Electric bills not associated with heating or cooling are not the target of LIHEAP benefits.

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## Part 2: Home Energy Affordability by Income

Having reviewed the overall impact of home energy affordability in Connecticut, this Part begins a more disaggregated review of the affordability of home energy. The pages that follow consider home energy affordability as disaggregated by different perspectives relative to income. In turn, income is defined by the ratio of household income to the Federal Poverty Level, to a maximum of 200% of Poverty Level. The ratio of income to Federal Poverty Level is disaggregated into six separate ranges. Home energy affordability is examined both from the perspective of the aggregate and the per-household Affordability Gap, as well as by a specific consideration of home energy burdens by Poverty Level.

### Affordability Gap by Poverty Level

Clearly, the largest Home Energy Affordability Gap in Connecticut falls in the lowest income range in average per-household terms. As shown by Table 1 below, at each step-increase in household income as a percentage of Poverty Level (i.e., from 0-49% to 50-99%, from 50-99% to 100-124%, etc.), the per-household Affordability Gap *decreases*. While the per-household gap at the lowest range of Poverty is more than \$3,000, the per-household gap at the next step-

increase is less than \$2,700. While the per-household Affordability Gap at 100-124% of Poverty is roughly \$2,300, the per-household Gap at the next step-increase (125-149%) is \$2,043.<sup>7</sup>

Poverty Level	Number of Households	Average per HH Burden (% of income)	Average Per-HH Affordability Gap (\$s)	Aggregate Gap (\$s)
0 – 49%	56,006	50.1%	\$3,031	\$169,764,991
50 – 99%	68,563	26.7%	\$2,672	\$183,178,862
100 – 124%	37,381	17.8%	\$2,291	\$85,646,488
125 – 149%	39,370	14.6%	\$2,043	\$80,426,955
150 – 184%	59,846	12.0%	\$1,735	\$103,850,673
185 – 199%	25,981	10.5%	\$1,492	\$38,761,938
Total	287,147	---	--	\$661,629,908

Just because the *average* per-household Affordability Gap is greater at the lowest Poverty ranges, the *aggregate* Affordability Gap does not necessarily follow that same pattern. Because some income ranges at higher Poverty Levels have a greater number of households in them, the aggregate Affordability Gap at those higher Poverty ranges are roughly comparable, even while the average Affordability Gap may be lower. For example, while the aggregate statewide Affordability Gap for households with income less than 50% of Poverty Level in 2012 was \$170 million (per-household Gap of \$3,031), the combined Affordability Gap for households with income between 100% and 150% of Poverty Level<sup>8</sup> was \$166 million (per household Gap of \$2,164). The reason is that while there were 56,006 households with income below 50% of Poverty, there were 76,751 households with income between 100% and 150% of Poverty. Accordingly, while the average Gap in the lower range was higher, the aggregate Gap in the two ranges is substantially the same.

Only in the highest income ranges<sup>9</sup> are the per-household Affordability Gaps sufficiently low to result in lower aggregate Gaps as well. The population of 86,000 households with income

<sup>7</sup> In reviewing these results, however, it is important to remember that Poverty Level involves income taking into account household size. A 2-person household with income at 30% of Poverty Level has a lower dollar income than a 3-person household with income at 30% of Poverty Level. Since mean household size differs by county, the dollar level of income will differ as well, even given identical levels of Poverty. A county with a mean household size of 2.62 persons per household, in other words, will exhibit different income characteristics, and thus different home energy burdens with a corresponding Affordability Gap, than a county with a mean household size of 2.12 persons per household all other things equal.

<sup>8</sup> Be careful to note that not all Poverty Ranges presented in Table 1 are of the same size. There are some ranges presented in 50% increments (e.g., 50-99%), while some ranges are presented in smaller (e.g., 185-199%) increments.

<sup>9</sup> All households are “low-income.” Some households are “higher income” only relative to others studied.



between 150% and 200% of Poverty yields an aggregate Affordability Gap of \$143 million, while the population of roughly 56,000 households with income less than 50% of Poverty yields a Gap of \$170 million. The 69,000 households living between 50% and 100% of Poverty generate an Affordability Gap of \$183 million, compared to the \$143 million Gap generated by the larger population (86,000 households) living between 150% and 200% of Poverty.

The cautionary tale to understand from this data is not to assume that a higher per-household Affordability Gap in a lower Poverty range will yield a higher aggregate Affordability Gap in that Poverty range. In assessing the aggregate Affordability Gap, it is important to take into account the average per-household Gap in each Poverty range and the number of households in each Poverty range.

### **Affordability at the Lowest Income Levels**

On a statewide basis, households with income at or below 50% of the Federal Poverty Level experience energy burdens of over 50% of income. The average burden in dollar terms is more than \$3,000 per household. The number of households experiencing such burdens is not insubstantial. Statewide, more than 56,000 low-income households have income at or below 50% of the Federal Poverty Level.

Table 1 discussed above shows that while the burden drops quickly as incomes rise, the home energy burden as a percentage of income remains above affordable levels statewide through income levels reaching well above Poverty Level. Even households with income between 185% and 200% of Poverty Level, on average, experience energy burdens of more than 10% statewide in Connecticut.<sup>10</sup>

As always, however, care should be taken whenever considering “average” figures. Experience in individual legislative districts can vary widely from the average. For households with income between 100% and 124% of Poverty Level, for example, the per household Affordability Gap in Connecticut in 2012 ranges widely, with the lowest Gap (\$2,105) being only two-thirds of the highest Affordability Gap (\$3,028). Table 2 shows that for households with income between 125% and 150% of Poverty Level, the Affordability Gap was between \$1,700 and \$2,000 in 72 legislative House Districts and above \$2,500 in 16 House Districts.

Table 2 distributes the number of state legislative House Districts by the average per-household Affordability Gap and further disaggregates the Affordability Gap into various ranges by Poverty Level. These ranges demonstrate the differences in the spread of unaffordability throughout the State of Connecticut. For households with income less than 50% of Poverty, the Affordability

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<sup>10</sup> This is not to say that *all* households with income at this Poverty range have unaffordable energy burdens. It simply notes that, *on average*, households with income between 185% and 200% of Poverty in Connecticut in 2012 had bills that exceeded 10% of income.

Gap levels is above \$2,500 in every legislative House District, with 16 House Districts having a Gap more than \$3,500. For households with income between 50% to 99% of Poverty, 35 House Districts had an average Affordability Gap of between \$2,000 and \$2,500, 130 House Districts had an average Gap in that range for households between 120% and 125% of Poverty.

**Table 2. 2011 Affordability Gap by State Legislative House Districts (By Poverty Level)**

Average Gap	0 – 50% FPL		50 – 99% FPL		100 – 124% FPL		125 – 149% FPL		150 – 184% FPL		185 – 200% FPL	
	# of House Dist's	Avg Gap in Dollars /a/	# of House Dist's	Avg Gap in Dollars /a/	# of House Dist's	Avg Gap in Dollars /a/	# of House Dist's	Avg Gap in Dollars /a/	# of House Dist's	Avg Gap in Dollars /a/	# of House Dist's	Avg Gap in Dollars /a/
At or below \$1,500	0	---	0	---	0	---	0	---	0	---	110	\$1,369
\$1,501-\$1,700	0	---	0	---	0	---	0	---	72	\$1,580	20	\$1,642
\$1,701-\$2,000	0	---	0	---	0	---	72	\$1,886	60	\$1,788	12	\$1,899
\$2,001-\$2,500	0	---	35	\$2,488	130	\$2,238	63	\$2,116	19	\$2,283	9	\$2,129
\$2,501-\$3,000	72	\$2,886	98	\$2,685	16	\$2,754	16	\$2,667	0	---	0	---
\$3,001-\$3,500	63	\$3,133	18	\$3,247	5	\$3,023	0	---	0	---	0	---
\$3,501+	16	\$3,629	0	---	0	---	0	---	0	---	0	---

NOTES:

/a/ Average Gap reported here is not weighted by population. Each legislative house district is given equal weight.

In sum, for households at the lowest income ranges, it is misleading to consider only what the statewide average Affordability Gap might be. The average Affordability Gap in individual state legislative House Districts, depending on fuel penetration, household size, housing unit size and type, climate factors and the like, can be quite different from the average.

## **Affordability at the Highest Income Levels**

Home energy unaffordability was evident at Connecticut's higher income ranges as well. In 2012, the Affordability Gap reaches into somewhat higher income ranges. In the 185% - 200% Poverty Range, for example, no state legislative House District had an Affordability Gap of \$0.

It would be a mistake, however, to view each of those legislative House Districts with a positive aggregate 2012 Affordability Gap equally. Of the 151 House Districts:

- Four (4) had an average per-household Affordability Gap of more than \$2,200;
- Five (5) more had a Gap of more than \$2,000 but less than \$2,200;
- Eight (8) more had a Gap of \$1,900 but less than \$2,000.

In contrast, 35 House Districts had a per-household Affordability Gap of less than \$1,300 in the population of with income at 185% to 200% of Poverty.

As discussed above for the lowest income ranges, however, care should be taken whenever considering "average" figures. Experience in individual legislative districts can vary widely from the average. For households with income between 185% and 200% of Poverty Level, for example, the per household Affordability Gap in Connecticut in 2012 ranges widely, with the lowest Gap (\$1,287) being less than 60% of the highest Gap (\$2,203) at that income level. For households with income between 150% and 185% of Poverty level, the lowest Affordability Gap (\$1,543) was only 63% as high as the highest Gap for households in that Poverty Level (\$2,461).

While the number of legislative House Districts with higher per-household Affordability Gaps is not insubstantial in the higher Poverty ranges, these House Districts do not necessarily represent the bulk of Connecticut's population. For all Poverty Level ranges at or below 125% of Poverty, 72 of the 151 House Districts had an average Affordability Gap less than the statewide average for each respective Poverty range. In contrast, for all Poverty Level ranges above 125% of Poverty, 110 House Districts had an average Affordability Gap less than the statewide average for the respective Poverty Range. In those higher Poverty Level ranges, in other words, a few legislative House Districts with substantially higher average Affordability Gaps brought the total statewide average higher. For households with incomes above 125% of Poverty, there is greater variability from top to bottom across the state than there is for households with income below 125% of Poverty.

**Table 3. 2011 Average Per-Household Gap and Aggregate Gap by Selected FPL Ranges**

Ratio of Income to Federal Poverty Level	Per Household Gap	Number of House Districts with Aggregate Affordability Gap that is: /b/			Aggregate Affordability Gap
		Less than \$500,000	\$500 - \$750,000	\$750,000 or more /c/	
100% - 125%	\$2,291	52	95	4	\$85,646,488
125% - 150%	\$2,043	64	83	4	\$80,426,955
150% - 185% /a/	\$1,735	0	128	23	\$103,850,673
185% - 200% /a/	\$1,492	147	4	0	\$38,761,938

**NOTE:**

/a/ Note that the Poverty Level ranges are not of equal size. The “highest” two ranges are not presented in increments of 25% as the lowest two ranges are.

/b/ The numbers in these columns are additive. The “less than \$0.5 mm” column is not a subset of the “less than \$2.0 mm” column.

/c/ No legislative House District has an individual aggregate Affordability Gap greater than \$1.0 million.

Table 3 shows that the Affordability Gap in the highest income ranges poses a danger in assuming that the average Affordability Gap is closely associated with the aggregate Gap in Connecticut. For households with income between 150% and 185% of Poverty, for example, while the average Gap is \$1,735 per household, the aggregate Gap is the highest of *any* of the stated income ranges (\$103.9 million). The reason is the large number of households who live with income between 15% and 185% of Poverty.

In that Poverty range, no House District has an aggregate Affordability Gap of less than \$0.50 million, even though the average Gap is the second lowest of any income range in the State. The distribution of House Districts by the size of the aggregate Affordability Gap shows that the per-household Gap can easily mislead relative to the aggregate.

**Measuring Energy Burdens rather than Dollar Gaps**

The relative affordability of home energy can also be measured by the home energy burdens imposed on Connecticut households. As discussed above, a home energy “burden” is the annual home energy bill divided by the household’s annual income. A household with a home energy

bill of \$2,500 and an annual income of \$10,000, in other words, has a home energy burden of 25%. Home energy burdens that exceed 6% of income are considered to be unaffordable.

Table 4 below presents summary data on the home energy burdens experienced by Connecticut residents at differing ranges of the Federal Poverty Level. For Connecticut households in “deep poverty,” which is the term commonly attached to households with income of 50% of Poverty Level or below, home energy bills alone exceed the 30% burden considered to be “affordable” for *total shelter costs*. Indeed, in no (0) Connecticut legislative House District did home energy burdens for households with income at or below 50% of Poverty reach as low as 47% of income or lower. In contrast, 27 House Districts faced home energy burdens of more than 54% of income, up to and including five (5) with an average energy burden exceeding 60% of income at this Poverty range.

Less than 50% FPL		100 – 125% FPL		150 – 185% FPL		185 – 200% FPL	
Burden Range	Number of Districts	Burden Range	Number of Districts	Burden Range	Number of Districts	Burden Range	Number of Districts
50% or less	110	<17%	0	<11%	0	<9%	0
>50% - 54%	14	17% - 20%	134	11% – 13%	131	9% - 10%	35
>54% - 60%	22	20% - 22%	17	>13% - 15%	20	>10% - 12%	101
>60%	5	>22%	0	>15%	0	>12%	15

Table 4 demonstrates how home energy burdens rapidly improve as incomes modestly increase, but nonetheless stay at substantially unaffordable levels. While households with income between 100% and 125% of Poverty do not have home energy burdens exceeding 60% of their income, or even exceeding 25% of their income, the average home energy burden exceeded 20% of income in 17 of Connecticut’s House Districts, while it fell between 17% and 20% in 134 of Connecticut’s 151 House Districts, nearly three times higher than the level considered to be “affordable.”

Even at 185% to 200% of Poverty Level, no legislative House District had an average energy burden that fell below 9% of income, let alone below the affordable home energy burden of 6%. Indeed, note that 15 House Districts at 185% to 200% of Poverty Level had average county-wide

energy burdens of more than 12%, more than twice the affordable level, while an additional 101 House Districts had average home energy burdens of between 10% and 12%. No county, however, had a burden exceeding 15% of income at that Poverty Level range.

### Six Important Findings

1. The largest Home Energy Affordability Gap falls in the lowest ranges of Poverty in average per-household terms. At each step-increase in household income as a percentage of Poverty Level (i.e., from 0-49% to 50-99%, from 50-99% to 100-124%, etc.), the per-household Affordability Gap *decreases*.
2. Just because the *average* per-household Affordability Gap is greater at the lowest Poverty ranges, the *aggregate* Affordability Gap does not necessarily follow that same pattern. Because some income ranges at higher Poverty Levels have a greater number of households in them, the aggregate Affordability Gap at those higher Poverty ranges is greater even while the average Affordability Gap may be lower.
3. While the home energy burdens drop quickly as incomes rise, the home energy burden as a percentage of income remains above affordable levels statewide through income levels reaching well above Poverty Level. Even households with income between 185% and 200% of Poverty Level, on average, experience energy burdens of more than 6% statewide in Connecticut.
4. Care should be taken whenever considering “average” figures. The aggregate Affordability Gap in individual legislative Districts can vary widely from the average.
5. While the number of counties with the highest per-household Affordability Gaps is not insubstantial, these counties do not necessarily represent the bulk of Connecticut’s population.
6. For Connecticut households in “deep poverty,” which is the term commonly attached to households with income of 50% of Poverty Level or below, home energy bills alone exceed the 30% burden considered to be “affordable” for *total shelter costs*.

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## Part 3: Home Energy Affordability by Geography

Home energy affordability in Connecticut can be examined geographically as well as by income. The Affordability Gap is substantial and it is statewide. It reaches into every region of the state, including both urban and rural areas. Connecticut regions with the lowest aggregate Affordability Gap nonetheless still have a Gap in the millions of dollars each year.

### Data at the Regional Level

Connecticut's Home Energy Affordability Gap is a statewide phenomenon. Connecticut's Congressional Districts are used to define the state's regions. Connecticut has five Congressional Districts.

### Aggregate and Per-Household Gap by Region

The Affordability Gap differs somewhat by geographic region within the State of Connecticut. The aggregate Home Energy Affordability Gap will differ by factors that include the heating degree days (HDDs) and cooling degree days (CDDs); the number of low-income households and the poverty level at which those households live; the type and size of housing unit; the mix of heating fuels (e.g., natural gas, electricity, fuel oil); and other similar factors.

While the Home Energy Affordability Gap varies somewhat based on geography within the state of Connecticut, there can be no question but that the Affordability Gap is a statewide

phenomenon. This fact can be seen by comparing the aggregate Affordability Gap in each Congressional District in Connecticut. The 2012 statewide Affordability Gap of \$662 million is split nearly evenly over each of Connecticut's Congressional districts. While the distribution of the Affordability Gap is not identical over Connecticut's Congressional districts, the variation is relatively small. Congressional District 4 contributes the least to the statewide total (17%), while The First, Second and Third District are all at the upper end (21% each). Congressional District #4, with the *smallest* Affordability Gap in Connecticut, nonetheless faces a Gap of nearly \$113 million.

Table 5 below shows the aggregate and average affordability Gap by region for the total population below 200% of Federal Poverty Level along with selected ranges of Poverty Level.

As is evident, and as was discussed previously, care must be taken in using the statewide average Home Energy Affordability Gap as illustrative of the affordability (or lack thereof) in any particular region of Connecticut on a per-household basis. Not only does the per-household Affordability Gap in most Congressional Districts differ from the statewide average, sometimes substantially, but the extent to which regional data varies from the statewide average depends on the specific region being considered. The statewide average Affordability Gap for Connecticut for the total population below 200% of Poverty Level was \$2,304 in 2012. On the "high" end, Congressional District 2 exceeds the statewide average by 12%, with an average Affordability Gap of \$2,569. The deviation on the "low" end is not quite as substantial. The largest deviation can be found in Congressional District 1 (\$2,172, or \$132 lower) (6% lower than the statewide average).

By count, two Congressional Districts have a total per-household Affordability Gap lower than the statewide average of \$2,304 (District 1, \$2,172; District 3: \$2,224), while two more Congressional Districts have an Affordability Gap nearly identical to the statewide average (District 4: \$2,304; District 5: \$2,291). As can be seen, the degree to which an individual Congressional District varies from the statewide average on a per-household basis does not necessarily reflect the extent to which the District contributes to the statewide aggregate Gap.



**Table 5. Aggregate and Average Home Energy Affordability Gap by Congressional District and Poverty Level Ranges (Connecticut) (2012)**

District	Total		< 50% FPL		50% - 99% FPL		100% - 125%		125% - 150% FPL		150% - 185% FPL		185% - 200% FPL	
	Sum (\$mm)	Average	Sum (\$mm)	Average	Sum (\$mm)	Average	Sum (\$mm)	Average	Sum (\$mm)	Average	Sum (\$mm)	Average	Sum (\$mm)	Average
1	\$137.4	\$2,172	\$37.0	\$2,896	\$39.7	\$2,539	\$18.0	\$2,156	\$15.4	\$1,901	\$20.2	\$1,595	\$7.1	\$1,340
2	\$138.4	\$2,569	\$32.4	\$3,343	\$36.1	\$2,990	\$18.4	\$2,608	\$17.6	\$2,353	\$24.4	\$2,047	\$9.4	\$1,792
3	\$141.5	\$2,224	\$38.5	\$2,954	\$39.2	\$2,594	\$18.0	\$2,208	\$17.5	\$1,951	\$20.7	\$1,642	\$7.6	\$1,385
4	\$112.7	\$2,301	\$28.1	\$3,077	\$31.5	\$2,705	\$14.5	\$2,306	\$13.8	\$2,040	\$18.0	\$1,721	\$6.7	\$1,455
5	\$131.7	\$2,291	\$33.8	\$3,066	\$36.6	\$2,705	\$16.8	\$2,318	\$16.1	\$2,060	\$20.5	\$1,750	\$8.0	\$1,492
Total / Avg	\$661.6	\$2,304	\$169.8	\$3,031	\$183.2	\$2,672	\$85.6	\$2,291	\$80.4	\$2,043	\$103.9	\$1,735	\$38.8	\$1,492

## Regional Contributions to State Totals

As incomes increase, the disparities in the aggregate Affordability Gap (per Poverty Range) smooth out somewhat. Table 6 shows the aggregate affordability Gap by region and selected Poverty Level along with the percentage contribution each region makes to the state total.

Several observations arise from this Table. Congressional District 4 consistently makes the lowest contribution to the total statewide Affordability Gap. In each of the Federal Poverty ranges presented, District 4 has the lowest percentage contribution to the state total. In contrast, while Congressional District 3 makes the greatest contribution to the statewide Affordability Gap for households with income less than 50% of Federal Poverty Level (22.7% of the statewide total), it falls to the third highest contribution (19.6%) by the time incomes reach 185% to 200% of Poverty, with District 2 making the largest contribution (24.2%) and District 5 making the second-highest contribution (20.5%) in that income range.

Congressional District 1 makes a steadily decreasing contribution to the statewide totals as incomes increase. Starting with a contribution of 21.8% of the statewide Gap for households with income below 50% of Poverty, the District 1 contribution falls to 21.0% for households between 100% and 125%, to 19.2% for households with income between 125% and 150%, and to 18.3% for households with income between 185% and 200% of Poverty. In contrast, District 2 has a steadily increasing contribution to the statewide total. Starting with a contribution of 19.1% of the statewide Gap for households with income below 50% of Poverty, the District 2 contribution increases to 21.5% for households at between 100% and 125% of Poverty, to 21.9% for households with income between 125% and 150% of Poverty, and to 24.2% for households with income between 185% and 200% of Poverty.

Congressional District 5 has a stable contribution toward the statewide total Affordability Gap. Its smallest contribution to the statewide total (100% - 125% of Poverty: 19.6%) does not substantially differ from its largest contribution (185% - 200% of Poverty: 20.5%). District 4, also, makes a reasonably consistent contribution to the statewide total at each Poverty level.

**Table 6. Aggregate Home Energy Affordability Gap by Congressional District and Contribution to State Total (Connecticut) (2012)**

District	Total		< 50% FPL		100% - 125% FPL		125% - 150% FPL		185% - 200% FPL	
	Sum (\$mm)	Statewide Contribution	Sum (\$mm)	Statewide Contribution	Sum (\$mm)	Statewide Contribution	Sum (\$mm)	Statewide Contribution	Sum (\$mm)	Statewide Contribution
1	\$137.4	20.8%	\$37.0	21.8%	\$18.0	21.0%	\$15.4	19.2%	\$7.1	18.3%
2	\$138.4	20.9%	\$32.4	19.1%	\$18.4	21.5%	\$17.6	21.9%	\$9.4	24.2%
3	\$141.5	21.4%	\$38.5	22.7%	\$18.0	21.0%	\$17.5	21.8%	\$7.6	19.6%
4	\$112.7	17.0%	\$28.1	16.6%	\$14.5	16.9%	\$13.8	17.2%	\$6.7	17.4%
5	\$131.7	19.9%	\$33.8	19.9%	\$16.8	19.6%	\$16.1	20.0%	\$8.0	20.5%
Total	\$661.6	100%	\$169.8	100%	\$85.6	100%	\$80.4	100%	\$38.8	100%

## Contributions to Regional Totals by Income Range

Table 7 presents, within each Congressional District, how much each Poverty Level range contributes to the aggregate Affordability Gap within that District. Households are grouped together into five ranges below 200% of Poverty for purposes of this Table.

Statewide, the three lowest Poverty Level ranges (0-50%, 50-100%, 100-150%), despite their substantively different Affordability Gap levels on a per-household basis, contribute roughly similar amounts to the aggregate home energy affordability gap (26% +/- 3%). This equal contribution occurs in virtually every region. Congressional District 2 exhibits a somewhat lower contribution in the lowest income range (23% at less than 50% of Poverty) and somewhat higher in the higher income range (26% at 100-150% of Poverty), while Congressional District 1 exhibits the opposite pattern, i.e., somewhat higher in the lowest income range –27% at less than 50% of Poverty—and somewhat lower in the higher income range (24% at 100 – 150% of Poverty).

In all Congressional Districts except District 2, the aggregate Affordability Gap drops significantly at between 150% and 200% of Poverty. The proportionate contribution of the highest income range to the aggregate Affordability Gap cluster around 20 – 22% in Congressional Districts 1, 3, 4 and 5.

**Table 7. Contribution to Congressional District Aggregate Affordability Gap by FPL Ranges (2012)**

District	Aggregate Gap (\$mm) (100%)	Less than 50% FPL	50 – 100% FPL	100 – 150% FPL	150 - 185% FPL	185 – 200% FPL
1	\$137.4	27%	29%	24%	15%	5%
2	\$138.4	23%	26%	26%	18%	7%
3	\$141.5	27%	28%	25%	15%	5%
4	\$112.7	25%	28%	25%	16%	6%
5	\$131.7	26%	28%	25%	16%	6%
Statewide	\$661.6	26%	28%	25%	16%	6%

Connecticut is noteworthy in that each Poverty Level range contributes roughly equal proportions to the Affordability Gap in each Congressional District. Simply because the per-household Gap is highest in the lowest income ranges does not mean that the need for energy affordability assistance is the primary province of households with the lowest incomes.

What can be concluded from Table 7 is that care must be taken in making assumptions about the impact of differing affordability strategies in different regions of the state of Connecticut. Directing assistance toward the lowest income households in order to reach the greatest need would miss a considerable portion of the total aggregate Affordability Gap in each Congressional District. In contrast, expanding income eligibility to the higher ranges of income would be effective in meeting a significant proportion of the aggregate Affordability Gap.

### Six Important Findings

1. While the Home Energy Affordability Gap varies somewhat based on geography within the state of Connecticut, there can be no question but that the Affordability Gap is a statewide phenomenon. The 2012 statewide Affordability Gap of \$662 million is split nearly evenly over each of Connecticut's Congressional districts. While the distribution of the Affordability Gap is not identical over Connecticut's Congressional districts, the variation is relatively small.
2. Care must be taken in using the statewide average Home Energy Affordability Gap as illustrative of the affordability (or lack thereof) in any particular region of Connecticut on a per-household basis. The per-household Affordability Gap in most Congressional Districts differs from the statewide average, sometimes substantially.
3. Congressional District 4 consistently makes the lowest contribution to the total statewide Affordability Gap. In each of the Federal Poverty ranges presented, District 4 has the lowest percentage contribution to the state total. In contrast, while Congressional District 3 makes the greatest contribution to the statewide Affordability Gap for households with income less than 50% of Federal Poverty Level, it falls to the third highest contribution by the time incomes reach 185% to 200% of Poverty, with District 2 making the largest contribution.
4. Statewide, the three lowest Poverty Level ranges (0-50%, 50-100%, 100-150%), despite their substantively different Affordability Gap levels on a per-household basis, contribute roughly similar amounts to the aggregate home energy affordability gap. This equal contribution occurs in virtually every region.
5. In all Congressional Districts except District 2, the aggregate Affordability Gap drops significantly at between 150% and 200% of Poverty. The proportionate contribution of the highest income range to the aggregate Affordability Gap cluster around 20 – 22% in Congressional Districts 1, 3, 4 and 5.
6. Care must be taken in making assumptions about the impact of differing affordability strategies in different regions of the state of Connecticut. Directing assistance toward the

lowest income households in order to reach the greatest need would miss a considerable portion of the total aggregate Affordability Gap in each Congressional District. In contrast, expanding income eligibility to the higher ranges of income would be effective in meeting a significant proportion of the aggregate Affordability Gap.

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## Part 4: Patterns of Incomes in Connecticut over Time

In the discussion in the section immediately above, we saw how changes in the mix of income over the total population can have an impact on the total Home Energy Affordability Gap in Connecticut. To the extent that the numbers of households with the lowest income levels increase, both in absolute and proportionate terms, there will result a disproportionately higher increase in the overall Home Energy Affordability Gap. Given that realization, in this section, we will take a closer look at the dynamics of income in Connecticut since 2009 to determine whether trends and patterns can be identified.<sup>11</sup>

### Median Income

This section considers the median income of Connecticut residents by various factors commonly believed to be related to low-income status. Low-income households, for example, tend more frequently to be renters rather than homeowners. Frequently, household income is related to household size, with larger households having somewhat higher household income. Age is also frequently related to income, with income increasing throughout a person's working years and declining after retirement. The discussion that follows examines the median income for each of these factors. Median income represents the "middle." It is that point at which half of all households have income higher and half of all households have income lower.

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<sup>11</sup> Frequently, it is the *pattern* of income changes that is as important as the actual level of income in any given individual year.

## Median Income by Tenure

Connecticut data confirms the commonly held view that tenants have significantly lower income than do homeowners. In Connecticut, median tenant income remains half of the annual income of homeowners. In 2011, while tenant income was \$33,775, homeowner income was \$85,610.<sup>12</sup>

	2009	2010	2011	Change: 2009 – 2011
Total households	\$67,034	\$64,032	\$65,753	-1.9%
Owner-occupied	\$85,993	\$83,376	\$85,610	-0.4%
Tenant-occupied	\$34,459	\$33,556	\$33,755	-2.0%

SOURCE: American Community Survey, 1-year data, Table B25119.

Both homeowners and tenants saw a decrease in their real (inflation-adjusted) income from 2009 to 2011. Both groups experienced a decrease in median income in 2010 relative to 2009, with homeowner incomes decreasing somewhat more than tenant incomes (homeowner decrease: 3.0%; tenant decrease: 2.6%). In contrast, both groups saw somewhat of a recovery in 2011, though not a recovery sufficient to bring incomes back to 2009 levels. In 2011, tenant decreases in income (2.0%) remained slightly greater than homeowner decreases (0.4%).

## Median Income by Household Size

Smaller households have noticeably lower incomes than do households with larger numbers of members in Connecticut. Median household income is lowest for 1-person households (\$32,951), with progressive increases as households gain members, up to \$72,986 for 2-person households; \$85,296 for 3-person households; and \$100,518 for 4-person households.

The relationship of household size and income is likely to result from a number of different, yet related, factors. One of the primary driving factors lies with the fact that smaller households are also associated with age. Households with aging household members tend to be smaller, being primarily one- and two-person units. These households tend to have lower annual incomes. So, too, however, do younger households tend to be disproportionately one- and two-person units.

The lower incomes associated with smaller households, therefore, may well reflect the age of the householder as much as reflecting an inherent earning disparity for households with fewer

<sup>12</sup> In this one section, when dollar figures are presented, the 1-year ACS data is used. The 3-year averages tended to mask year-to-year changes.



members. It is possible to see, for example, that the income disparity based on household size largely disappears for households with four members or more.

<b>Table 9. Median Income by Household Size, 2009, 2010, 2011 (Connecticut)</b>				
	2009	2010	2011	Change: 2009 - 2011
All households	\$67,034	\$64,032	\$65,753	-1.9%
1-person	\$32,308	\$31,828	\$32,951	2.0%
2-person	\$73,025	\$71,916	\$72,986	-0.1%
3-person	\$84,090	\$82,373	\$85,296	1.4%
4-person	\$100,373	\$98,122	\$100,518	0.1%
5-person	\$100,779	\$93,913	\$97,676	-3.1%
6-person	\$100,246	\$90,677	\$100,673	0.4%
7+-persons	\$107,050	\$101,368	\$91,496	-14.5%

SOURCE: American Community Survey, 1-year data, Table B19019.

Aside from age, by definition, households with a larger number of members are more likely also to have a greater number of worker incomes. By definition, in other words, a one-person household will not have two workers contributing to overall household income. In Connecticut in 2011, 37% of all one-worker households represented one-person households; 57% of all two-worker households represented three- and four-person households.<sup>13</sup>

Overall, smaller households experienced a lesser decline in real incomes than did larger households over the three year period 2009 through 2011. Median income for a one-person Connecticut household increased by two percent (2%) from 2009 to 2011, with two-person declines falling at just one-tenth of one percent. In contrast, the incomes of 5-person households fell by 3.1% during the same time period, while the income of 7-person households fell by 14.5% in that three-year time period. For nearly all household sizes, however, median income experienced a decline from 2009 to 2011.

## **Median Income by Age**

As referenced above, median income is related to age in Connecticut. On the one hand, householders age 25 years or younger have a median income less than half that of the statewide

<sup>13</sup> American Community Survey (1-year data), at Table B08202.

median (\$27,425 vs. \$65,753). On the other hand, householders age 65 years or older have a median income somewhat less than 65% of the statewide median (\$41,843 vs. \$65,753).

Younger households experienced a greater decline in incomes in the three-year period 2009 through 2011 than did older householders. The three-year median income decline of 11.9% for householders aged 25 or younger was nearly three times greater than that for householders age 25 to 44 and nearly six times greater than that for householders age 45 to 64. Indeed, the 12% income decline for those age 25 or younger can be compared to a nearly 6% *increase* in income during the same time period for those 65 and older.

Age of Householder	2009	2010	2011	Change: 2009 - 2011
Total households:	\$67,034	\$64,032	\$65,753	-1.9%
Under 25 years	\$31,127	\$30,400	\$27,425	-11.9%
25 to 44 years	\$71,964	\$68,650	\$68,875	-4.3%
45 to 64 years	\$83,823	\$81,004	\$82,223	-1.9%
65 years and over	\$39,582	\$39,235	\$41,843	5.7%

SOURCE: American Community Survey, 1-year data, Table B19049.

Only householders age 25 and younger experienced a continuous decline in median income from 2009 through 2011. For these younger householders, median income was less in 2010 than it was in 2009; median income was even less in 2011 than it was in 2010. In no other age group in Connecticut did median incomes decline for all three years consecutively. In contrast, while aging householders (65 years or older) experienced a slight decline in median income from 2009 to 2010 (from \$39,582 to \$39,235), they saw an improvement in real incomes from 2010 to 2011, resulting in an overall 3-year improvement. In contrast, younger working age households (25 - 44) saw a decline in median incomes from 2009 to 2010. While 2011 incomes improved, the improvement was not sufficient to offset 2010 declines.

### **Median Income by Work Experience**

Median income did not decline for full-time year-round workers in Connecticut from 2009 to 2011. Real median income for full-time, year-round male workers increased by more than \$650 (\$61,162 to \$61,831) from 2009 to 2011, while median income for full-time, year-round female workers increased from \$24,410 to \$25,017.

So long as workers were able to maintain their full-time, year-round jobs during the economic downturn in Connecticut, in other words, their incomes, though not increasing substantially beyond inflation, nonetheless did not show substantial declines. Full-time, year-round male workers saw a decrease in real median income of nearly \$800 from 2009 to 2010, which was recouped in 2011. In contrast, full-time, year-round female workers experienced an increase in real median income of \$1,564 from 2009 to 2010, that was followed by a further increase in the following year of nearly \$2,700 (\$2,696).

<b>Table 11. Median Income by Sex by Work Experience, 2009, 2010, 2011 (Connecticut)</b>			
Work Status in past 12-Months	2009	2010	2011
Total (dollars):	\$31,279	\$31,025	\$31,458
Male --			
Total (dollars)	\$40,860	\$40,070	\$40,279
Full-time, year-round	\$61,162	\$61,257	\$61,831
Other	\$18,274	\$18,767	\$18,197
Female –			
Total	\$24,410	\$24,742	\$25,017
Full-time, year-round	\$45,642	\$47,206	\$49,902
Other	\$13,632	\$14,148	\$14,228
SOURCE: American Community Survey, 1-year data, Table B19326.			

This result for full-time, year-round workers should not detract from the overall year-to-year decrease in real median income for Connecticut workers as a whole. The median income for Connecticut workers as a whole decreased from \$31,279 in 2009 to \$31,025 in 2010, before recovering somewhat in 2011 (\$31,458). Overall, the median income for Connecticut workers as a whole was 0.6% higher in 2011 than it was in 2009.

## Mean Income

In contrast to the median incomes examined above, this section considers the *average* (i.e., mean) income for Connecticut residents by various demographic factors.<sup>14</sup> The year 2011 is the most recent year for which data is yet available.

<sup>14</sup> The average (“mean”) differs from the median in that very high, or very low, incomes can affect the average more substantially.

## Mean Income by Income Quintile

Average income in Connecticut declined in real, inflation-adjusted, terms from 2009 to 2011 at all levels of income but one from 2009 to 2011. Table 12 presents the mean income by income quintile for the three-year period. A “quintile” represents one-fifth of the Connecticut population. Thus, for example, the “lowest” quintile is the one-fifth of households in Connecticut with the lowest incomes. The “highest quintile” is the one-fifth of households in Connecticut with the highest incomes. The “third quintile” is the middle, those households falling between 40% to 60%. Quintiles are based on counts of households, not the level of income.

Incomes declined in Connecticut over all income ranges from 2009 through 2011 except the highest quintile. Income deteriorated disproportionately in the lower income brackets. The mean income for the lowest income quintile declined by 4.6% in the three-year period, while it declined by 4.2% in the next highest income quintile (i.e., the “second” quintile). Only in the highest income quintile did incomes increase in real term (by 0.4%).

The dollar level of income in the lowest income quintile for Connecticut is substantially below the Federal Poverty Level. Poverty Level for a two-person household in 2011 was \$14,710. Poverty Level for a three-person household in 2011 was \$18,530. The average household size in Connecticut in 2011 was 2.56 persons. In contrast, income in the lowest income quintile in 2011 was \$13,851.

Indeed, the bottom two quintiles of income in Connecticut in 2010 were likely at or below 200% of Federal Poverty Level. It is not until households reach the middle (“third quintile”) of income that they are comfortably in excess of 200% of Poverty. Incomes at or below 200% of Poverty Level, however, appear to characterize up to 40% of Connecticut’s overall population.

Quintile Means	2009	2010	2011	Change: 2009 – 2011
Lowest Quintile	\$14,525	\$13,969	\$13,851	-4.6%
Second Quintile	\$39,911	\$37,716	\$38,253	-4.2%
Third Quintile	\$67,332	\$64,256	\$66,114	-1.8%
Fourth Quintile	\$103,911	\$100,813	\$103,747	-0.2%
Highest Quintile	\$238,354	\$233,617	\$239,273	0.4%
Top 5 Percent	\$445,558	\$436,169	\$436,723	-2.0%

SOURCE: American Community Survey, 1-year data, Table B19081.

As discussed in more detail below, incomes can also be compared to “living wage” (or “self-sufficiency”) income calculations. Incomes in Connecticut do not equal or exceed a “living wage” income for households in the two lowest income quintiles in Connecticut.

### Mean Income by Poverty Level

The mean incomes presented in Table 13 indicate that households in Connecticut do not experience a “living wage” (sometimes referred to as a “self-sufficient income”) until they achieve an income well in excess of 200% of Poverty Level. According to a “living wage calculator” prepared by the Massachusetts Institute of Technology (MIT), the “living wage” in Connecticut is:

- \$48,940 for a two-person (one-adult, one child) household;
- \$58,739 for a three-person (one adult, two child) household;
- \$41,747 for a three-person (two adults, one child) household;
- \$44,667 for a four-person (two adults, two child) household.

In contrast to these living wage incomes, the mean annual income of households with income below 200% of Poverty Level in Connecticut is less than \$43,000.

<b>Table 13. Mean Income by Ratio of Income to Poverty Level, 2009, 2010, 2011 (Connecticut)</b>			
Persons	2009	2010	2011
Total	\$102,722	\$111,048	\$106,818
Below 50%	\$13,096	\$25,685	\$15,286
50 – 75%	\$14,510	\$22,514	\$15,977
75 – 100%	\$20,839	\$20,921	\$24,104
100 – 125%	\$25,302	\$27,373	\$25,196
125 - 150%	\$29,867	\$34,070	\$27,690
150 – 175%	\$35,529	\$44,388	\$35,456
175 – 200%	\$40,911	\$42,478	\$42,881
200 – 300%	\$49,291	\$53,348	\$55,326
300 – 400%	\$67,033	\$68,810	\$72,380
400% and above	\$155,255	\$168,452	\$167,501
SOURCE: Current Population Survey, Annual Social and Economic Supplement.			

Indeed, in contrast to these “living wage” calculations by MIT, the mean income for households with income between 200% and 300% of Poverty Level was \$55,326. The mean income for households with income between 175% and 200% of Poverty was only \$42,881.

### Mean Income by Poverty Level and Age

Table 14 layers “age” as an additional factor to consider onto the examination of mean incomes by ratio of income to Federal Poverty Level. Across-the-board, aging households have lower incomes holding Federal Poverty Level constant. In 2011, for example, a household with a head of household age 65 or older living with income between 100% and 125% of Poverty Level would have had an average income of \$11,756, while a household with a head of household between 18 and 64 years of age had an income nearly 125% higher (\$26,295). An aging household living with an average income between 175% and 200% of Poverty had an average income (\$27,627) 75% less than a household with a head of household age 16 to 64 (\$47,952).

Persons	2009			2010			2011		
	Total	18-64	64-85+	Total	18-64	64-85+	Total	18-64	64-85+
Total	\$102,722	\$107,328	\$56,865	\$111,048	\$116,796	\$57,928	\$106,818	\$112,445	\$69,929
Below 50%	\$13,096	\$14,524	\$2,899	\$25,685	\$29,853	\$1,598	\$15,286	\$19,323	\$4,394
50 – 75%	\$14,510	\$16,248	\$7,421	\$22,514	\$28,625	\$7,505	\$15,977	\$16,597	\$7,305
75 – 100%	\$20,839	\$24,643	\$11,687	\$20,921	\$23,709	\$11,674	\$24,101	\$26,153	\$13,154
100 – 125%	\$25,302	\$25,460	\$17,090	\$27,373	\$27,223	\$22,007	\$25,196	\$26,295	\$11,756
125 - 150%	\$29,867	\$30,534	\$17,634	\$34,070	\$38,102	\$18,786	\$27,690	\$30,354	\$18,070
150 – 175%	\$35,529	\$38,293	\$19,244	\$44,388	\$55,452	\$22,431	\$35,456	\$43,367	\$18,575
175 – 200%	\$40,911	\$43,971	\$22,567	\$42,478	\$49,106	\$25,810	\$42,881	\$47,952	\$27,627
200 – 300%	\$49,921	\$52,002	\$33,850	\$53,318	\$55,559	\$35,880	\$55,326	\$55,745	\$37,146
300 – 400%	\$67,033	\$68,700	\$46,584	\$68,810	\$70,156	\$47,321	\$72,380	\$72,814	\$45,451
400% and above	\$155,255	\$152,279	\$104,639	\$168,452	\$165,271	\$104,510	\$167,501	\$166,337	\$127,714

SOURCE: Current Population Survey, Annual Social and Economic Supplement.

One reason for this is that, as discussed above, aging households are likely to live with smaller household sizes. Since Poverty Level is income taking into account household size, a household with fewer members will, by definition, have a lower income holding Poverty Level constant.

Nonetheless, aging households quite clearly have fewer resources to pay home energy bills in Connecticut, particularly at the lowest Poverty Levels. In the income range of “below 50% of Poverty,” aging households have only 50% (or less) of the income that working age households do. The ratio of aging income to working-age income stays below 60% through 150% of Poverty (50 – 75% FPL: 50%; 100 – 125% FPL: 45%; 125 - 150% FPL: 60%; 150 – 175% FPL: 43%). As Poverty Level increases, the income gap between aging households and non-aging households narrows. Between 150% and 200% of Poverty, the ratio of average aging incomes to non-aging incomes narrows to 58%, while above 200% of Poverty, the ratio narrows further to between 60% and 70%. At 400% of Poverty and above, the ratio of aging income to non-aging income is nearly 80%. The difference in income at the lowest Poverty Levels, by age of the householder, in other words, cannot be attributed exclusively to the size of the household.

## Poverty Status

In the discussion above, we examined the dollar levels of income by various factors that might have an influence on the ratio of income to the Federal Poverty Level. In the discussion below, our attention turns away from dollars of income to instead consider Poverty *status*. The term “poverty status” indicates simply whether a household’s income is below the Federal Poverty Level or above the Federal Poverty Level in the year in question.

The measure is of the number of households. For these purposes, in other words, it matters not whether someone is at 20% of Poverty Level or 95% of Poverty Level. In either case, they are “below Poverty.” It matters not whether someone is at 125% of Poverty Level or 425% of Poverty Level. In either case, they are “above Poverty.”

The factors considered below include educational attainment, work experience and the receipt of Food Stamps. In addition to these assessments of Poverty status, the discussion below will also briefly consider the extent to which Connecticut residents are recipients of public assistance income, including Food Stamps.<sup>15</sup>

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<sup>15</sup> The Federal “Food Stamp” program is now formally referred to as the Supplemental Nutrition Assistance Program (SNAP). Because of the general familiarity of persons with the Food Stamp nomenclature, and the continuing use of the “Food Stamp” phraseology by the U.S. Census Bureau, references below are to Food Stamps rather than to SNAP.

## Poverty Status by Educational Attainment

The level of educational attainment in Connecticut has a substantive influence on the Poverty status of Connecticut residents. Table 15 presents data on Poverty status by the level of educational attainment. According to this Table, in 2011, nearly two-thirds of both men and women living with income below Poverty Level have only a high school degree or less. Within the male population, 29% of individuals age 25 or older who are living below Poverty have less than a high school education, while the same percentage of women do (29%). An additional 34% of men in Poverty have only a high school degree, but no further education, while 33% of women do.

	2009	2010	2011
Total:	2,319,926	2,388,444	2,399,147
Below Poverty:	172,254	198,421	208,379
Male:	65,992	80,586	83,170
Less than HS graduate	20,988	24,662	24,484
HS graduate /a/	22,385	30,920	27,890
Some college /b/	13,468	12,534	17,649
Bachelor's degree /c/	9,151	12,470	13,057
Female:	106,262	117,835	125,209
Less than HS graduate	36,177	30,847	36,735
HS graduate /a/	32,918	39,653	41,705
Some college /b/	24,429	30,837	29,900
Bachelor's degree /c/	12,738	16,498	16,869

SOURCE: American Community Survey, 1-year data, Table B17003.

NOTES:  
/a/ Includes High School equivalency.  
/b/ Includes associates degree.  
/c/ Or higher.

The impact of educational attainment has slightly increased in the three year period 2009 through 2011. The Poverty status of men having a high school education or less increased from 10% in 2009 to 12% in 2011, while the Poverty status of women increased from 15% to 17% in that



same three-year time period. Women in Connecticut are somewhat more likely to live in Poverty with a high school education or less than are men.

Along with the three-year increase in the proportions of individuals with a high school diploma or less living in Poverty, the absolute number of individuals falling into Poverty with such a level of educational attainment also shows a gender difference and has grown since 2009. In 2011, 9,001 more men age 25 years or older with a high school diploma or less lived in Poverty in Connecticut. Similarly, in 2011, an additional 9,345 women age 25 or older with a high school education or less lived in Poverty. However, the growth in men living below Poverty occurred relatively evenly between those with a high school diploma and those without (5,505 with diploma vs. 3,496 with less than diploma), while the growth in women living below Poverty occurred almost exclusively among those with a diploma (8,787 with diploma vs. 558 those with less than diploma).

The increase in Poverty status, in absolute terms, amongst both men and women who have “some college” (but not a degree) was relatively constant. From 2009 to 2011, the number of Connecticut men living in Poverty with some college, but not a degree grew by 4,181, while the number of women living in Poverty in the “some college” population grew by 5,471 individuals during the same three year period.

## **Poverty Status by Work Experience**

Obtaining full-time work is frequently viewed as the mechanism through which households, Connecticut or otherwise, can raise themselves out of poverty. This section examines the interrelationship between work status and poverty status. Of Connecticut households living with income below the Federal Poverty Level, Table 16 considers the numbers of households with full-time, year-round work, those with part-time or part-year work, and those that did not work.

Table 16 shows that more women are in Poverty in Connecticut than men. While roughly 113,000 men live with income below the Poverty Level, nearly 160,000 women do. This level of Poverty amongst women is disproportionate to the prevalence of women in Connecticut’s total population. While women comprise 58% of the total Poverty population, they represent only 51% of the overall population in Connecticut.

**Table 16: Individuals by Work Experience in Past 12-Months by Below-Poverty Status, 2009, 2010, 2011 (Connecticut)(persons age 16 and older)**

Work Status & Poverty	2009	2010	2011
Total:	2,705,719	2,760,893	2,773,799
Below poverty level:	233,848	257,240	271,613
Male:	95,889	106,609	113,232
Full time, year-round	5,794	8,376	10,300
Part-time or part-year	35,557	39,655	38,653
Did not work	54,538	58,578	64,279
Female:	137,959	150,631	158,381
Full time, year-round	9,069	8,147	8,189
Part-time or part-year	45,593	49,477	52,295
Did not work	82,297	93,007	97,897

SOURCE: American Community Survey, 1-year data, Table B17004.

A higher proportion of men live in Poverty despite having full-time, year-round work. Nearly one-in-ten men (10,300 of 113,232, 9.1%) of men living in Poverty work on a full-time, full-year basis. In contrast, only 5.2% of women (8,189 of 158,381) living in Poverty have full-time, full-year work. One reason for this is that proportionately more women living with Poverty Level incomes do not work at all (61.8% women vs. 56.8% men). The proportion of men and women who work either part-time, or for a partial year (or a combination of these two, and who live in Poverty, is roughly equal (34.1% men vs. 33.0% women).

The relative proportions of men and women who live with Poverty incomes despite full-time, year-round work changed in the three year period 2009 through 2011. The proportion of men increased, from 6.0% in 2009 to 9.1% in 2011, while the proportion of women decreased, from 6.6% in 2009 to 5.2% in 2011. In contrast, little change occurred either in the proportion of men who lived in Poverty because of the lack of work (a change from 56.9% in 2009 to 56.8% in 2011), or in the proportion of women (59.7% in 2009 to 61.8% in 2011).

## Food Stamps by Poverty Status

The federal Food Stamp program is widely considered to be the most fully-enrolled public assistance program in the country today. In Connecticut, in Fiscal Year 2009 (the last year for which data is available), 75% of all households eligible for Food Stamps actually participated in the Food Stamp program, an increase from 68% in 2007. Food Stamp participation experienced a dramatic increase from 2009 through 2011. The participation of 152,131 households in 2011 was 42% higher than Food Stamp participation in 2009 (107,127), an increase of more than 45,000 household participants.

Food Stamps in Last 12-Months? /a/ /b/	2009	2010	2011
Total:	1,326,329	1,358,809	1,351,643
Received Food Stamps	107,127	138,205	152,131
Income below Poverty	57,988	63,852	75,016
Income above Poverty	49,139	74,353	77,115
No Food Stamps	1,219,202	1,220,604	1,199,512
Income below Poverty	68,237	71,522	68,295
Income above Poverty	1,150,965	1,149,082	1,131,217

SOURCE: American Community Survey, 1-year data, Table B22003.

NOTES:  
/a/ Income and receipt of Food Stamps both within previous 12 months.  
/b/ "Above Poverty" includes at or above Poverty Level.

One reason for the increase in Food Stamp participation is the increase in Food Stamp participants amongst households that have income above the Federal Poverty Level. In 2009, households with above-Poverty incomes represented only 46% of the total Food Stamp participant population; by 2011, the participation of above-Poverty households had increased to more than 77,000 households, representing more than half (51%) of the total participant population. Indeed, of the 45,000 increase in participant households from 2009 to 2011, 28,000 (61%) fell within the population of households having income *above* the Federal Poverty Level.

This impact can be seen, as well, in the average income of Food Stamp recipients. Despite the increase in the number of households with above-Poverty incomes, the average income of Food Stamp recipients remains extremely low. In 2011, the median income of Food Stamp recipient households was only \$17,185, roughly one-quarter (26%) of the overall statewide average

income in Connecticut. Even then, the ratio of Food Stamp to total income is increasing; in 2009, the average Food Stamp income was only 24% of the total average income.

<b>Table 18: Income by Receipt of Food Stamps, 2009, 2010, 2011 (Connecticut)</b>			
	2009	2010	2011
Total:	\$67,034	\$64,032	\$65,753
Received Food Stamps	\$16,195	\$17,710	\$17,185
Did not receive Food Stamps	\$71,955	\$70,597	\$73,427
SOURCE: American Community Survey, 3-year data, Table B22008.			

The decrease in the differential between Food Stamp incomes and total incomes occurs because of the increasing income of Food Stamp recipients. From 2009 to 2011, the average income of a Food Stamp recipient household increased by 6%, from \$16,195 to \$17,185. In the same time period, the average income for Connecticut’s overall population decreased (showing an inflation-adjusted decrease of nearly 2%, from \$67,034 to \$65,753).

## Twelve Important Findings

1. Connecticut tenants have significantly lower incomes than do homeowners. In Connecticut, median tenant income remains less than half of the annual income of homeowners. Both homeowners and tenants saw a decrease in their real (inflation-adjusted) income from 2009 to 2011.
2. Smaller households have noticeably lower incomes than do households with larger numbers of members in Connecticut. Median household income is lowest for 1-person households, with progressive increases as households gain members. One of the primary driving factors lies with the fact that smaller households are also associated with age. Households with aging household members tend to be smaller, being primarily one- and two-person units.
3. Median income is related to age in Connecticut. On the one hand, householders age 25 years or younger have a median income less than half that of the statewide median. On the other hand, householders age 65 years or older have a median income somewhat less than 65% of the statewide median.
4. So long as workers were able to maintain their full-time, year-round jobs during the economic downturn in Connecticut, their incomes, though not increasing substantially beyond inflation, nonetheless did not show substantial declines. Full-time, year-round

male workers saw a decrease in real median income of only \$581 from 2009 to 2011. In contrast, full-time, year-round female workers experienced an increase in real median income from 2009 to 2011, from \$45,642 to \$49,902.

5. The lack of deterioration in real incomes for full-time, year-round workers, does not detract from the overall year-to-year decrease in real median income for the population of Connecticut workers as a whole. The median income for Connecticut workers as a whole (including those without full-time, year-round work) was less in 2011 than it was in 2009. The real median income for workers as a whole declined from 2009 to 2010, with the increase in 2011 not sufficient to recover the previous year's decline.
6. Average income in Connecticut declined in real, inflation-adjusted, terms from 2009 to 2011 at all levels of income but the highest. Income deteriorated disproportionately more in the two lowest income brackets.
7. The dollar level of income in the lowest income quintile for Connecticut is substantially below the Federal Poverty Level. The bottom two quintiles of income in Connecticut in 2010 were likely at or below 200% of Federal Poverty Level.
8. Households in Connecticut do not experience a "living wage" (sometimes referred to as a "self-sufficient income") until they achieve an income well in excess of 200% of Poverty Level.
9. Across-the-board, aging households have lower incomes holding Federal Poverty Level constant. One reason for this is that aging households are likely to live with smaller household sizes. Since Poverty Level is income taking into account household size, a household with fewer members will, by definition, have a lower income holding Poverty Level constant.
10. The level of educational attainment in Connecticut has a substantive influence on the Poverty status of Connecticut residents. Two-thirds of both men and women living with income below Poverty Level in Connecticut have only a high school degree or less.
11. A higher proportion of men live in Poverty despite having full-time, year-round work. Nearly one-in-ten men live in Poverty, despite working on a full-time, full-year basis. In contrast, only 5.2% of women live in Poverty despite having full-time, full-year work. One reason for this is that more women live with Poverty Level incomes because they do not work at all. The relative proportions of men and women who live with Poverty incomes despite full-time, year-round work changed in the three year period 2009 through 2011. The proportion of men who lived in Poverty because of the lack of

work increased, from 6.0% to 9.1%, while the proportion of women decreased, from 6.6% to 5.2%.

12. Food Stamp participation experienced an increase from 2009 through 2011. Food Stamp participation in 2011 was 42% higher than Food Stamp participation in 2009, an increase of more than 45,000 household participants. One reason for the increase in Food Stamp participation is the increase in Food Stamp participants amongst Connecticut households that have income above the Federal Poverty Level.

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## Part 5: A Special Focus on Public and Assisted Housing

As policymakers consider the significance of home energy unaffordability in Connecticut, special attention should be directed toward the condition of tenants of public and assisted housing. As the data and discussion below will find, these tenants tend to be among the lowest income households in the State. Moreover, because of the very fact of their low-income status, they also tend to live in some of the least energy efficient housing, with no ability to change the nature or efficiency of that housing.

### Assisted Housing: Housing Unit and Appliance Characteristics

No way exists to directly measure the energy efficiency potential in public and assisted housing units in Connecticut. The lack of measured potential is exacerbated by the lack of state-specific information. Still, the U.S. Department of Energy (DOE) Residential Energy Consumption Survey (RECS) reports data at a regional level. The RECS breaks the country into four Census Regions (Northeast, South, North Central, West). Connecticut is part of the Northeast Region.

Data on several aspects of “assisted” housing can be obtained from the RECS. The most recent RECS (2005) reports data on:

- The age of the housing unit;

- The age of the heating unit;
- The age of the water heating unit; and
- The age and Energy Star status of the refrigerator(s).

Table 19 sets forth the data for the Northeast Region. The age of housing structures subsidized through an assisted housing program reveals an older housing stock that might benefit from weatherization. Roughly half of all assisted housing is 60 years old or older, while nearly 70% is at least 70 years old. Very few assisted housing units have been built in the past 25 years.

<b>Table 19. Energy Efficiency Attributes: Assisted Housing in the Northeast Region: 2005</b>										
Age of Housing Units										
	Before 1940	1940 - 1949	1950 - 1959	1960 - 1969	1970 - 1979	1980 - 1984	1985 - 1989	1990 - 1994	1995- 1999	2000 or later
Northeast	32%	17%	12%	6%	8%	15%	2%	---	6%	2%
Age of Heating Unit										
	<2 Years	2 – 4 Years	5 – 9 Years	10 – 19 Years	20+ Years	Don't Know				
Northeast	9%	3%	5%	8%	31%	43%				
Age of Domestic Hot Water Heater										
	No Separate DHW	< 2 Years	2 – 4 Years	5 – 9 Years	10 – 19 Years	20+ Years	Don't Know	Don't Use DHW		
Northeast	18%	12%	1%	11%	10%	3%	38%	6%		
Whether Refrigerator Energy Star by Age of Refrigerator										
	No	Yes	Don't Know		Too Old to be Energy Star					
Northeast	17%	20%	5%		58%					
Less than 2 years old	49%	47%	4%		0%					
2 – 4 years old	25%	51%	24%		0%					
SOURCE: 2005 Residential Energy Consumption Survey (Department of Energy, Energy Information Administration).										



Corresponding to the age of the housing unit is the age of the heating unit. A substantial proportion of assisted housing tenants did not know the age of their heating unit. Of those who did know, the number of heating units aged 20 years or older was by far the largest proportion of heating units by age. Indeed, the number of heating units aged 20 years or older was nearly twice the number of heating units less than 10 years old.

Similar results exist for domestic hot water heaters. While a sizable proportion of assisted housing tenants do not know the age of their water heater (or do not use a separate water heater for their unit), nearly one-in seven of the total assisted housing tenants report having water heaters aged 10-years old or older.

The lack of attention paid to energy efficiency in assisted housing is evident in the data on appliances as well. As of the 2005 RECS, most refrigerators in the Northeast Region were too old to be Energy Star rated. Even within the population of refrigerators that had been purchased recently enough to potentially be Energy Star, only half were. Roughly half of assisted housing tenants reported having an Energy Star refrigerator when the refrigerator had been purchased within the past four years (and Energy Star units were available).

### **Public Housing Tenants**

Public housing in Connecticut serves some of the lowest income households in the state. Table 20 presents a distribution of public housing tenants in Connecticut over the various income categorizations that the U.S. Department of Housing and Urban Development (HUD) uses in its housing programs. Under HUD's system of income categorization:

- “Extremely low-income” refers to households with income at or below 30% of area median income;
- “Very low-income” refers to households with income at or below 50% of area median income (but above 30% of median);
- “Low-income” refers to households with income at or below 80% of area median income (but above 50% of median).

Public housing serves nearly 16,000 households throughout the State of Connecticut.

### **Relative Income of Public Housing Tenants**

Table 20 presents information on the incomes of public housing tenants in Connecticut. As can be seen, Connecticut's public housing tenants are overwhelmingly “extremely low-income” (households with income at or below 30% of the area median income). Nearly 80% of all public

housing tenants in Connecticut have income below 30% of the area median income. Fully 94% of public housing tenants in the state have income at or below 50% of the area median income. Only 5% of all public housing tenants in Connecticut have income above 50% of the area median.

<b>Table 20. Distribution of Public Housing Tenants by Income Categorization (Connecticut) (2012)</b>							
	Income Category						Total Households Reporting
	Extremely Low-Income	Very Low-Income	Low-Income	Above Low-Income	Not Available	Total /a/	
Connecticut	79%	15%	4%	1%	2%	101%	12,509
NOTES: /a/ Total may not add to 100% due to rounding.							

The income of public housing tenants as a percent of area median income is a relative measure of how poor these tenants are. It is generally the case that area median income reasonably reflects the cost-of-living in any specified region. Hence, if the cost of living is higher in one area, the area median income tends to be higher as well. Nonetheless, examining public housing income by reference only to median income does not provide insights into the absolute dollar income of these tenants.

In contrast, Table 21 presents the income of Connecticut’s public housing tenants in absolute dollar terms. One-in-ten Connecticut public housing tenants have annual income of less than \$5,000, while more than four-in-ten (42%) have income less than \$10,000 per year. Nearly two-thirds (64%) of Connecticut’s public housing tenants have an annual income less than \$15,000. In contrast, fewer than one-in-four (22%) have an annual income of \$20,000 or more.

<b>Table 21. Distribution of Public Housing Tenants by Dollar Incomes (Connecticut) (2012)</b>										
	Dollar Income								Total /a/	Avg Income
	\$0	\$1 - \$5,000	\$5,001 - \$10,000	\$10,001 - \$15,000	\$15,001 - \$20,000	\$20,001 - \$25,000	\$25,000 or more			
Connecticut	3%	7%	32%	22%	14%	8%	14%	100%	\$14,905	
NOTES: /a/ Total may not add to 100% due to rounding.										

The average household income for Connecticut’s public housing tenants is \$14,905 per year. With an average household size of 2.0 member, and a 2012 Poverty Level for two-person

households of \$15,130, it is clear that, on average, public housing tenants in Connecticut live with incomes below 100% of Poverty Level.

When combining the data on the Home Energy Affordability Gap that we have discussed throughout this analysis with the data on incomes of public housing tenants, it is possible to conclude that a significant portion of Connecticut’s Home Energy Affordability Gap arises within the State’s public housing tenant population. The highest per-household Affordability Gap levels fall precisely within the lower income ranges at which public housing tenants live. Moreover, these tenants live in circumstances where it is reasonable to expect that they lack the ability to seek to address their Affordability Gap through investments in usage reduction measures.

### Assisted Housing Tenants

Assisted housing tenants have incomes that are as low as public housing tenants have in Connecticut. For purposes of this analysis, “assisted housing” tenants are limited to those tenants receiving tenant voucher assistance.<sup>16</sup> According to HUD, there are 39,712 voucher-assisted tenants in Connecticut in 2012.

Table 22 presents income data for these assisted housing tenants. As can be seen, Connecticut’s assisted housing tenants are overwhelmingly “extremely low-income” (households with income at or below 30% of the area median income). More than three-quarters of assisted housing tenants in Connecticut have income less than 30% of the area median income. More than 90% have income lower than 50% of the area median.

<b>Table 22. Distribution of Voucher-Assisted Housing Tenants by Income Categorization (Connecticut) (2012)</b>							
	Income Category						Total Households Reporting
	Extremely Low-Income	Very Low-Income	Low-Income	Above Low-Income	Not Available	Total /a/	
Connecticut	76%	16%	3%	0%	5%	100%	30,910
NOTES:							
/a/ Totals may not add to 100% due to rounding.							

As with public housing tenants, the income of assisted housing tenants as a percent of area median income is important in that area median income reasonably reflects the cost-of-living in any specified region. If the cost of living is higher in one area, the area median income tends to be higher as well.

<sup>16</sup> Excluded, for example, are tenants in housing supported by project-based certificates, by project-based vouchers, and by homeowner vouchers.

In contrast to the discussion above of income as a percentage of area median income, Table 23 presents the income of Connecticut’s assisted housing tenants in absolute dollar terms. Statewide, Connecticut’s assisted housing tenants have an average annual income of \$14,860, virtually the same as public housing tenants (\$14,905).

This average is somewhat misleading, however. As with public housing tenants, a sizable proportion (13%) of assisted housing tenants have annual income of less than \$5,000. More than four-in-ten have annual income of less than \$10,000. Assisted housing tenants have a small proportion with annual income greater than \$20,000 (22% public housing vs. 25% assisted housing).

<b>Table 23. Distribution of Assisted Housing Tenants by Dollar Incomes (Connecticut) (2012)</b>									
	Dollar Income							Total /a/	Avg Income
	\$0	\$1 - \$5,000	\$5,001 - \$10,000	\$10,001 - \$15,000	\$15,001 - \$20,000	\$20,001 - \$25,000	\$25,000 or more		
Connecticut	4%	9%	28%	19%	14%	9%	16%	99%	\$14,860
NOTES: /a/ Some totals may not add to 100% due to rounding.									

Even though the average annual income for Connecticut’s assisted housing tenants is nearly identical to that of public housing (\$14,860 for assisted housing vs. \$14,905 for public housing tenants), assisted housing tenants are substantially “poorer” when household size is taken into account. While the public housing income is for households with an average household size of 2.0 members, assisted housing income is for households with an average household size of 2.5 in Connecticut. While public housing tenants thus live, on average, at 99% of Poverty Level, assisted housing tenants live, on average, at 87% of Poverty.

The income and poverty status of assisted housing tenants can have a substantial impact on the Affordability Gap facing these households, even aside from the obvious impact of their low income. By the very nature of their poverty, assisted housing tenants do not have access to high quality housing. While housing units that are subsidized by the federal Section 8 program must comply with certain federally-prescribed minimum Housing Quality Standards (HQSs), the units tend to be older and lower quality units (even if meeting minimum HQSs). They do not represent high quality housing.

Second, despite this lower quality housing, because of the very fact of their poverty, Connecticut’s assisted housing tenants would be unable to pursue efficiency measures on their own, even should they have the authority to do so in their rental housing. The payback period for any particular energy efficiency measure, of course, becomes irrelevant if the household does not

have the investment capital with which to begin. Given their documented low-incomes, few, if any, assisted housing tenants in Connecticut are shopping for new appliances or other usage reduction investments, whether or not “cost-justified.”

## Six Important Findings

1. The age of housing structures subsidized through an assisted housing program reveals an older housing stock that might benefit from weatherization. Roughly half of all assisted housing is 60 years old or older, nearly 70% is at least 70 years old. Very few assisted housing units have been built in the past 25 years. Corresponding to the age of the housing unit is the age of the heating unit. The number of heating units aged 20 years or older is nearly twice the number of heating units aged 10 year or younger.
2. Public housing in Connecticut serves some of the lowest income households in the state. Connecticut’s public housing tenants are overwhelmingly “extremely low-income” (households with income at or below 30% of the area median income). The most wealthy of public housing tenants statewide in Connecticut, in other words, live with incomes less than half of area median income.
3. Nearly two-thirds (64%) of public housing tenants live with annual income of \$15,000 or less.
4. Assisted housing tenants appear to have incomes that are as low as public housing tenants in Connecticut. More than three-quarters of assisted housing tenants (76%) are “extremely low-income.”
5. Three-fifths of assisted housing tenants in Connecticut live with annual income of \$15,000 or less.
6. While the average income of public housing tenants (\$14,905) is virtually identical to the average income of assisted housing tenants (\$14,860), since the average household size of assisted housing tenants is larger, their income as a percentage of Poverty Level is noticeably lower than public housing tenants (87% assisted housing vs. 99% public housing).

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## Sources of Information for Connecticut

### U.S. Census Tables (American Community Survey)

<http://factfinder2.census.gov/faces/nav/jsf/pages/index.xhtml>: The American Fact Finder presents the U.S. Census Bureau’s basic periodic Census survey data at all jurisdiction levels.

<http://www.census.gov/cps/data/cpstablecreator.html>: The U.S. Census Bureau makes available an on-line “table maker” tool for creating state-level tables using data from its annual “Current Population Survey,” using data from the CPS Annual Social and Economic Supplement.

### Data on Children Well-being

<http://datacenter.kidscount.org/>: The Annie E. Casey Foundation makes available a comprehensive data center for its “Kids Count” initiative.

<http://frac.org/federal-foodnutrition-programs/>: The Food Research and Action Center (FRAC) publishes comprehensive data on a variety of food and nutrition topics, including data and program descriptions on federal food nutrition programs.

<http://www.nccp.org/tools/>: The National Center on Children and Poverty has three important on-line “data tools”: (1) the Basic Needs Calculator through which the user can calculate a Basic Family Needs Budget by local jurisdiction and family size and type; (2) the Family Resource Simulator through which the user can determine total household resources (e.g., taking into account how increases in income result in reductions in public assistance); and (3) an Income Converter through which the user can insert a dollar income for a particular state and particular household size and receive a calculation of the ratio of income to Federal Poverty Level and the percentage of State Median Income which that income represents (and vice versa—convert percentage of State Median Income/Poverty Level into dollar levels).

### Data on Employment and Wages

<http://www.bea.gov/iTable/iTable.cfm?reqid=70&step=1&isuri=1&acrdn=5>: The Bureau of Economic Analysis, within the U.S. Department of Commerce, makes available statistical data on “local area personal income and employment.” State-level, as well as regional, data is also available.

### Data on Energy and Fuel

<http://www.eia.gov/electricity/data.cfm>: The Energy Information Administration of the U.S. Department of Energy (EIA) makes available comprehensive state-level information on the price and sales of electricity by month.

<http://www.eia.gov/naturalgas/data.cfm>: EIA/DOE also makes available similar state-level data sets for natural gas prices and sales.

<http://www.eia.gov/petroleum>: EIA/DOE makes available data on petroleum products, including fuel oil and propane.

<http://www.eia.gov/consumption/residential/index.cfm>: The Residential Energy Consumption Survey (RECS) provides comprehensive data on consumption, housing characteristics, energy bills, and related data. Starting in 2005, the RECS provided “Home Energy Insecurity Scale” questions.

<http://www.ncat.org/liheap>: Information on statistical and administrative aspects of the federal Low-Income Home Energy Assistance Program (LIHEAP) can be found at the LIHEAP Clearinghouse, operated by the National Center on Appropriate Technology and funded through the federal LIHEAP office.

## Data on Housing Affordability

<http://nlihc.org/oor>: For more than 20 years, the National Low-Income Housing Coalition has published its “Out of Reach” annual study, setting forth the Housing Wage by local jurisdiction, that wage needed for families to be able to afford basic housing in their community.

<https://pic.hud.gov/pic/RCRPublic/rcrmain.asp>: Data on public and assisted housing, at a national, state, Congressional District, county and various local demarcations, including specific Housing Authorities, is available through the Resident Characteristics Reports (RCR) data published by the U.S. Department of Housing and Urban Development (HUD).

<http://www.hud.gov/offices/cpd/affordablehousing/reports/dash.cfm>: The U.S. Department of Housing and Urban Development (HUD) provides on a state and local basis jurisdiction-specific reports on the production of affordable housing units.

## Data on Poverty and Income

<http://www.epi.org/resources/budget>: The Economic Policy Institute (EPI) provides an on-line calculator to determine, for states and specific metropolitan areas within each state, a “basic family needs budget” by household type.

<http://www.selfsufficiencystandard.org/pubs.html#statefind>: The Center for Women’s Welfare provides an on-line index for how to find, state-by-state, publications on self-sufficiency incomes. It also presents an index to available on-line state-specific self-sufficiency calculators.

<http://aspe.hhs.gov/poverty/11poverty.shtml>: The U.S. Department of Health and Human Services (HHS) provides the annual Poverty Guidelines by year since 1973.

<http://www.statehealthfacts.org/profile.jsp>: The Henry J. Kaiser Family Foundation makes available comprehensive health care statistics by state, along with a wide array of data on demographics including poverty and income.

<http://livingwage.mit.edu/>: The Massachusetts Institute of Technology makes available a “living wage” calculator by state.

[http://www.spotlightonpoverty.org/poverty\\_data\\_map.aspx](http://www.spotlightonpoverty.org/poverty_data_map.aspx): The Spotlight on Poverty is a major foundation-supported initiative that allows users to create state and local reports on major indicators of poverty and household well-being.



## Data on Working Households/Families/Persons

<http://www.brookings.edu/research/interactives/eitc>: The Brookings Institute provides an inter-active web page allowing the user to create jurisdiction-specific (state, county, state legislative district) reports on the use of the Earned Income Tax Credit (EITC) by year. Available are not only data on the use of the EITC, but data on tax returns by gross annual income of the tax-filer.

<http://www.ctvoices.org>: The Connecticut Voices for Children provides annual reports on “The State of Working Connecticut.” Each year discusses a different aspect of jobs and income in Connecticut. In addition, the Connecticut Voices publishes a periodic “pulling apart” report, which examines income trends in Connecticut.

# Appendix A

## State House Districts

# Appendix B

## State House Districts

# Appendix C

## Congressional Districts