

**HOME ENERGY AFFORDABILITY
IN NEW YORK:**

The Affordability Gap (2012)

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Introduction

Home energy costs pose a crushing burden to New York residents today. Particularly for households with incomes in “deep poverty,” home energy costs threaten not only the ability of New York 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 New York 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. It affects the river valleys, the mountains, and the lake regions.

This is the third in a series of annual reports looking at home energy affordability in New York.¹ The Home Energy Affordability Gap seeks to quantify the extent of energy unaffordability in New York. The Affordability Gap measures the dollar amount by which actual home energy bills exceed affordable home energy bills. “Affordability” is examined in terms of home energy burdens, bills as a percentage of income. If a New York household has an annual income of

¹ The first two reports prepared on behalf of NYSERDA were: Colton (June 2011). *Home Energy Affordability in New York: The Affordability Gap (2008 – 2010)*; and Colton (Sept. 2012). *Home Energy Affordability in New York: The Affordability Gap (2009 – 2011)*.

\$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%.²

² 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.

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.

Methodology

The Home Energy Affordability Gap calculated for each New York county is determined based on the same fundamental model used for the annual Home Energy Affordability Gap calculated nationwide.³ 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 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.⁴ 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:

- Energy prices.
- 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. New York is located in the “Mid-Atlantic” Census Division. State-specific demographic data is obtained from the American Community Survey (ACS) published by the U.S. Census Bureau. Heating Degree Days (HDDs) and Cooling Degree Days (CDDs)

³ See generally, www.HomeEnergyAffordabilityGap.com (last accessed October 29, 2013).

⁴ The geographic area serving as the basis for the Home Energy Affordability Gap calculation is the county.

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).

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, the most recently completed full year. The time periods from which price data is used are set forth immediately below.

Heating Prices	
Natural gas	February 2012
Fuel oil	Week of February 13, 2012
Liquefied petroleum gas (LPG)	Week of February 13, 2012
Electricity	February 2012

Cooling Prices	August 2012
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Non-heating prices	
Natural gas	May 2012
Fuel oil	Week of October 1, 2012
Liquefied petroleum gas (LPG)	Week of October 1, 2012
Electricity	May 2012

Changes in “Second Series” Affordability Gap Analysis.

The analysis of the Home Energy Affordability Gap for 2012, undertaken in 2013, introduces several modifications to the Affordability Gap calculation. As a result, the 2012 Affordability Gap begins the “Second Series” of the Affordability Gap, with results in 2012 and subsequent years not comparable to the Affordability Gap calculated in prior years. While remaining fundamentally the same, several improvements have been introduced in both data and methodology in the Affordability Gap (2nd Series).

The most fundamental change in the Home Energy Affordability Gap (2nd Series) is the move to a use of the American Community Survey (ACS) (5-year data) as the source of foundational demographic data. The Affordability Gap (1st Series) relied on the 2000 Census as its source of demographic data. The ACS (5-year data) offers several advantages compared to the Decennial Census. While year-to-year changes are smoothed out through the use of 5-year averages, the ACS nonetheless is updated on an annual basis. As a result, numerous demographic inputs into the Affordability Gap (2nd Series) will reflect year-to-year changes on a county-by-county basis, including:

- The distribution of heating fuels by tenure;
- The average household size by tenure;
- The distribution of owner/renter status;
- The distribution of household size;
- The distribution of households by ratio of income to Poverty Level;

Data on housing unit size (both heated square feet and cooled square feet) is no longer calculated based on the number of rooms. Instead, Energy Information Administration / Department of Energy (EIA/DOE) data on square feet of heated and cooled living space per household member is used beginning with the Home Energy Affordability Gap (2nd Series). A distinction is now made between heated living space and cooled living space, rather than using total living space.

The change resulting in perhaps the greatest dollar difference in the aggregate and average Affordability Gap is a change in the treatment of income for households with income at or below 50% of the Federal Poverty Level. In recent years, it has become more evident that income for households with income below 50% of Poverty Level is not normally distributed. Rather than using the mid-point of the Poverty range (i.e., 25% of Poverty Level) to determine income for these households, income is set somewhat higher (40% of Poverty). By setting income for that Poverty Level higher, both the average and aggregate Affordability Gap results not only for that Poverty range, but also for the state as a whole, will be lower. The Affordability Gap results for other Poverty ranges remain unaffected by this change.

Another change affecting both the aggregate and average Affordability Gap is a change in the definition of “low-income.” The Home Energy Affordability Gap (2nd Series) has increased the definition of “low-income” to 200% of the Federal Poverty Level (up from 185% of Poverty). While this change may increase the aggregate Affordability Gap for the State, it is likely to decrease the average Affordability Gap. Since more households are added to the analysis, the

aggregate is likely to increase, but since the contribution of each additional household is less than the contributions of households with lower incomes, the overall average will decrease.

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

- Part 1 considers 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 New York over time;
- Part 5 provides a special focus on tenants and rental housing.

In addition to these sections, this report presents an appendix consisting of county-specific information presenting the 2012 Affordability Gap based on an examination of the population of households with income at or below 200% of the Federal Poverty Level.

Part 1: Home Energy Affordability in New York in 2012

Home energy was unaffordable for a substantial part of New York’s low-income population in 2012. In this Part, we examine 2012 data for the New York Home Energy Affordability Gap for households at or below 200% of the Federal Poverty Level.⁵

The Affordability Gap: Total and by Income Range

The Home Energy Affordability Gap in New York reached more than \$4.0 billion in 2012 on an aggregate basis. On a per household basis, the average Affordability Gap in 2012 was \$1,774 for households with income at or below 200% of Federal Poverty Level.⁶ Table 1 presents statewide data for 2011 and 2012.

The Home Energy Affordability Gap Index indicates the extent to which the Home Energy Affordability Gap has increased between 2011 and 2012. In New York, this Index was 97.9 for 2012. The Home Energy Affordability Gap Index (2nd Series) uses the year 2011 as its base year. The Index for 2011 is set equal to 100. A current year Index of more than 100 thus indicates that the Home Energy Affordability Gap for New York has increased since 2011. A

⁵ For the reasons explained in the Introduction, the 2012 Affordability Gap (Second Series) cannot be directly compared to the Affordability Gap in prior years.

⁶ Year-by-year data extending back to 2003 can be found at www.HomeEnergyAffordabilityGap.com. The Affordability Gap (First Series) for years prior to 2012 is not directly comparable to the Affordability Gap (Second Series).

current year Index of less than 100 indicates that the Home Energy Affordability Gap has decreased since 2011.

The number of households facing unaffordable home energy burdens is staggering. According to the most recent five-year American Community Survey, more than 474,000 New York households live with income at or below 50% of the Federal Poverty Level and face a home energy burden of 41%. More than 584,000 *additional* New York households live with incomes between 50% and 100% of the Federal Poverty Level and face a home energy burden of 22%. In 2012 the total number of New York households below 200% of the Federal Poverty Level stayed relatively constant from the prior year.

Table 1. The Home Energy Affordability Gap in New York (2011 and 2012)

	2011	2012	2012 Index
Statewide per household Gap	\$1,842	\$1,774	---
Statewide aggregate Affordability Gap (\$000)	\$4,100,217,139	\$4,014,748,487	97.9
Statewide Number of households <200% FPL	2,226,021	2,263,227	---

Despite the decrease in the Affordability Gap Index in 2012, existing sources of energy assistance are inadequate to address the Affordability Gap in New York, and became even more inadequate in 2012. LIHEAP (the Low-Income Home Energy Assistance Program) is the federal fuel assistance program designed to help payment low-income heating and cooling bills.⁷ The gross LIHEAP allocation to New York was \$375.5 million in 2012, which was adequate to “cover” 302,343 average heating and cooling bills. In comparison, the gross LIHEAP allocation to New York in 2011 was \$495.5 million, which covered 408,181 average annual bills. The ability of federal assistance to respond to home energy unaffordability, in other words, degraded in New York from 2011 to 2012, despite a lower overall Affordability Gap.

The Home Energy Affordability Gap in New York is not solely a function of household incomes and fuel prices. It is also affected by the extent to which low-income households use each fuel. All other things equal, the Affordability Gap will be greater in areas where more households use more expensive fuels. In 2012, the primary heating fuel for New York homeowners was Natural

⁷ By design, LIHEAP is limited to heating and cooling bills. LIHEAP is not intended to pay for home energy bills other than heating and/or cooling.

Gas (56% of homeowners). The primary heating fuel for New York renters was also natural gas (52% of renters).

Table 2. Primary Heating Fuel by Tenure (New York)

Fuel	Penetration by Tenure	
	Owner	Renter
Electricity	5%	14%
Natural gas	56%	52%
Fuel Oil	31%	30%
Propane	4%	2%
All other	4%	2%
Total	100%	100%

Changes in the prices of home energy fuels are presented in Table 3. In New York, natural gas prices stayed relatively constant (2.7%) during the 2012 winter heating season. Fuel oil prices rose substantially (12.4%) and propane prices stayed relatively constant (2.4%). Heating season electric prices fell modestly (4.9%) in the same period, while cooling season electric prices fell 5.4%.

Table 3. Primary Heating Fuel Prices (2010 – 2012) (New York)

	2010	2011	2012
Electric heating (kWh)	\$1.366	\$1.282	\$1.247
Natural gas heating (ccf)	\$0.190	\$0.184	\$0.175
Fuel Oil heating (gallons)	\$3.189	\$3.952	\$4.444
Propane heating (gallons)	\$3.279	\$3.508	\$3.423
Electric cooling (kWh)	\$0.203	\$0.203	\$0.192

As to be expected, both the aggregate and average statewide Affordability Gap was highest at the lowest income levels in 2012. According to the data presented in Table 4, for households with income:

- at between 0% and 50% of Poverty Level, the average Affordability Gap was \$2,440, with an aggregate statewide Gap of \$1,157,831,903;
- at between 100% and 125% of Poverty Level, the average Affordability Gap was \$1,726, while the aggregate statewide Gap was \$527,850,201;

- at between 150% and 185% of Poverty Level, the average Affordability Gap was \$1,189, while the aggregate state Gap was \$498,423,202.
- At between 185% and 200% of Poverty Level, the average Affordability Gap was \$950, while the aggregate statewide Gap was \$163,964,925.

Table 4. 2012 Aggregate Statewide and Average per-Household Affordability Gap by FPL

Poverty Level	Average per Household	Aggregate	Households
Less than 50%	\$2,440	\$1,157,831,903	407,447
50-99%	\$2,077	\$1,212,850,590	584,014
100 – 124%	\$1,726	\$527,850,201	305,881
125 – 149%	\$1,479	\$453,827,667	306,941
150 – 184%	\$1,189	\$498,423,202	419,300
185 – 200%	\$950	\$163,964,925	172,644
Statewide per household Gap	\$1,774	\$4,014,748,487	---

It is reasonable to expect, and New York indeed experiences, a greater increase in per-household Affordability Gap for those lower Poverty Level ranges where the limits of affordability have been exhausted across-the-board even *prior* to any bill increases over time. In contrast, for those Poverty Ranges with somewhat higher incomes, where some portion of the bill-paying capacity remained before any bill increase occurs, the dollar level of the per-household Affordability Gap is lower, even while the percentage increase in both the per-household Gap and in the aggregate Gap is higher.⁸

⁸ It is also important to bear in mind that the ranges are not equal. The lower ranges are in increments of 50% of Poverty, while the range of 150 – 184% is 35% and the range of 185 – 200% is only 15%.

Affordability Gap by Poverty Level

Clearly, the largest Home Energy Affordability Gap in New York falls in the lowest range in average per-household terms. As shown by Table 4 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 \$2,400, the per-household gap at the next step-increase is less than \$2,100. While the per-household Affordability Gap at 100-124% of Poverty is \$1,726, the per-household Gap at the next step-increase (125-149%) is less than \$1,500.⁹

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. For example, while the aggregate statewide Affordability Gap for households with income less than 50% of Poverty Level in 2012 was \$1.157 billion, the Affordability Gap for households with income between 50% and 100% of Poverty Level was \$1.212 billion. The reason is that while there were 474,000 households with income below 50% of Poverty, there were 584,000 households with income between 50% and 100% of Poverty.

Only when smaller populations in higher income ranges are combined with the lower per-household Affordability Gaps are the aggregate Gaps smaller as well. The population of roughly 307,000 households with income between 125% and 149% of Poverty yields an aggregate Affordability Gap of \$454 million, while the population of roughly 419,000 households with income between 150% and 184% of Poverty yields a Gap of \$498 million. This smaller aggregate Affordability Gap in the lower income range occurs even though the *average* Affordability Gap in the lower income range was 25% higher (\$1,479 for 100-124% of Poverty vs. \$1,189 for 150-184% 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 New York, unlike some states, populations do not increase at each step-increase in Poverty range. In assessing the aggregate Affordability Gap, it is important to take into account *both* the average per-household Gap in each Poverty range *and* the number of households in each Poverty range.

⁹ 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 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.

Home Energy Burdens by Income Range

Home energy bills in New York in 2012 presented, on a statewide average, unaffordable home energy burdens (bills as a percentage of income) for every Poverty Level range at or below 200% of Poverty Level. Table 5 shows how the unaffordability of 2012 bills reached into the highest level of Poverty studied. Households with income between 185% and 200% of Poverty still experienced a home energy burden of almost 9%, nearly 50% higher than the 6% affordable burden found to be the demarcation of energy affordability.

Households with income less than 50% of Poverty experienced home energy bills that, unto themselves, exceeded the 30% total shelter burden deemed to be affordable. With energy bills, unto themselves, exceeding 30%, these lowest income households find it impossible to obtain affordable housing. New York households with incomes as high as 100% to 124% of Poverty experience home energy costs that, unto themselves, comprise half or more of total shelter expenses in New York. When energy bills are seen as one component of total housing costs, the adverse impacts of high energy burdens on households with incomes even as high as 184% of Poverty can be seen. It is difficult to limit total shelter costs to 30% of income when energy bills, alone, comprise one-third or more (10 – 12%) of that total shelter burden.

Table 5. Home Energy Burdens by Poverty Level Ranges by Year (2012)

Poverty Level	2012
Less than 50%	41.1%
50-99%	21.9%
100 – 124%	14.8%
125 – 149%	12.2%
150 – 184%	10.1%
185 – 199%	8.8%

Poverty Penetration and Household Income

When the Home Energy Affordability Gap analysis finds that New York households with income less than 50% of Poverty experience an energy burden of more than 40% of income, this finding applies to a considerable number of households. According to Table 6, New York has nearly 500,000 households with income at or below 50% of Poverty. Nearly 1.1 million New York households had 2012 income below 100% of Poverty Level, with the accompanying energy burdens of 22% or more. Sometimes it may seem easy to downplay or dismiss the finding of a

40% energy burden by thinking that, even if accurate, such an energy burden would apply to very few people. In New York, that is not the case. Nearly 1.4 households pay half or more of an affordable total shelter burden (30%) simply on their energy bills (home energy burdens of 15% or more).

Table 6. Number of Households by Poverty Level Ranges by Year (2012)

Poverty Level	2012
Less than 50%	474,447
50 – 99%	584,014
100 – 124%	305,881
125 – 149%	306,941
150 – 184%	419,300
185 – 199%	172,644
Total below 200%	2,263,227

In addition to these high absolute numbers of poverty-level households in New York, throughout the state, every income range at or below 200% of Poverty has seen an increase in the number of households in 2012 compared to 2008. The low-income population in New York is not only large, but it is getting larger.

Six Important Findings

1. The Home Energy Affordability Gap in New York reached more than \$4.0 billion on an aggregate basis in 2012. The 2012 Affordability Gap in New York decreased from a 2011 Affordability Gap of \$4.1 billion.
2. On a per household basis, the 2012 average Affordability Gap was \$1,774 for households with income below 200% of the Federal Poverty Level. This was a decrease from \$1,842 in 2011.
3. Despite the decrease in the total Affordability Gap from 2011 to 2012, available federal heating assistance was less adequate in 2012 than it was in 2011 in helping to fill the Gap. The gross LIHEAP allocation to New York was \$375.5 million in 2012, adequate to “cover” 302,343 average heating and cooling bills, compared to the 2011 LIHEAP allocation to New York of \$495.5 million, adequate to cover 408,181 average bills.

4. New York households with income as high as 124% of Poverty Level experienced energy bills in 2012 that represented half of an affordable total shelter burden. It is difficult, if not impossible, to achieve a total shelter burden of 30% (the level deemed to be affordable) when home energy bills, alone, represent 15% or more of income. Households with income less than 50% of Poverty Level experienced home energy burdens (41.1% of income) that, unto themselves, exceeded the total shelter burden deemed to be affordable.
5. In assessing aggregate Home Energy Affordability Gaps by income range, it is not accurate to assume that a lower average per-household burden will also yield a lower aggregate Affordability Gap. Because of differences in the numbers of households by Poverty range, some Poverty ranges have a higher aggregate Gap even though they may have a lower average per-household Gap.
6. The number of households in New York with burdensome Affordability Gaps is substantial. Nearly a half-million households in New York have income less than 50% of Federal Poverty Level (and a Home Energy Affordability Gap exceeding 40%). Nearly 1.1 million households have incomes less than 100% of Poverty (with an energy burden of 22% or more), while nearly 2.3 million households have income of at or below 200% of Poverty. The lowest home energy burden within the Poverty ranges studied (185 – 199% of Poverty) was 8.8% of income, nearly 50% higher than an affordable burden of 6% of income.

Part 2: Home Energy Affordability by Income

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

Affordability Gap 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 more than 40% of income.¹⁰ The average burden in dollar terms is more than \$2,400 per household. The number of households experiencing such burdens is not

¹⁰ As discussed above with respect to “methodology,” the 2012 Affordability Gap cannot be directly compared to the Affordability Gap calculated for previous years. The treatment of households with income at or below 50% of Poverty is one example of where differences appear. In recent years, it has become clear that households with income below 50% of Poverty are not evenly distributed over the entire range. Accordingly, rather than using the mid-point of the range, as an indicator of typical incomes, the Affordability Gap beginning in 2012 uses 40% of Poverty as the measure of central tendency. For each other Poverty range, the Affordability Gap analysis continues to use the mid-point. As a result, no other Poverty range is affected by this change.

insubstantial. Statewide, nearly 475,000 low-income households have income at or below 50% of the Federal Poverty Level.

Table 7 below 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 up to 200% of Poverty Level experience energy burdens of nearly 9% statewide in New York.¹¹

Table 7. Affordability Gap by Home Energy Burden and Poverty Level (2012)

Poverty Range	Average per HH Burden (%)			Average Per HH Gap (\$)		
	State Avg Per HH Burden (%)	No. Counties Below Avg	No. Counties Above Avg	State Avg Per HH Gap (\$)	No. Counties Below Avg.	No. Counties Above Avg.
0 – 49%	41.1%	12	50	\$2,440	12	50
50 – 99%	21.9%	12	50	\$2,077	12	50
100 – 124%	14.8%	13	49	\$1,726	12	50
125 – 149%	12.2%	14	48	\$1,479	12	50
150 – 184%	10.1%	14	48	\$1,189	13	49
185 – 200%	8.8%	14	48	\$950	14	48

As always, however, care should be taken whenever considering “average” figures. Experience in individual counties can vary widely from the average. As Table 7 shows, more counties have both energy burdens, and per-household Affordability Gaps, that are above the statewide average than are at or below the statewide average. Despite the statewide averages, only 12 to 14 counties at each Poverty range have burdens and Gaps that are equal to or less than that average.

Moreover, Table 8 shows the extent by which counties can vary even within Poverty ranges. For households with income between 100% and 124% of Poverty Level, for example, the per household Affordability Gap in New York in 2012 ranges widely, with the \$1,239 Gap in New York County (lowest) being less than half of the \$3,430 Affordability Gap in Lewis County (highest) for households. Table 8 shows that for households with income between 100% and 124% of Poverty level, the Affordability Gap was at or below \$1,500 in six (6) counties and above \$2,500 in 22 counties.

¹¹ This is not to say that *all* households with income at this Poverty range have unaffordable incomes. It simply notes that, *on average*, households with income between 185% and 200% of Poverty in New York in 2012 had bills that exceeded 6% of income.

While the number of counties with the higher per-household Affordability Gaps is large, these counties do not necessarily represent the bulk of New York’s population. The twelve (12) counties with the lowest average per-household Affordability Gaps in the 100% to 124% Poverty Range had a population of 175,833 households in that Poverty range (58% of the statewide total number of households in that Poverty range), while the 50 counties with the higher per-household Gaps had a population of only 130,048 households with income in that Poverty Level range (42% of the statewide total). Similar relationships are found in other Poverty Level ranges.

Table 8. 2012 Affordability Gap by County (Selected Incomes at or below 200% of Poverty Level)

Average Gap	0 – 50% FPL		100 – 124% FPL		125 – 149% FPL		150 – 184% FPL		185 – 200% FPL	
	Number of Counties	Average Gap in Dollars /a/	Number of Counties	Average Gap in Dollars /a/	Number of Counties	Average Gap in Dollars /a/	Number of Counties	Average Gap in Dollars /a/	Number of Counties	Average Gap in Dollars /a/
At or below \$1,500	0	--	6	\$1,368	14	\$1,237	25	\$1,127	39	\$1,057
\$1,501-\$1,700	0	--	5	\$1,537	7	\$1,601	10	\$1,614	3	\$1,641
\$1,701 - \$2,000	1	\$1,912	11	\$1,857	13	\$1,843	8	\$1,825	7	\$1,859
\$2,000 - \$2,500	14	\$2,281	18	\$2,189	15	\$2,214	14	\$2,266	10	\$2,155
\$2,501 or more	47	\$3,215	22	\$2,891	14	\$2,796	5	\$2,752	3	\$2,625

NOTES:

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

Table 8 distributes the number of counties 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 New York. For households with income less than 50% of Poverty, the Affordability Gap levels is above \$2,000 in every county but one, yet only 19 counties have a Gap that high for households with income between 150% and 184% of Poverty; only 13 counties have a Gap that large at 185 – 200% of Poverty. A change in relationship appears to occur at the 150% of Poverty range, with substantially fewer counties having an Affordability Gap that exceeds \$2,000. While 42 counties have a Gap that exceeds \$1,700 in the 125 – 149% of Poverty range, only 27 do in the 150 – 184% of Poverty range, and only 20 do in the 185 – 200% of Poverty range.

In sum, it is misleading to consider only what the statewide average Affordability Gap might be. The average Affordability Gap in individual counties, depending on fuel penetration, household size, housing unit size and type, climate factors and the like, can be quite different from the average.

Measuring Energy Burdens rather than Dollar Gaps

The relative affordability of home energy can also be measured by the home energy burdens imposed on New York households, not merely by the per-household Affordability Gap. 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 9 below presents summary data on the home energy burdens experienced by New York residents at differing ranges of the Federal Poverty Level. For New York 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 28 New York counties in 2012, home energy burdens for households with income at or below 50% of Poverty reached as high as 50% of income or higher. In contrast, in only ten (10) counties did the home energy burdens represent less than 40% of income.

Table 9 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 50% of their income, the average home energy burden exceeded 15% of income in more than two-thirds of New York’s counties (48). In 28 New York counties, the home energy burden for households with income between 150% and 185% of Poverty exceeded 12% of income, more than two times the affordable level.

Even at 185% to 200% of Poverty Level, no county has an average energy burden that is affordable at 6% of income, even though seven (7) counties had burdens less than 8% of income and 27 counties had average burdens less than 10%. Even in this Poverty range, however, 14 New York counties in 2012 had average home energy burdens more than twice the affordable level of 6% of income.

Table 9. Counties by Energy Burdens of Households at Selected Poverty Ranges (2012)

Less than 50% FPL		100 – 125% FPL		150 – 185% FPL		185 – 200% FPL	
Burden Range	Number of Counties	Burden Range	Number of Counties	Burden Range	Number of Counties	Burden Range	Number of Counties
<40%	10	<15%	14	<10%	13	<8%	7
40% - <50%	24	15% - <18%	24	10% - <12%	21	8% = <10%	20
50% - <60%	19	18% - <21%	12	12% - <15%	22	10% - <12%	21
60% or more	9	21% or more	12	15% or more	6	12% or more	14

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 150-185%, 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 New York.
4. Care should be taken whenever considering “average” figures. Experience in individual counties 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 New

York in 2012 ranges widely, with the Affordability Gap in New York County (lowest) being less than half of the Affordability Gap in Lewis County (highest).

5. While the number of counties with the highest per-household Affordability Gaps is large, these counties do not necessarily represent the bulk of New York's population. The 12 counties with the lowest average per-household Affordability Gaps represented 58% of the statewide population of households with income between 100% and 124% of Poverty, while the 50 counties with the highest per-household Gaps represented 42% of the statewide population households with income in that Poverty Level range.
6. Home energy burdens rapidly improve as incomes modestly increase, but nonetheless stay at substantially unaffordable levels. For households with income below 50% of Poverty, every county had an energy burden which, standing alone, exceeded an affordable burden for total shelter costs. For households with income between 100% and 125% of Poverty, only 12 counties had an average burden of 21% or more.

Part 3: Home Energy Affordability by Geography

Home energy affordability in New York 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. New York counties with the lowest aggregate Affordability Gap nonetheless still have a Gap in the millions of dollars each year.

Data at the Regional Level

New York's Home Energy Affordability Gap is a statewide phenomenon. New York counties have been categorized into eleven regions:

1. Chautauqua-Allegheny: Chautauqua, Cattaraugus, Allegany
2. Niagara-Frontier: Erie, Niagara, Wyoming, Genesee, Orleans
3. Finger Lakes: Monroe, Wayne, Seneca, Livingston, Ontario, Yates, Steuben, Chemung, Schuyler, Tioga, Tompkins, Cortland, Cayuga, Onondaga
4. Thousand Islands - Seaway: Oswego, Jefferson, St. Lawrence
5. The Adirondacks: Lewis, Herkimer, Fulton, Hamilton, Warren, Essex, Franklin, Clinton

6. Central Leatherstocking: Oneida, Madison, Chenango, Broome, Otsego, Schoharie, Montgomery
7. Saratoga-Capital: Albany, Schenectady, Saratoga, Washington, Rensselaer
8. Catskills: Delaware, Sullivan, Ulster, Greene
9. Hudson Valley: Columbia, Dutchess, Orange, Putnam, Rockland, Westchester
10. Long Island: Suffolk, Nassau
11. New York City: New York, Bronx, Kings, Queens, Richmond

These regions are classified based on physical and economic characteristics. They are not designed to have equal population sizes.

Aggregate and Per-Household Gap by Region

Not surprisingly, due to the sheer size of the population, the biggest aggregate Affordability Gap arises in the New York City region. As Table 10 shows, of the state's total \$4.012 billion Affordability Gap in 2012, \$1.822 billion (45%) is in New York City (Region 11). The aggregate Affordability Gap in New York City is more than four times bigger (4.33x) than the next largest Affordability Gap by region (Region 3: \$420 million). This large aggregate Affordability Gap in New York City arises notwithstanding the fact that the New York City region (Region 11) has the second lowest per-household Affordability Gap (\$1,542) in the state. Only Region 2 (\$1,470/household) has a lower per-household Affordability Gap.

Region	Per Household Gap	Aggregate Gap
1	\$72,892,595	\$1,745
2	\$234,902,675	\$1,470
3	\$420,407,940	\$1,716
4	\$117,936,579	\$2,436
5	\$138,494,001	\$2,664
6	\$204,829,586	\$2,188
7	\$171,255,871	\$1,925
8	\$127,888,922	\$2,905
9	\$352,363,689	\$2,154
10	\$348,167,669	\$2,409
11	\$1,822,449,133	\$1,542
Total	\$4,011,588,660	\$1,773

The aggregate Affordability Gap in each of the various regions of the state reveals a significant geographic spread of the Affordability Gap. Three regions outside New York City (Regions 3, 9 and 10) have an aggregate Affordability Gap of more than \$300 million. Three more regions (Regions 2, 6 and 7) have an Affordability Gap of between \$170 and \$250 million, while two regions (Regions 5 and 8) have aggregate Gaps of between \$125 and \$140 million. Region 1, which has the smallest aggregate Affordability Gap of any region in the state, still had an Affordability Gap of roughly \$73 million in 2012.

As is evident, 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 New York. Not only does the per-household Affordability Gap in each region 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 New York for the total population below 200% of Poverty Level was \$1,773 in 2012. On the “high” end, Region 8 exceeds the statewide average by nearly 65%, with an average Affordability Gap of \$2,905. Similarly, Region 4 exceeds the statewide average Affordability Gap by nearly 40% (\$2,436), while Region 5 exceeds the statewide average by more than 50% (\$2,664).
- The deviation on the “low” end is not quite as substantial. The largest deviation can be found in Region 2 (\$1,470) (83% of statewide average), with Region 11 (\$1,542) (87% of statewide average) and Region 3 (\$1,716) (97%) having even smaller per-household deviations.

By count, there are more Regions (7 of 11) with per-household Affordability Gaps greater than the average than there are with per-household Gaps less than the statewide average. However, the three regions with the smallest Gaps (and the greatest deviations lower than the statewide average: Regions 2, 3, 11) represent 70% of the State of New York’s total population at or below 200% of Poverty Level. The three regions with the highest per-household Gap (and the greatest deviations more than the statewide average: Regions 4, 5, 8) represent only six percent (6.4%) of New York’s population at or below 200% of Poverty Level. Table 11 below shows, by Poverty ranges, the aggregate and average affordability Gap by region for the total population below 200% of Federal Poverty Level.

Regional Contributions to State Totals

As incomes increase, the disparities in the aggregate Affordability Gap (per Poverty Range) smooth out as well. Table 12 shows the aggregate affordability Gap by region and selected Poverty Level along with the percentage contribution each region makes to the state total.

Table 11. Aggregate and Average Home Energy Affordability Gap by Region and Poverty Level Ranges (New York) (2012)

Region	< 50% FPL		50% - 99% FPL		100% - 124% FPL		125% - 150% FPL		150% - 184% FPL		185% - 200%	
	Aggregate	Average	Aggregate	Average	Aggregate	Average	Aggregate	Average	Aggregate	Average	Aggregate	Average
1	\$19,968,171	\$2,534	\$21,200,177	\$2,188	\$10,112,920	\$1,817	\$9,089,517	\$1,570	\$9,050,045	\$1,273	\$3,471,765	\$1,026
2	\$71,119,752	\$2,600	\$69,974,647	\$2,246	\$31,193,158	\$1,867	\$24,999,493	\$1,516	\$29,205,166	\$1,312	\$8,410,459	\$1,059
3	\$123,129,848	\$2,765	\$121,413,564	\$2,413	\$54,719,181	\$2,035	\$48,119,137	\$1,747	\$54,755,963	\$1,481	\$18,270,247	\$1,229
4	\$30,843,569	\$3,148	\$32,079,972	\$2,792	\$16,432,082	\$2,410	\$15,412,319	\$2,156	\$16,554,409	\$1,851	\$6,614,228	\$1,597
5	\$31,085,553	\$3,558	\$38,948,737	\$3,214	\$20,452,802	\$2,845	\$16,502,262	\$2,599	\$22,242,893	\$2,303	\$9,261,754	\$2,058
6	\$52,926,471	\$3,216	\$57,272,693	\$2,863	\$26,755,332	\$2,485	\$25,374,121	\$2,233	\$31,902,420	\$1,931	\$10,598,549	\$1,679
7	\$44,024,231	\$2,814	\$50,326,135	\$2,461	\$22,374,432	\$2,083	\$19,689,029	\$1,830	\$25,453,999	\$1,528	\$9,388,045	\$1,276
8	\$33,419,881	\$3,640	\$32,926,680	\$3,288	\$16,790,556	\$2,912	\$16,906,377	\$2,661	\$19,835,068	\$2,360	\$8,010,360	\$2,109
9	\$94,596,575	\$3,137	\$97,201,865	\$2,760	\$49,626,073	\$2,355	\$42,716,862	\$2,086	\$50,372,704	\$1,762	\$17,849,610	\$1,493
10	\$77,804,348	\$3,299	\$82,295,954	\$2,903	\$47,769,484	\$2,478	\$48,821,853	\$2,195	\$66,261,812	\$1,855	\$25,214,218	\$1,572
11	\$578,913,503	\$2,237	\$609,210,164	\$1,866	\$231,624,181	\$1,468	\$183,036,873	\$1,203	\$172,788,725	\$885	\$46,875,687	\$619
Total / Avg	\$1,157,831,902	\$2,983	\$1,212,850,588	\$2,627	\$527,850,201	\$2,244	\$450,667,843	\$1,985	\$498,423,204	\$1,684	\$163,964,922	\$1,429

Table 12. Aggregate Home Energy Affordability Gap by Region and Contribution to State Total (New York) (2012)

Region	< 50% FPL		50% - 99%		100% - 125% FPL		125% - 150% FPL		185% - 200% FPL	
	Aggregate	Statewide Contribution	Aggregate	Statewide Contribution	Aggregate	Statewide Contribution	Aggregate	Statewide Contribution	Aggregate	Statewide Contribution
1	\$19,968,171	2%	\$21,200,177	2%	\$10,112,920	2%	\$9,089,517	2%	\$3,471,765	2%
2	\$71,119,752	6%	\$69,974,647	6%	\$31,193,158	6%	\$24,999,493	6%	\$8,410,459	5%
3	\$123,129,848	11%	\$121,413,564	10%	\$54,719,181	10%	\$48,119,137	11%	\$18,270,247	11%
4	\$30,843,569	3%	\$32,079,972	3%	\$16,432,082	3%	\$15,412,319	3%	\$6,614,228	4%
5	\$31,085,553	3%	\$38,948,737	3%	\$20,452,802	4%	\$16,502,262	4%	\$9,261,754	6%
6	\$52,926,471	5%	\$57,272,693	5%	\$26,755,332	5%	\$25,374,121	6%	\$10,598,549	6%
7	\$44,024,231	4%	\$50,326,135	4%	\$22,374,432	4%	\$19,689,029	4%	\$9,388,045	6%
8	\$33,419,881	3%	\$32,926,680	3%	\$16,790,556	3%	\$16,906,377	4%	\$8,010,360	5%
9	\$94,596,575	8%	\$97,201,865	8%	\$49,626,073	9%	\$42,716,862	9%	\$17,849,610	11%
10	\$77,804,348	7%	\$82,295,954	7%	\$47,769,484	9%	\$48,821,853	11%	\$25,214,218	15%
11	\$578,913,503	50%	\$609,210,164	50%	\$231,624,181	44%	\$183,036,873	41%	\$46,875,687	29%
Total	\$1,157,831,902	100%	\$1,212,850,588	100%	\$527,850,201	100%	\$450,667,843	100%	\$163,964,922	100%

One can see, for example, that while New York City contributes 45% of the aggregate statewide Gap, it contributes 50% of the aggregate Gap for households with income below 50% of Poverty.

In contrast, six of the State's 11 regions contribute 5% or less of the aggregate Affordability Gap for households with income below 50% of Poverty. The multiplier between New York City and these regions with smaller aggregate Gaps for the lowest income households, in other words, is 10:1, with New York City having an aggregate Gap ten times (or more) higher on an aggregate basis.

As incomes increase, the percentage contribution made by New York City to the statewide total becomes lower. By the time incomes reach the 185-199% of Poverty range, New York City contributes only 29% of the statewide aggregate Gap.

For households with income between 100% and 125% of Poverty Level, only two of New York's eleven regions make double digit percentage contributions to the total statewide aggregate Affordable Gap. At 185% to 200% of Federal Poverty level, four regions make double digit percentage contributions to the state aggregate Gap.

Contributions to Regional Totals by Income Range

Table 13 presents, within each region, how much each of the selected Poverty Level ranges contributes to the aggregate Affordability Gap within that region. Households are grouped together into six ranges below 200% of Poverty (0 – 50%; 51 – 99%; 100 – 124%; 125 - 149; 150 – 184%; and 185 - 200%).

Statewide, the two lowest Poverty Level ranges (0-50%, 50-100%), despite their vastly different Affordability Gap levels on a per-household basis, contribute roughly similar amounts to the aggregate home energy affordability gap (from 23% to 30%). This equal contribution occurs in virtually every region. The contribution of each income range to the regional aggregate Affordability Gap drops by roughly half when incomes exceed 100% of Poverty.

Table 13. Contribution to Regional Aggregate Affordability Gap by Selected FPL Ranges (2012)

Region	Aggregate Gap (100%)	0 – 50% FPL	50 – 99% FPL	100 – 124% FPL	125 – 150% FPL	150 - 185% FPL	185 - 200% FPL
1	\$72,892,593	27.4%	29.1%	13.9%	12.5%	12.4%	4.8%
2	\$236,634,816	30.1%	29.6%	13.2%	10.6%	12.3%	3.6%
3	\$421,835,633	29.2%	28.8%	13.0%	11.4%	13.0%	4.3%
4	\$117,936,576	26.2%	27.2%	13.9%	13.1%	14.0%	5.6%
5	\$138,493,999	22.4%	28.1%	14.8%	11.9%	16.1%	6.7%
6	\$204,829,584	25.8%	28.0%	13.1%	12.4%	15.6%	5.2%
7	\$171,255,873	25.7%	29.4%	13.1%	11.5%	14.9%	5.5%
8	\$127,888,923	26.1%	25.7%	13.1%	13.2%	15.5%	6.3%
9	\$352,363,691	26.8%	27.6%	14.1%	12.1%	14.3%	5.1%
10	\$348,167,669	22.3%	23.6%	13.7%	14.0%	19.0%	7.2%
11	\$1,822,449,131	31.8%	33.4%	12.7%	10.0%	9.5%	2.6%
Statewide	\$4,014,748,488	28.8%	30.2%	13.1%	11.2%	12.4%	4.1%

As can be seen in Table 13, while less than one-third of the total statewide aggregate Affordability Gap is contributed by households with income below 100% of Poverty (29% and 30%), in Region 11 (New York City), those two Poverty Level ranges contribute somewhat more of the total aggregate Gap (32%). By the mid-Poverty Level range incomes (e.g., 100-124% of Poverty), the disparity between regions in contributions by Poverty ranges had narrowed (with the highest contribution of 15% compared to the statewide average of 13% and the lowest contribution of 12.7%). Differences in the percentage contributions in all regions had virtually disappeared by the time incomes reached the income range of 185-200% of Poverty (with all ranges falling between 13% and 17%, and the statewide average being 14%).

What can be concluded from Table 13 is that care must be taken in making assumptions about the impact of differing affordability strategies in different regions of the state of New York. While in some regions, for example, the emphasis of assistance should be directed toward the lowest income households in order to reach the greatest need, in other regions of the state, directing assistance only to the lowest income levels would miss a considerable portion of the total aggregate Affordability Gap in that region. In contrast, while in some regions of the state, expanding income eligibility to the higher ranges of income would be effective in meeting an increasing proportion of the aggregate Affordability Gap, in other regions of the state, expanding

income eligibility for assistance would have a marginal impact, at best, at covering a higher portion of the unaffordability of energy.

Data at the County Level

In addition to examining the regional implications of the Home Energy Affordability Gap, it is important to examine the Affordability Gap on an individualized county basis. When looking at counties, it is possible to gain insights into how the Affordability Gap might be influenced by the number of households in any particular Poverty range as well as the impact (or lack thereof) of the penetration of primary heating fuels.

Per-Household Affordability Gap by County

The same counties throughout New York State consistently evidence the “highest” and “lowest” Home Energy Affordability Gaps on a per-household basis. While not in the precise same order in all ranges of Federal Poverty Level, the same counties nonetheless appear. New York, Erie and Kings counties, for example, have the three lowest per-household Affordability Gap at each Poverty Level examined. Monroe and Richmond also consistently appear in the counties with the lowest per-household Affordability Gap. Onondaga County, along with Chautauqua, Niagara, Chemung and Albany Counties, round out, in that order, generally the ten counties with the lowest per-household Affordability Gaps for households with income at or below 200% of Federal Poverty Level.

Table 14. Counties with Lowest Per Household Affordability Gap by Selected FPL Ranges (2012)

Counties with Lowest Per HH Affordability Gap									
< 50% FPL		50 – 99% FPL		100 – 125% FPL		150 – 185% FPL		185 – 200% FPL	
County	HH Gap	County	HH Gap	County	HH Gap	County	HH Gap	County	HH Gap
New York	\$1,912	New York	\$1,587	New York	\$1,239	Kings	\$709	Kings	\$440
Erie	\$2,046	Erie	\$1,699	Kings	\$1,299	New York	\$728	New York	\$495
Kings	\$2,078	Kings	\$1,702	Erie	\$1,327	Erie	\$782	Erie	\$534
Chautauqua	\$2,166	Monroe	\$1,816	Monroe	\$1,436	Richmond	\$854	Richmond	\$580
Monroe	\$2,170	Chautauqua	\$1,822	Chautauqua	\$1,454	Monroe	\$879	Monroe	\$626
Chemung	\$2,228	Richmond	\$1,865	Richmond	\$1,455	Chautauqua	\$914	Rockland	\$628
Onondaga	\$2,246	Chemung	\$1,882	Onondaga	\$1,512	Rockland	\$918	Queens	\$666
Richmond	\$2,247	Onondaga	\$1,892	Chemung	\$1,513	Queens	\$942	Chautauqua	\$669
Albany	\$2,263	Niagara	\$1,915	Niagara	\$1,540	Onondaga	\$956	Onondaga	\$703
Niagara	\$2,265	Albany	\$1,920	Queens	\$1,550	Chemung	\$970	Chemung	\$724

The same patterns appear in the counties with the highest per-household Affordability Gaps. Lewis County has the highest Affordability Gap for each Poverty Level below 125% of Poverty, with Hamilton having a higher Gap in the higher income ranges. Schoharie and Sullivan Counties round out the counties with the largest Gaps by Poverty range. Essex and Otsego consistently fall within the ten counties with the highest Affordability Gap per-household.

Table 15: Counties with Highest Per Household Affordability Gap by Selected FPL Ranges (2012)

Counties with Highest Per HH Affordability Gap									
< 50% FPL		50 – 99% FPL		100 – 125% FPL		150 – 185% FPL		185 – 200% FPL	
County	HH Gap	County	HH Gap	County	HH Gap	County	HH Gap	County	HH Gap
Washington	\$3,607	Washington	\$3,256	Washington	\$2,880	Washington	\$2,328	Washington	\$2,077
Otsego	\$3,608	Otsego	\$3,263	Otsego	\$2,893	Otsego	\$2,350	Otsego	\$2,104
Greene	\$3,661	Greene	\$3,310	Greene	\$2,934	Greene	\$2,383	Greene	\$2,132
Essex	\$3,734	Essex	\$3,394	Essex	\$3,031	Putnam	\$2,466	Putnam	\$2,194
Putnam	\$3,857	Putnam	\$3,475	Putnam	\$3,066	Essex	\$2,497	Essex	\$2,255
Sullivan	\$3,858	Sullivan	\$3,501	Sullivan	\$3,118	Sullivan	\$2,556	Sullivan	\$2,300
Schoharie	\$3,875	Schoharie	\$3,523	Schoharie	\$3,145	Schoharie	\$2,591	Schoharie	\$2,339
Hamilton	\$4,079	Hamilton	\$3,755	Franklin	\$3,400	Franklin	\$2,851	Franklin	\$2,602
Franklin	\$4,124	Franklin	\$3,774	Hamilton	\$3,409	Lewis	\$2,863	Lewis	\$2,605
Lewis	\$4,178	Lewis	\$3,817	Lewis	\$3,430	Hamilton	\$2,900	Hamilton	\$2,669

The per-household Affordability Gap can vary for a variety of reasons. The penetration of heating fuels may vary by county, with some counties having a higher proportion of high-priced heating. The penetration of homeowners and renters, with a corresponding difference in housing unit sizes and types, differs sharply between counties. Average household sizes differ between counties. The differences between counties, however, tend not to be sufficient to result in a substantial re-ordering of counties when the Affordability Gap is considered on a per-household basis.

Aggregate Affordability Gap by County

Unlike the per-household Affordability Gap analysis above, the analysis of the aggregate Gaps presented in Table 16 does not reveal the same substantial overlap between counties. Consider, for example, that Essex and Lewis Counties are found to be among the ten counties with the lowest aggregate Affordability Gap for households with income less than 50% of Poverty Level, but not for households with income higher incomes. Chemung County is among the counties with the ten lowest aggregate Affordability Gaps for the highest Poverty Level range (185-200%) in Table 16, but not for any of the lower income ranges. This occurs largely because counties may have widely different penetrations of households at varying ranges of Federal Poverty Level. Simply because a New York county has a large number of households with income below 50% of Poverty Level, in other words, does not mean that that county will also have a large number of households at each higher level of Poverty.

Table 16. Counties with Lowest Aggregate Affordability Gap by Selected FPL Ranges (2012)

Counties with Lowest Aggregate Affordability Gap									
< 50% FPL		50 – 99% FPL		100 – 125% FPL		150 – 185% FPL		185 – 200% FPL	
County	Aggregate Gap	County	Aggregate Gap	County	Aggregate Gap	County	Aggregate Gap	County	Aggregate Gap
Hamilton	\$285,532	Hamilton	\$570,833	Hamilton	\$207,938	Hamilton	\$614,881	Hamilton	\$130,794
Schuyler	\$891,030	Schuyler	\$1,294,914	Schuyler	\$815,459	Schuyler	\$1,293,129	Yates	\$454,474
Seneca	\$1,591,579	Yates	\$2,257,963	Orleans	\$1,391,393	Yates	\$1,294,581	Orleans	\$527,032
Wyoming	\$1,859,253	Wyoming	\$2,500,887	Yates	\$1,497,554	Seneca	\$1,527,591	Chemung	\$548,502
Schoharie	\$2,205,008	Seneca	\$2,595,632	Lewis	\$1,619,059	Cortland	\$1,667,312	Genesee	\$559,184
Yates	\$2,284,337	Cortland	\$2,791,075	Wyoming	\$1,679,238	Wyoming	\$1,771,524	Livingston	\$598,177
Orleans	\$2,429,019	Schoharie	\$2,821,584	Putnam	\$1,692,610	Allegany	\$1,860,507	Seneca	\$653,362
Lewis	\$2,444,095	Putnam	\$2,971,427	Essex	\$1,772,936	Schoharie	\$2,054,309	Cortland	\$664,176
Genesee	\$2,821,042	Orleans	\$3,022,537	Genesee	\$1,790,890	Genesee	\$2,091,049	Schuyler	\$674,610
Essex	\$2,971,948	Livingston	\$3,129,425	Seneca	\$1,900,493	Livingston	\$2,094,511	Schoharie	\$699,258

The same result appertains, albeit to a lesser degree, for the ten counties with the largest aggregate Affordability Gap as set forth in Table 17. At the lower ranges of Federal Poverty Level, the size of the Poverty population is likely the primary driver of the aggregate Affordability Gap. Queens, New York, Kings and Bronx are the counties with the four largest aggregate Affordability Gap for households with income less than 125% of the Federal Poverty Level, notwithstanding the fact that three of those counties (New York, Kings, Queens) had three

of the lowest per-household Gaps in the state. At the two higher Poverty ranges, Nassau and Suffolk counties appear among the group of counties with the highest aggregate Gap.

Table 17. Counties with Highest Aggregate Affordability Gap (\$000) by Selected FPL Ranges (2012)

Counties with Highest Aggregate Affordability Gap									
< 50% FPL		50 – 99% FPL		100 – 125% FPL		150 – 185% FPL		185 – 200% FPL	
County	HH Gap	County	HH Gap	County	HH Gap	County	HH Gap	County	HH Gap
Onondaga	\$26,437,544	Onondaga	\$25,826,495	Onondaga	\$10,821,379	Orange	\$10,879,798	Orange	\$3,708,163
Nassau	\$32,287,011	Nassau	\$37,063,241	Monroe	\$16,498,699	Monroe	\$13,848,459	Monroe	\$4,628,931
Westchester	\$37,936,361	Monroe	\$40,278,012	Erie	\$20,475,046	Erie	\$17,210,604	Erie	\$5,012,639
Monroe	\$43,855,905	Westchester	\$40,897,263	Nassau	\$21,187,548	Westchester	\$20,296,247	Westchester	\$6,793,745
Suffolk	\$45,517,337	Suffolk	\$45,232,713	Westchester	\$23,895,012	Nassau	\$26,053,312	New York	\$7,361,512
Erie	\$53,531,027	Erie	\$47,071,223	Suffolk	\$26,581,936	New York	\$26,886,080	Nassau	\$10,170,274
Queens	\$102,251,051	New York	\$115,384,144	New York	\$39,450,276	Suffolk	\$40,208,500	Kings	\$10,651,404
New York	\$109,893,962	Queens	\$122,531,951	Queens	\$57,524,279	Bronx	\$43,377,385	Bronx	\$12,978,184
Bronx	\$157,453,272	Bronx	\$164,810,324	Bronx	\$58,745,568	Kings	\$45,844,882	Queens	\$14,214,219
Kings	\$189,684,073	Kings	\$188,812,736	Kings	\$67,778,473	Queens	\$50,892,469	Suffolk	\$15,043,944

Home Energy Burdens by County

The wide distribution of home energy burdens by county in New York was discussed in detail above (*see*, Table 9 and accompanying text). This distribution of energy burdens, however, does not address the issue of *whether* home energy is affordable or unaffordable throughout the State. Instead, it simply addresses the extent of unaffordability. Table 18 sets forth the limits of the distribution around the average statewide average by selected Federal Poverty Levels across a range from very low-income (50% – 99% of Poverty Level) to more moderate incomes.

What is striking about these distributions is that the extent to which the “smallest” burden is lower than the statewide average is much less than the extent to which the “largest” burden is higher than the average. For households at 50% to 99% of Poverty, for example, while the average statewide home energy burden is 21.9%, the county with the smallest burden is only three percent lower (at 18.7%), while the county with the largest burden is nearly 17% higher (at 38.5%).

This pattern persists across home energy burdens over the entire range of Poverty Levels. For households with income between 100% and 124% of Poverty, the average statewide burden is 11.9%. While the county with the smallest burden is only 2% lower (at 10.2%), the county with the highest burden is more than 10% higher (at 25.7%). For households with income between 185% and 200% of Poverty, the statewide average burden is 8.8%. While the county with the smallest burden is only 1.5% lower (at 7.3%), the county with the highest burden is more than 6% higher (at 15.0%). When a statewide average is used, that average is much more likely to substantially understate the need in any particular individual county than it is to substantially overstate the need.

Table 18. Limits of Home Energy Burdens by New York County: Selected Poverty Ranges (2012).

	<50%	50 - 99%	100 - 124%	125 - 149%	150 - 185%	185 - 200%
Smallest burden in a County	35.0%	18.7%	12.5%	10.2%	8.4%	7.3%
Largest burden in a County	72.2%	38.5%	25.7%	21.0%	17.2%	15.0%
Average burden statewide	41.1%	21.9%	14.8%	12.2%	10.1%	8.8%

The lesson to be learned is not simply that statewide averages should be used with care. The lesson to be learned is that New York has pockets within the state that demonstrate noticeably greater home energy unaffordability than the state experiences as a whole. The difference is not driven by concentrations of lower income. Rather, even controlling for income (as measured by Federal Poverty Level) (i.e., income taking into account household size), pockets of the state have higher energy burdens (i.e., bills as a percentage of income) attributable to penetrations of more expensive fuels, penetrations of larger housing units, or more severe weather (or a combination of such factors).

Six Important Findings

1. Due to the sheer size of the population, the biggest aggregate Affordability Gap in New York arises in the New York City region. Of the state’s total \$4.012 billion Affordability Gap in 2012, \$1.822 billion (45%) is in New York City. This large aggregate Affordability Gap in New York City arises notwithstanding the fact that the New York City region has the second lowest per-household Affordability Gap in the state.
2. The aggregate Affordability Gap in each of the various regions of the state reveals a significant geographic spread of the Affordability Gap. Three regions outside New York City have an aggregate Affordability Gap of more than \$300 million. Three more regions have an Affordability Gap of between \$170 and \$240 million, while two regions have

aggregate Gaps of between \$125 and \$140 million. The Region having the smallest aggregate Affordability Gap still had a Gap of more than \$70 million in 2012.

3. By count, there are more Regions (7 of 11) with per-household Affordability Gaps greater than the average than there are with per-household Gaps less than the statewide average. However, the three regions with the smallest Gaps represent 70% of the State of New York's total population at or below 200% of Poverty Level. The three regions with the highest per-household Gap represent only six percent of New York's population at or below 200% of Poverty Level.
4. Statewide, the two lowest Poverty Level ranges (0-50%, 50-100%), despite their vastly 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. The contribution to each regional aggregate Affordability Gap drops by roughly half when incomes exceed 100% of Poverty Level, with the contributions from each succeeding higher Poverty Level range becoming increasingly smaller.
5. The same counties throughout New York State consistently evidence the "highest" and "lowest" Home Energy Affordability Gaps on a per-household basis. While not in the precise same order in all ranges of Federal Poverty Level, the same counties nonetheless appear. However, unlike the per-household Affordability Gap analysis above, the analysis of the aggregate Gaps does *not* reveal the same substantial overlap.
6. New York has pockets within the state that demonstrate noticeably greater home energy unaffordability than the state experiences as a whole. The difference is not driven by concentrations of lower income. Rather, even controlling for income (as measured by Federal Poverty Level), pockets of the state have higher energy burdens (i.e., bills as a percentage of income) attributable to penetrations of more expensive fuels, penetrations of larger housing units, or more severe weather (or a combination of such factors).

Part 4: Patterns and Trends of Incomes in New York 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 New York. 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. This occurs in large part because the number of households with the highest Affordability Gap is increasing and the number of households with a lower Affordability Gap is decreasing. Given that realization, in this section, we will take a closer look at the dynamics of income in New York from 2010 to 2012 to determine whether trends and patterns can be identified.¹²

Median Income

This section considers the median income of New York residents by various factors commonly viewed 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

¹² Frequently, it is the *pattern* of income changes that is as important as the actual level of income in any given individual year.

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.

Median Income by Household Size

Smaller households have noticeably lower incomes than do households with larger numbers of members in New York. Median household income is lowest for 1-person households (\$30,450), with progressive increases as households gain members, up to \$62,896 for 2-person households; \$72,446 for 3-person households; and \$83,676 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 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.

Table 19. Median Income by Household Size, 2010, 2011, 2012 (New York)

	2010	2011	2012	Change: 2010 – 2012
All households	\$54,158	\$55,246	\$56,448	4.2%
1-person	\$29,147	\$29,189	\$30,450	4.5%
2-person	\$59,743	\$61,611	\$62,896	5.3%
3-person	\$69,281	\$70,171	\$72,446	4.6%
4-person	\$81,157	\$80,700	\$83,676	3.1%
5-person	\$78,620	\$78,668	\$79,144	0.7%
6-person	\$71,099	\$75,254	\$74,381	4.6%
7+-persons	\$79,538	\$77,308	\$77,020	-3.2%

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

Aside from age, 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 New York in 2011, 40% of

all one-worker households represented one-person households; 60% of all two-worker households represented three- and four-person households.¹³

With one exception, larger households experienced a smaller increase in real incomes than did smaller households over the three year period 2010 through 2012. Median income for a one-person New York household increased by nearly five percent (5%) from 2010 to 2012, with two- and three-person increases falling between 4.6% and 5.3%. With the exception of 6-person households, income changes for other household sizes were less over the three-year period. For all household sizes, median income experienced an increase from 2010 to 2012.

Median Income by Age

As referenced above, median income is related to age in New York. On the one hand, householders age 25 years or younger have a median income less than half that of the statewide median (\$25,435 vs. \$56,448). On the other hand, householders age 65 years or older have a median income somewhat more than 65% of the statewide median (\$37,246 vs. \$56,448).

Younger households experienced a decline in incomes in the three-year period 2010 through 2012 while older householders did not. The three-year median income decline of 2.9% for householders aged 25 or younger contrasts with income increases of more than two percent for householders age 25 to 64 and nearly eight percent for households aged 65 and older.

Table 20. Median Income by Age of Householder, 2010, 2011, 2012 (New York)

Age of Householder	2010	2011	2012	Change: 2010 - 2012
Total households:	\$54,158	\$55,246	\$56,448	4.2%
Under 25 years	\$26,195	\$25,953	\$25,435	-2.9%
25 to 44 years	\$60,887	\$61,127	\$62,282	2.3%
45 to 64 years	\$65,271	\$66,589	\$66,980	2.6%
65 years and over	\$34,518	\$34,946	\$37,246	7.9%

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

Only householders under age 25 experienced a continuous decline in median income from 2010 through 2012. For these working age householders, median income was less in 2011 than it was in 2010; median income was even less in 2012 than it was in 2011. In contrast, aging householders (65 years or older) saw an improvement in real incomes each year, with a slight increase from 2010 to 2011 and a greater increase in 2012.

¹³ American Community Survey (3-year data), at Table B08202.

Median Income by Work Experience

Median income increased for full-time year-round workers in New York from 2010 to 2012. Real median income for full-time, year-round male workers increased by just over \$1,000 (\$50,905 to \$51,996) from 2010 to 2012, while median income for full-time, year-round female workers increased even more, from \$42,219 to \$44,793.

So long as workers were able to maintain their full-time, year-round jobs during the economic downturn in New York, in other words, their incomes, though not increasing substantially beyond inflation, nonetheless did show some increase. Full-time, year-round male workers saw a slight increase in real median income of only \$263 from 2010 to 2011, but that income increase accelerated in 2012. Full-time, year-round female workers experienced an increase in real median income of more than \$1,000 from 2010 to 2011, with an even greater increase in 2012.

This result for full-time, year-round workers reverses several years of declining real income. 2010 median income, for example, was nearly two percent less than 2008 median income in New York.

Table 21. Median Income by Sex by Work Experience, 2010, 2011, 2012 (New York)

Work Status in past 12-Months	2010	2011	2012
Total (dollars):	\$27,399	\$27,254	\$28,449
Male --			
Total (dollars)	\$33,042	\$33,297	\$34,714
Full-time, year-round	\$50,905	\$51,168	\$51,996
Other	\$16,434	\$16,138	\$16,419
Female --			
Total	\$22,495	\$22,366	\$23,105
Full-time, year-round	\$42,219	\$43,232	\$44,793
Other	\$12,351	\$12,219	\$12,544

SOURCE: American Community Survey, 1-year data, Table B19326.

Mean Income

In contrast to the median incomes examined above, this section considers the *average* (i.e., mean) income for New York residents by various demographic factors.¹⁴ The three year period 2010 through 2012 is considered. The year 2012 is the most recent year for which data is yet available.

Mean Income by Income Quintile

Average income in New York declined in real, inflation-adjusted, terms from 2010 to 2012 at the lowest level of income even though incomes increased for higher income levels and for the population as a whole. Table 22 presents the mean income by income quintile for the three-year period. A “quintile” represents one-fifth of the New York population. Thus, for example, the “lowest” quintile is the one-fifth of households in New York with the lowest incomes. The “highest quintile” is the one-fifth of households in New York 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 New York in the lower income quintile from 2010 through 2012. The mean income for the lowest income quintile declined by 0.7% in the three-year period. In contrast, income increased slightly in the second income quintile (1.9%), and by noticeably more in the higher income quintiles.

The dollar level of income in the lowest income quintile for New York state is substantially below the Federal Poverty Level. Poverty Level for a two-person household in 2012 was \$15,130. Poverty Level for a three-person household in 2012 was \$19,090. The average household size in New York in 2010 was 2.62 persons. In contrast, income in the lowest income quintile in 2012 was \$11,153.

Indeed, the bottom two quintiles of income in New York in 2012 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 below 200% of Poverty Level, however, appear to characterize up to 40% of New York’s overall population.

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

Table 22. Mean Income by Income Quintile, 2010, 2011, 2012 (New York)

Quintile Means	2010	2011	2012	Change: 2010 - 2012
Lowest Quintile	\$11,232	\$11,024	\$11,153	-0.7%
Second Quintile	\$31,059	\$30,853	\$31,647	1.9%
Third Quintile	\$54,621	\$55,513	\$56,735	3.9%
Fourth Quintile	\$88,453	\$90,138	\$91,802	3.8%
Highest Quintile	\$208,266	\$213,691	\$215,867	3.6%
Top 5 Percent	\$386,992	\$396,700	\$398,254	2.9%

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 New York do not equal or exceed a “living wage” income for households in the two lowest income quintiles in New York.

Mean Income by Poverty Level

The mean incomes presented in Table 23 indicate that households in New York 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 New York is:

- \$49,048 for a two-person (one-adult, one child) household;
- \$64,892 for a three-person (one adult, two child) household;
- \$41,246 for a three-person (two adults, one child) household;
- \$44,163 for a four-person (two adults, two child) household.

In contrast to these living wage incomes, the mean annual income of households with income at 175 - 200% of Poverty Level in New York is less than \$45,000.

Table 23. Mean Income by Ratio of Income to Poverty Level, 2010, 2011, 2012 (New York)

Persons	2010	2011	2012
Total	\$82,121	\$82,040	\$88,812
Below 50%	\$13,697	\$13,616	\$14,267
50 – 75%	\$19,135	\$19,364	\$16,519
75 – 100%	\$23,257	\$23,137	\$21,001
100 – 125%	\$24,245	\$24,158	\$27,345
125 - 150%	\$31,133	\$31,269	\$30,460
150 – 175%	\$36,140	\$36,267	\$37,896
175 – 200%	\$38,590	\$38,607	\$44,603
200 – 300%	\$52,649	\$52,628	\$57,144
300 – 400%	\$72,546	\$72,607	\$73,054
400% and above	\$148,932	\$148,426	\$151,525

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

Indeed, in contrast to these “living wage” calculations by MIT, the 2012 mean income for households with income between 200% and 300% of Poverty Level was \$57,144.

Mean Income by Poverty Level, Age and Gender

Table 24 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 2012, 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 \$15,944, while a household with a head of household between 18 and 64 years of age had an income more than 70% higher (\$29,984). An aging household living with an average income between 175% and 200% of Poverty had an average income (\$26,925) 45% less than a household with a head of household age 16 to 64 (\$48,555).

Table 24. Mean Income by Ratio of Income to Federal Poverty Level and Age, 2010, 2011, 2012

Persons	2010			2011			2012		
	Total	18-64	64-85+	Total	18-64	64-85+	Total	18-64	64-85+
Total	\$82,121	\$86,476	\$57,141	\$82,040	\$86,161	\$57,441	\$82,712	\$89,335	\$56,662
Below 50%	\$13,697	\$16,426	\$8,217	\$13,616	\$16,057	\$8,546	\$14,267	\$17,609	\$4,476
50 – 75%	\$19,135	\$20,802	\$11,274	\$19,364	\$21,233	\$11,202	\$16,519	\$17,016	\$11,156
75 – 100%	\$23,257	\$23,742	\$15,185	\$23,137	\$23,582	\$15,084	\$21,001	\$21,754	\$14,304
100 – 125%	\$24,245	\$26,398	\$14,890	\$24,150	\$26,219	\$14,855	\$27,345	\$29,984	\$15,944
125 - 150%	\$31,133	\$34,155	\$19,029	\$31,269	\$34,220	\$19,139	\$30,460	\$31,847	\$19,628
150 – 175%	\$36,410	\$38,602	\$23,814	\$36,267	\$38,481	\$23,591	\$37,896	\$39,674	\$23,045
175 – 200%	\$38,590	\$41,219	\$25,516	\$38,607	\$41,140	\$25,784	\$44,603	\$48,555	\$26,925
200 – 300%	\$52,649	\$52,445	\$38,297	\$52,628	\$52,473	\$38,237	\$57,144	\$57,546	\$40,362
300 – 400%	\$72,546	\$73,041	\$51,381	\$72,607	\$73,227	\$51,089	\$73,054	\$72,943	\$54,676
400% and above	\$148,932	\$144,722	\$115,620	\$148,820	\$144,632	\$115,619	\$151,525	\$152,371	\$113,753

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 New York, particularly at the lowest Poverty Levels. In the income range of “below 50% of Poverty,” aging households have only 25% of the income that working age households do. The ratio of aging income to working-age income stays at 65% or below through 200% of Poverty (50 – 100% FPL: 65%; 100 – 125% FPL: 53%; 125 - 150% FPL: 62%; 150 - 175%: 58%; 175 – 200%: 55%). As Poverty Level increases, however, the income gap between aging households and non-aging households narrows. Between 200% and 300% of Poverty, the ratio of average aging incomes to non-aging incomes narrows to 70%, while above 300% of Poverty, the ratio narrows further to 75%.

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 metric is 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 New York residents are recipients of public assistance income, including Food Stamps.¹⁵

Poverty Status by Educational Attainment

The level of educational attainment in New York has a substantive influence on the Poverty status of New York residents. Table 25 presents data on Poverty status by the level of educational attainment. According to this Table, two-thirds of both men and women living with income below Poverty Level in 2012 have a high school degree or less. Within the male population, 33% of individuals age 25 or older (both men and women) who are living below Poverty have *less* than a high school education. A nearly similar proportion of men (32%) and women (31%) have a high school degree, but no further education.

¹⁵ 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.

Table 25. Individuals by Sex by Educational Attainment by Below-Poverty Status, 2010, 2011, 2012 (New York) (persons age 25 and older)

	2010	2011	2012
Below Poverty:	1,465,703	1,653,527	1,655,791
Male:	575,756	654,296	663,214
Less than HS graduate	201,422	211,660	220,194
HS graduate /a/	182,026	222,022	212,461
Some college /b/	106,912	128,222	132,868
Bachelor's degree /c/	85,396	92,392	97,691
Female:	889,947	999,231	992,577
Less than HS graduate	317,460	339,617	327,788
HS graduate /a/	273,589	312,903	310,009
Some college /b/	187,730	211,006	221,185
Bachelor's degree /c/	111,168	135,705	133,595

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 not changed in the three year period 2010 through 2012. The proportion of both men and women below Poverty having a high school education or less has remained relatively constant for the full three-year period. Moreover, the gender of the individual does not change the Poverty outcome. A male is just as likely as a female to fall into Poverty with a high school education or less.

While the proportions of individuals with a high school diploma or less have not changed over three years, the number of individuals falling into Poverty with such a level of educational attainment shows a gender difference and has grown since 2010. In 2010, there were nearly 314,000 more women in Poverty than men. That difference grew to 345,000 in 2011, before declining back to 330,000 in 2012. From 2010 through 2012, between 205,000 and 220,000 more women in Poverty than men had a high school education or less.

A substantial increase in Poverty status, in absolute even if not percentage terms, occurred for both men and women who have “some college” (but not a degree), or who have at least a

Bachelor’s degree, and who live in Poverty. From 2010 to 2012, the number of New York men living in Poverty with some college or more (at least a Bachelor’s degree) grew by 38,251, while the number of women in these two educational categories grew by 55,882. A greater number of women (even if not proportionately so), in other words, remain in Poverty despite obtaining higher education.

Poverty Status by Work Experience

Obtaining full-time work is frequently viewed as the mechanism through which households, New York or otherwise, can raise themselves out of poverty. This section examines the interrelationship between work status and poverty status. Of New York households living with income below the Federal Poverty Level, Table 26 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 26 shows that more women are in Poverty in New York than men. While roughly 900,000 men live with income below the Poverty Level, nearly 1.3 million women do. This level of Poverty amongst women is disproportionate to the prevalence of women in New York’s total population. While women comprise nearly 60% of the total Poverty population, they represent only 52% of the overall population in New York.

Table 26. Individuals by Work Experience in Past 12-Months by Below-Poverty Status, 2010, 2011, 2012 (New York) (persons age 25 and older)

Work Status & Poverty	2010	2011	2012
Below poverty level:	1,941,366	2,178,285	2,163,314
Male:	797,411	897,080	899,585
Full time, year-round	88,537	96,109	105,691
Part-time or part-year	235,913	258,027	246,794
Did not work	472,961	542,944	547,100
Female:	1,143,955	1,281,205	1,263,729
Full time, year-round	74,242	83,529	80,296
Part-time or part-year	315,097	335,512	348,108
Did not work	754,616	862,164	835,325

SOURCE: American Community Survey, 3-year data, Table B17004.

A higher proportion of men live in Poverty despite having full-time, year-round work. More than one-in-eight men (105,691 of 899,585, 11.7%) of men live in Poverty, despite working on a full-time, full-year basis. In contrast, only 6.4% of women (80,296 of 1,263,729) 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 (66% women vs. 61% men). The proportion of men and women who work either part-time, or for a partial year (or a combination of these two), is roughly equal (27% men vs. 28% women).

The proportions of men and women who live with Poverty incomes despite full-time, year-round work did not substantively change in the three year period 2010 through 2012. The proportion of men remained constant at roughly 11%, while the proportion of women remained constant at 6%. The change, for men, came in the increased proportion of men who lived in Poverty because of the lack of work (an increase from 59% to 61%) and a decrease in the amount of part-time work. A similar change is not evident for women.

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 New York, in 2012 (the last year for which data is available), 76% of all households eligible for Food Stamps actually participated in the Food Stamp program. Food Stamp participation experienced a substantial increase from 2010 through 2012. The participation of 889,567 households in 2010 was 27% higher than Food Stamp participation in 2008, an increase of more than 188,000 household participants. The participation of 1.126 million households in 2012 represented an additional three-year increase of 27% (236,000 households).

Table 27. Receipt of Food Stamps by Poverty Status for Households, 2010, 2011, 2012 (New York)

Food Stamps in Last 12-Months? /a/ /b/	2010	2011	2012
Total:	7,221,564	7,187,938	7,238,922
Received Food Stamps	889,567	1,090,747	1,125,632
Income below Poverty	477,209	570,377	574,896
Income above Poverty	412,358	520,370	550,736
No Food Stamps	6,331,997	6,097,191	6,113,290
Income below Poverty	524,446	507,844	505,092
Income above Poverty	5,807,551	5,589,347	5,608,198

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 dramatic increase in Food Stamp participants amongst households that have income above the Federal Poverty Level. In 2008, households with above-Poverty incomes represented only 41% of the total Food Stamp

participant population; by 2010, the participation of above-Poverty households had increased by more than 126,000, reaching more than 46% of the total participant population. The proportion had increased further (to 49%) by 2012.

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 2010, the average (mean) income of Food Stamp recipient households was only \$15,624, less than 30% of the overall statewide average income in New York. By 2012, the average Food Stamp recipient household income was 31% of the statewide income (\$17,286 vs. \$56,448). Despite its low level, the ratio of Food Stamp to total income is increasing; in 2008, the average Food Stamp income was only 24% of the total average income.

Table 28. Income by Receipt of Food Stamps, 2010, 2011, 2012 (New York)

	2010	2011	2012
Total:	\$55,217	\$55,246	\$56,448
Received Food Stamps	\$15,624	\$16,931	\$17,286
Did not receive Food Stamps	\$62,081	\$63,695	\$65,398

SOURCE: American Community Survey, 1-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 2010 to 2012, the average income of a Food Stamp recipient household increased by 11%, from \$15,624 to \$17,286. In the same time period, the average income for New York’s overall population remained nearly constant (showing a 2% inflation-adjusted increase from \$55,217 to \$56,448).

Twelve Important Findings

1. New York tenants have significantly lower incomes than do homeowners. In New York, median tenant income remains half of the annual income of homeowners. Both homeowners and tenants saw an increase in their real (inflation-adjusted) income from 2010 to 2012.
2. Smaller households have noticeably lower incomes than do households with larger numbers of members in New York. 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 New York. 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 in New York, their incomes, though not increasing substantially beyond inflation, nonetheless did show some increase. Full-time, year-round male workers saw a slight increase in real median income of only \$263 from 2010 to 2011, and that increase accelerated in 2012. Similarly, full-time, year-round female workers experienced an increase in real median income of \$1,000 from 2010 to 2011, with an even greater increase from 2011 to 2012.
5. More women are in Poverty in New York than men. While roughly 900,000 men live with income below the Poverty Level, nearly 1.3 million women do. This level of Poverty amongst women is disproportionate to the prevalence of women in New York's total population. While women comprise nearly 60% of the total Poverty population, they represent only 52% of the overall population in New York.
6. Average income in New York declined in real, inflation-adjusted, terms from 2010 to 2012 at the lowest level of income even though incomes increased for higher income levels and for the population as a whole.
7. The dollar level of income in the lowest income quintile for New York state is substantially below the Federal Poverty Level. The bottom two quintiles of income in New York in 2012 are likely at or below 200% of Federal Poverty Level.
8. Households in New York 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 New York has a substantive influence on the Poverty status of New York residents. Two-thirds of both men and women living with income below Poverty Level in New York have only a high school degree or less.
11. A higher proportion of men live in Poverty despite having full-time, year-round work. More than one-in-eight men (11.7%) of men live in Poverty, despite working on a full-time, full-year basis. In contrast, only 6.4% 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 (66% women vs. 61% men).
12. Food Stamp participation experienced a substantial increase from 2010 through 2012. The participation of households in 2010 was 27% higher than Food Stamp participation in 2008. The participation in 2012 represented an additional three-year increase of 27%. One reason for the increase in Food Stamp participation is the continuing dramatic increase in Food Stamp participants amongst New York households that have income above the Federal Poverty Level.

Part 5: A Special Focus on New York’s Renters and Rental Housing

As policymakers consider the significance of home energy unaffordability in New York, special attention should be directed toward the condition of tenants and rental housing.¹⁶ In this chapter, we review different aspects of “tenure” (i.e., owner/renter status) throughout New York. This review of tenure first provides an overview of different aspects of owner/renter status. The chapter next addresses the relationship between energy affordability and housing affordability. We discuss, where appropriate, how that interaction both demonstrates a need for, and presents barriers to, the implementation of energy efficiency improvements in rental housing.

As the data and discussion below will find, tenants tend to systematically have lower incomes 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 of efficiency of that housing.

¹⁶ In contrast to this special focus on tenants and rental housing, the 2010 Affordability Gap analysis for NYSERDA provided a special focus on “working poor” households. See, Colton (June 2011). *Home Energy Affordability in New York: The Affordability Gap (2008 – 2010)*, prepared on behalf of the New York State Energy Research and Development Authority: Albany (NY). The 2011 Affordability Gap analysis for NYSERDA provided a special focus on tenants of public and assisted housing. See, Colton (September 2012). *Home Energy Affordability in New York: The Affordability Gap (2009 – 2011)*, prepared on behalf of New York State Energy Research and Development Authority: Albany (NY).

An Overview of Rental Housing in New York

A substantial proportion of the housing units in New York are inhabited by tenants. Table 29 shows that 46% of all occupied housing units are tenant-occupied. While the number of tenants increased in New York from 2010 to 2012, and the number of homeowners declined, these changes were not sufficiently substantial to result in a change in the overall percentage mix of homeowners and renters statewide.

Table 29. Housing Units by Tenure (New York)

	2010		2011		2012	
	Number	Percent	Number	Percent	Number	Percent
Total:	7,196,427	100%	7,187,938	100%	7,238,922	100%
Owner occupied	3,904,123	54%	3,851,687	54%	3,883,893	54%
Renter occupied	3,292,304	46%	3,336,251	46%	3,355,029	46%

SOURCE: Table B25003, American Community Survey (annual).

Renter income throughout New York is substantially less than homeowner income. Table 30 indicates that, statewide, the median household income of tenants in New York is less than half that of median homeowner income. Homeowner income climbed steadily in the three years 2010 through 2012, while renter income declined from 2010 to 2011 before rebounding in 2012.

Table 30. Median Household Income in the Past Twelve Months by Tenure (New York) (inflation-adjusted Dollars)

	2010	2011	2012
Total:	\$54,148	\$55,246	\$56,448
Owner occupied (dollars)	\$75,238	\$76,726	\$77,305
Renter occupied (dollars)	\$35,223	\$35,001	\$36,450

SOURCE: Table B25119, American Community Survey (annual).

When one looks at the distribution of incomes (rather than simply at the median income) by tenure status, it is clear how homeowner income is skewed toward the upper end, while renter income tends to cluster at the lower end. Table 31 shows that 70% of homeowner incomes (2.709 million of 3.88 million) are at \$50,000 or more, while only 38% of renter incomes (1.283 million of 3.355 million) are. The Table shows further that 30% of renter incomes in New York

(1.026 million of 3.355 million) have incomes of less than \$20,000, while only 8.8% of homeowner incomes are (342,000 of 3.884 million). Similarly, while 48% of renter incomes are less than \$35,000 per year (1.623 million of 3.355 million), only 20% of homeowner incomes are (757,000 of 3.884 million).

Table 31. Tenure by Household Income in the Past 12 Months (New York)
(in inflation-adjusted dollars)

	2010	2011	2012
Total:	7,196,427	7,187,938	7,238,922
Owner occupied:	3,904,123	3,851,687	3,883,893
Less than \$5,000	49,052	52,514	58,540
\$5,000 to \$9,999	54,624	55,566	51,633
\$10,000 to \$14,999	108,840	103,307	105,462
\$15,000 to \$19,999	125,129	122,659	126,267
\$20,000 to \$24,999	148,800	141,098	140,020
\$25,000 to \$34,999	287,482	283,817	275,137
\$35,000 to \$49,999	453,611	419,377	417,603
\$50,000 to \$74,999	717,514	696,603	700,796
\$75,000 to \$99,999	576,880	575,796	567,820
\$100,000 to \$149,999	726,745	717,518	736,516
\$150,000 or more	655,446	683,432	704,099
Renter occupied:	3,292,304	3,336,251	3,355,029
Less than \$5,000	196,462	202,255	204,163
\$5,000 to \$9,999	290,259	293,262	287,015
\$10,000 to \$14,999	277,734	294,368	282,280
\$15,000 to \$19,999	248,872	260,900	252,493
\$20,000 to \$24,999	235,422	237,251	226,079
\$25,000 to \$34,999	388,569	380,060	371,363
\$35,000 to \$49,999	465,349	447,229	448,734
\$50,000 to \$74,999	514,197	511,306	531,717
\$75,000 to \$99,999	271,876	280,387	289,272
\$100,000 to \$149,999	240,067	245,126	265,415
\$150,000 or more	163,497	184,107	196,498

SOURCE: Table B25118, American Community Survey (annual).

Renter housing in New York is occupied by moderately smaller household sizes than is homeowner housing. Table 32 shows that 38% of renter housing is occupied by one-person

households (1.281 million of 3.355 million), but only 23% of owner-occupied housing is (894,000 of 3.884 million). While 65% of renter housing is occupied by either one- or two-person households (2.18 million of 3.355 million), only 58% of owner-occupied housing is (2.212 million of 3.884 million). In contrast, while 27% of homeowner housing is occupied by households with four or more persons (1.037 million of 3.884 million), only 20% of renter housing is (656,000 of 3.355 million).

Table 32. Tenure by Household Size (New York)

	2010	2011	2012
Total:	7,196,427	7,187,938	7,238,922
Owner occupied:	3,904,123	3,851,687	3,883,893
1-person household	853,590	858,082	893,647
2-person household	1,324,320	1,316,702	1,317,968
3-person household	640,220	647,954	635,655
4-person household	634,547	589,903	604,486
5-person household	282,758	267,304	268,610
6-person household	96,890	101,174	94,588
7-or-more person household	71,798	70,568	68,939
Renter occupied:	3,292,304	3,336,251	3,355,029
1-person household	1,236,226	1,261,382	1,281,110
2-person household	892,412	894,993	901,730
3-person household	493,233	502,203	507,073
4-person household	353,683	367,278	358,929
5-person household	174,224	176,199	177,639
6-person household	79,013	74,600	72,059
7-or-more person household	63,513	59,596	56,489

SOURCE: Table B25009, American Community Survey (annual).

Homeowner housing tends to be occupied by somewhat older householders as well. Table 33 shows that while 76% of New York's owner-occupied housing is occupied by a householder age 45 or older (2.960 million of 3.884 million), only 51% of renter-occupied housing is (1.706 million of 3.355 million). While 52% of homeowner housing is occupied by householders age 55 or older (2.025 million of 3.884 million), only 32% of renter housing is (1.027 of 3.355 million) is. The age differential dissipates at the higher ages, however. While 13% of homeowner housing is occupied by a householder age 75 or older, 9% of renter housing is.

Table 33. Tenure by Age of Householder (New York)

	2010	2011	2012
Total:	7,196,427	7,187,938	7,238,922
Owner occupied:	3,904,123	3,851,687	3,883,893
Householder 15 to 24 years	23,265	18,739	16,098
Householder 25 to 34 years	310,628	286,375	278,771
Householder 35 to 44 years	676,830	647,595	629,248
Householder 45 to 54 years	974,385	942,359	935,204
Householder 55 to 59 years	461,007	470,752	478,176
Householder 60 to 64 years	421,852	439,161	445,634
Householder 65 to 74 years	545,164	559,895	599,147
Householder 75 to 84 years	357,629	350,254	353,501
Householder 85 years and over	133,363	136,557	148,114
Renter occupied:	3,292,304	3,336,251	3,355,029
Householder 15 to 24 years	207,948	193,405	188,912
Householder 25 to 34 years	778,390	779,049	788,480
Householder 35 to 44 years	662,261	675,559	672,115
Householder 45 to 54 years	617,082	629,709	638,607
Householder 55 to 59 years	253,186	264,122	263,614
Householder 60 to 64 years	205,266	213,858	222,752
Householder 65 to 74 years	278,448	290,587	294,570
Householder 75 to 84 years	192,314	191,232	183,619
Householder 85 years and over	97,409	98,730	102,360

SOURCE: Table B25007, American Community Survey (annual).

By far, natural gas is the predominant primary heating fuel in New York for both homeowners and renters. More than half of both homeowners (57%) and renters (53%) heat with natural gas, followed by households heating with fuel oil (28% homeowners and 25% renters). A far higher percentage of renters (16%) than homeowners (6%), however, heat with electricity.

No substantial change has occurred in the penetration of the use of natural gas or electricity as a heating fuel for homeowners over the three year period 2010 through 2012. The number of natural gas homeowners has increased by roughly 21,000 units, while the number of homeowners heating with electricity increased by roughly 15,000. There is a noticeable change in heating fuels for renters, however, with the use of electricity as a primary heating fuel increasing by more than 17%.

The real change in home heating fuels in New York from 2010 through 2012, however, is the decrease in the use of fuel oil. The number of homeowners using fuel oil as a primary heating fuel has decreased by nearly seven percent (7%), while the number of renters using fuel oil as a primary heating fuel has decreased by nearly 10% in the three year period.

Table 34. Home Heating Fuel by Tenure (New York)

	2010	2011	2012
Total:	7,196,427	7,187,938	7,238,922
Owner occupied:	3,904,123	3,851,687	3,883,893
Natural gas	2,219,640	2,207,641	2,240,543
Electricity	202,086	207,353	216,894
Fuel Oil	1,150,601	1,101,716	1,074,977
Propane / LPG	150,931	154,590	161,562
Coal	16,552	14,323	14,695
Other	26,060	27,942	26,511
None	6,847	6,085	6,833
Renter occupied:	3,292,304	3,336,251	3,355,029
Natural gas	1,741,445	1,806,581	1,803,846
Electricity	474,176	499,663	558,496
Fuel Oil	917,403	877,351	826,141
Propane / LPG	76,676	68,044	76,176
Coal	3,397	3,484	4,295
Other	35,604	35,667	34,918
None	29,944	31,483	35,264

SOURCE: Table B25117, American Community Survey (annual).

Significant differences exist between New York’s homeowner and renter populations in 2012. As a general rule, renters have incomes that are less than half the income of New York homeowners. Renters tend to be both smaller and younger households than homeowners. While the proportion of renters and homeowners using natural gas as their primary heating fuel are roughly equivalent, more renters appear to heat with electricity. Both homeowners and renters in New York are moving away from a reliance on fuel oil as their primary heating source.

The Interaction between Energy Costs and the Affordability of Rental Housing

The role of home utility bills in causing the unaffordability of overall shelter costs to low-income households has not frequently been analyzed. In reviewing annual Consolidated Plans prepared by New York's state and local jurisdictions receiving federal Community Development Block Grant (CDBG) and/or Home Investment Partnership (HOME) funds, the size of utility bills is not generally cited as a barrier to housing affordability.¹⁷ At most, participating jurisdictions note in their Consolidated Plans how the disconnection of service for nonpayment frequently results in homelessness and how, therefore, crisis grants directed toward paying utility arrears that might lead to disconnections are often viewed as a homelessness prevention tactic.

The discussion presented below, however, considers a broader question. This discussion considers the extent to which, if at all, home utility bills are a factor contributing to low-income households experiencing overall shelter costs beyond those levels generally deemed to be affordable. The analysis below focuses on rental units in New York. It concludes that home utility bills substantially contribute to the unaffordability of low-income rental units.

The Overall Approach to the Inquiry

To consider the question of whether home utility bills contribute to unaffordable housing burdens, this inquiry examines New York Census tract information from the 2011 American Community Survey ("ACS") (five year data). Data was obtained for 4,918 Census tracts throughout New York.¹⁸ Those tracts were reviewed to determine which tracts had a concentration of poverty. Tracts were defined to present a concentration of poverty if they met any one of the following three criteria:

- The percentage of the tract's total population living with income at or below 50% of the Federal Poverty Level ("FPL") was 1.5x the percentage of the renter population living at or below 50% of Poverty Level for the county in which the tract is located; or
- The percentage of the tract's total population living with income at or below 100% of the Federal Poverty Level ("FPL") was 1.5x the percentage of the total population living at or below 100% of Poverty Level for the county in which the tract is located; or

¹⁷ Throughout this discussion, any reference to "utility bills," unless otherwise specifically noted, or unless the context otherwise clearly indicates to the contrary, is intended to encompass home utility bills (e.g., electricity, piped natural gas), fuel bills (e.g., fuel oil, LPG, wood), and water/sewer bills.

¹⁸ Census tracts missing data for particular factors studied (e.g., contract rents, gross rents) were excluded from the analysis. Accordingly, counts of Census tracts in the discussion below may differ from this figure.

- The percentage of the tract’s total population living with income at or below 150% of the Federal Poverty Level (“FPL”) was 1.5x the percentage of the total population living at or below 150% of Poverty Level for the county in which the tract is located.

Thus, for example, if 12% of the population in a Census tract lived at or below 100% of the Federal Poverty Level, and 8% of the population in the county did so, the Census tract would be considered to demonstrate a concentration of poverty. While there is an overlap of Census tracts with a concentration of low-income persons as determined by the three tests identified immediately above, the overlap is by no means complete. The percentage of Census tracts having any one of the three concentration factors is 25.3% in New York; in contrast, 12.6% of New York’s Census tracts have all three of the poverty concentration factors.

Table 35. Distribution of New York Census Tracts by Concentration of Low-Income Population (2011)

	# of Tracts with LI Concentration	Percent of tracts with LI Concentration
Factor 1: Concentrated for Total Population at or below 50% Poverty	1,053	21.4%
Factor 2: Concentrated for Total Population at or below 100% Poverty	974	19.8%
Factor 3: Concentrated for Total Population at or below 150% Poverty	905	18.4%
Poverty Concentration: Any (Factor 1 or Factor 2 or Factor 3)	1,246	25.3%
Poverty Concentration: All (Factor 1 and Factor 2 and Factor 3)	622	12.6%
Not concentrated for Poverty under any Factor	3,672	74.7%
Grand Total	4,918	100%

Data sources: Total population by Poverty Ratio of Income to Poverty Level: ACS Table C17002

ACS Tables: 2012, 5-year data.

Each group of Census tracts determined to have a concentration of low-income households was then separately examined to determine whether they *also* had a concentration of unaffordable housing. Housing unaffordability was tested in the same fashion. A “concentration” of unaffordable housing was defined to include all Census tracts where the percentage of low-income renters with an unaffordable Gross Rent was 1.5x higher than the county average in which the Census tract is located. For example, if the proportion of low-income renters in a county with an unaffordable Gross Rent was 20%, any Census tract in that county with 30% or more of its low-income renters having an unaffordable Gross Rent was defined to present a concentration of housing unaffordability.

A Census tract was defined to exhibit a concentration of unaffordable housing in two different ways. First, there was a concentration of unaffordable housing when the ratio of tenants with rent equal to 35% or more of income exceeded 1.5x the county average. Second, there was a

concentration of severely unaffordable housing when the ratio of tenants with rent equal to 50% or more of income exceeded 1.5x the county average. These definitions of housing unaffordability are consistent with the policy of the U.S. Department of Housing and Urban Development (HUD) that households are “cost-burdened” when their shelter burdens equals or exceeds 35% of income; households are “severely cost-burdened” when their shelter burden equals or exceeds 50% of income.

Overall, Census tracts could thus be categorized in any one of the four ways presented in Figure 1 below.¹⁹

	Low-Income Concentration	No Low-Income Concentration
Concentration of Unaffordable Housing	% LI population in tract = or > 1.5x % LI population in county. AND % LI renters in tract with unaffordable housing burden = or > 1.5x % LI renters in county with unaffordable housing burden.	% LI population in tract < 1.5x % LI population in county. AND % LI renters in tract with unaffordable housing burden = or > 1.5x % LI renters in county with unaffordable housing burden.
No Concentration of Unaffordable Housing	% LI population in tract = or > 1.5x % LI population in county. AND % LI renters in tract with unaffordable housing burden < 1.5x % LI renters in county with unaffordable housing burden.	% LI population in tract < 1.5x % LI population in county. AND % LI renters in tract with unaffordable housing burden < 1.5x % LI renters in county with unaffordable housing burden.

Figure 1

Requiring a multiplier of 1.5x the county average to demonstrate a “concentration” of either poverty level status or housing unaffordability severely limits the number of Census tracts to be considered in this discussion. Had the concentration of low-income households been defined to exist at 1.25x the county average (instead of 1.5x), for example, or had the test of concentration been set at 1.10x the county average, substantially more Census tracts would have been identified as having a low-income concentration rather than the number found at 1.5x.

The same is true, of course, for the concentration of housing affordability. Defining Census tracts with a rate of unaffordable housing of 1.25x that of the county average, or defining a

¹⁹ In reality, the matrix is somewhat more complicated than this because “low-income status” was defined in three different ways (50%, 100%, 150% of Poverty), and “housing unaffordability” was defined in two different ways (35% or more rent burden; 50% or more rent burden).

concentration of unaffordable housing as 1.10x the county average, would have identified more Census tracts as having a concentration of housing unaffordability.

Relationship between Poverty Status and Housing Unaffordability

As with the measure of low-income status, while there was considerable overlap between the two measures of the concentration of unaffordable low-income housing, the overlap was not complete. Nor did the distribution exhibit the characteristics one might expect. There were instances, for example, where there was a concentration of unaffordable housing as measured by the 50% Gross Rent burden standard, but not as measured by the 35% Gross Rent burden standard.

Table 36 shows that the concentration of unaffordable housing at both the 35% burden and the 50% burden is about two times or more greater in Census tracts that *also* have a concentration of Poverty Level households, irrespective of which of the three tests of Poverty are used (i.e., 50% Federal Poverty Level, 100% Federal Poverty Level, 150% Federal Poverty Level). While only 5.6% of all Census tracts experience a concentration of housing unaffordability above 35%, the concentration of housing unaffordability in Census tracts that also have a concentration of Poverty Level households ranges from 10.7% (<50% FPL concentration) to 12.1% (<150% FPL concentration). The same result appertains when housing unaffordability is limited to the 50% burden. While 11.6% of all Census tracts have a concentration of housing unaffordability at the 50% Gross Rent burdens, the percentage with this housing unaffordability ranges from 23.4% (<50% FPL concentration) to 27.2% (<100% FPL concentration). More than one-quarter of Census tracts with a concentration of poverty at the below 150% FPL range also have a concentration of housing unaffordability as determined by housing burdens of greater than 50% of income.

Table 36. Census Tracts by both Concentration of Poverty Status and Concentration of Housing Unaffordability (New York: 2011) /a/

Concentration of Housing Unaffordability	Total Census Tracts with Concentration of Housing Unaffordability/b/	Census Tracts Also Have Poverty Concentration at:					
		< 50% FPL		< 100% FPL		< 150% FPL	
		No.	Pct /c/	No.	Pct /c/	No.	Pct /c/
Hsg burden >35%	266 (5.6%)	110	41.4% (10.7%)	113	42.5% (11.8%)	107	40.2% (12.1%)
Hsg burden >50%	551 (11.6%)	241	43.7% (23.4%)	260	47.2% (27.2%)	228	41.4% (25.7%)
Total	4,743	1,030	21.7%	956	20.2%	886	18.7%

NOTES:

/a/ A concentration of poverty status exists when the proportion of population at the designated Poverty Level for the Census tract exceeds 1.5x that proportion in the county in which the tract is located. A concentration of housing unaffordability exists when the percentage of renters at the designated Poverty Level with Gross Rents as a percentage of income for the Census tract exceeds 1.5x that percentage in the county in which the tract is located.

/b/The “total” Census tract number is not the total number of tracts with renters having burdens in the designated ranges, but rather the total number of tracts where the concentration of unaffordable housing, as defined by the housing burdens, was greater than 1.5x the concentration in the county in which the tract is located.

/c/ Percent not in parentheses is of the Row total. Percentage in parentheses is of the Column total.

The same conclusion can be drawn from a somewhat different perspective of the same data. While 21.7% of New York Census tracts have a concentration of poverty below 50% FPL, 41.4% of the Census tracts with a concentration of housing unaffordability (above 35% of income) do, and 43.7% of Census tracts with a concentration of housing unaffordability (above 50% of income) do.

The Relationship between Utility Bills and Gross Rent Burdens

Home utility bills play a substantial role in the unaffordability of rental housing to low-income households, particularly those households with low contract rents. Census tracts with low median contract rents often have noticeably higher home utility bills.

In undertaking this analysis, the “contract rent” is defined to be the cash rent paid for the housing.²⁰ The “gross rent” is the contract rent plus all utility costs (except telephone).²¹ The

²⁰ The Census Bureau defines the “contract rent” to include the cash rent paid to a property owner as rent for housing.

²¹ The Census Bureau defines the “gross rent” to include the contract rent plus home utility costs (i.e., piped natural gas and electricity), fuel costs (e.g., fuel oil, LPG, wood), and water/sewer costs.

difference between the gross rent and the contract rent, in other words, can be attributed to the sum of the household's home energy and home water/sewer costs. The ratio of the contract rent to the gross rent was divided into two categories. The first group of Census tracts includes those tracts in which the median contract rent was equal to or less than 75% of the gross rent (called the "low contract rent" category). All other Census tracts (i.e., those with contract rents greater than 75% of gross rents) were placed in the "residual" category.

In New York, 575 Census tracts have contract rents that are less than 75% of the overall gross rent. In these Census tracts, in other words, the combined energy and water/sewer costs comprise more than one-quarter of the total shelter cost for New York tenants.

Even where contract rents are lower, however, housing is often unaffordable to low-income renters. The low-rent Census tracts experiencing these unaffordable rent burdens experience noticeably higher home utility costs. The Table below compares the median gross rents, median contract rents, and median utility bills for three populations of New York Census tracts:

1. Group 1 (n=4,743) consists of all Census tracts irrespective of any concentration of households by Poverty range;
2. Group 2 (n=575) consists of all Census tracts with low contract rents²² irrespective of any concentration of households by Poverty range;²³
3. Group 3 (n=192) consists of all Census tracts with low contract rents *and* with a concentration of Poverty in any one or more of three Poverty ranges (below 50% FPL; below 100% FPL; below 150% of FPL).²⁴

For each Group of Census tracts, Table 37 sets forth the average median Gross Rent,²⁵ the average median Contract Rent, and the average median utility bill.²⁶ Within each Group, two levels of the concentration of housing unaffordability are examined: (1) a concentration measured by housing burdens exceeding 50% of income; and (2) a concentration measured by

²² Low contract rents are defined as those Census tracts in which the median contract rent is less than 75% of the median gross rent.

²³ Group 2 is a subset of Group 1.

²⁴ Group 3 is a subset of Group 2.

²⁵ The "average median" refers to the following: each Census tract has a reported median figure. The dollar figure is the average of all those individual medians.

²⁶ The utility bill includes both energy and water/sewer. The contract rent plus the utility bill should equal the gross rent, with some minor differences appearing due to rounding.

housing burdens exceeding 35% of income. In each instance of either Poverty or housing unaffordability, a “concentration” within the Census tract is defined as described above.²⁷

New York Census tracts have a higher concentration of housing unaffordability when median contract rents are lower. In New York, only 6% of all Census tracts have a concentration of housing unaffordability as measured by housing burdens exceeding 35% of income; only 12% have a concentration of unaffordability at burdens exceeding 50% of income. When attention is focused on Census tracts with low contract rents (as defined above), however, the proportion having a concentration of housing unaffordability increases to 9% and 16% for housing burdens exceeding 35% and 50% respectively. When attention is narrowed further to Census tracts with low contract rents and a concentration of Poverty, the concentration of housing unaffordability increases even more (to 18% and 34% for housing burdens exceeding 35% and 50% respectively).

The increased concentration of housing unaffordability occurs despite substantially lower contract rents. For the low contract rent Census tracts, irrespective of the housing burden deemed to demarcate “housing unaffordability” (35%+ or 50%+), the average median contract rents are roughly half of the contract rents for Census tracts as a whole (ranging from 52% to 56%).²⁸ Despite these dramatically lower contract rents, the proportion of Census tracts with a concentration of overall housing unaffordability actually *increases* because of increases in utility bills. While rents are half as big, utility bills are nearly 50% larger.

1. For Census tracts with a concentration of housing unaffordability measured by housing burdens exceeding 35% of income, the average monthly utility bills increase from \$200 for the population of Census tracts as a whole to \$286 (+43%) for the low contract rent Census tract population as a whole and to \$263 (+52%) for the low contract rent Census tracts with a concentration of Poverty.
2. For Census tracts with a concentration of housing unaffordability measured by housing burdens exceeding 50% of income, the average monthly utility bills increase from \$172 for the population of Census tracts as a whole to \$262 (+32%) for the low contract rent

²⁷ A concentration of Poverty exists when the poverty rate of the Census tract is more than 1.5x the rate of the county in which the tract is located. A concentration of housing unaffordability exists when the housing unaffordability rate is more than 1.5x the rate of the county in which the tract is located.

²⁸ Within the low-contract rent population, the contract rent for housing burdens exceeding 35% (\$595) is 56% of the \$1,065 contract rent for the population of Census tracts as a whole with a concentration of housing burdens exceeding 35%; the contract rent for tracts with a concentration of housing burdens exceeding 50% (\$558) is 55% of the population as whole (\$1,012). Within the low contract rent population with a concentration of Poverty, the contract rent of \$564 for Census tracts with a concentration of housing unaffordability measured by housing burdens exceeding 35% is 53% of the \$1,065 for the corresponding total population, while the contract rent of \$531 for Census tracts with a concentration of housing unaffordability measured by housing burdens exceeding 50% is only 52% of the \$1,012 for the corresponding total population.

Census tract population as a whole and to \$254 (+48%) for the low contract rent Census tracts with a concentration of Poverty.

As can be seen, New York renters often face unaffordable housing burdens even when they succeed in renting housing units at lower monthly contract rents. Indeed, the proportion of Census tracts with a concentration of housing unaffordability increases with lower contract rents, particularly when taking into account a concentration of Poverty as well.

Table 37. Average Median Gross Rents, Contract Rents and Utility Bills by Concentration of Poverty, Concentration of Housing Unaffordability, and Low Contract Rent Status.

	Number of Census Tracts	Avg Median Gross Rent	Avg Median Contract Rent	Avg Median Utility Bill
Group 1 (n = 4,743): All contract rents irrespective of concentration of Poverty.				
Housing unaffordability (>35% burden)	266 (6%)	\$1,265	\$1,065	\$200
Housing unaffordability (>50% burden)	551 (12%)	\$1,184	\$1,012	\$172
Group 2 (n = 575): Low contract rents irrespective of concentration of Poverty.				
Housing unaffordability (>35% burden)	52 (9%)	\$881	\$595	\$286
Housing unaffordability (>50% burden)	93 (16%)	\$821	\$558	\$262
Group 3 (n = 192): Low contract rents <i>and</i> concentration of Poverty at any or all of <50%, <100%, <150% Poverty Level				
Housing unaffordability (>35% burden)	34 (18%)	\$827	\$564	\$263
Housing unaffordability (>50% burden)	66 (34%)	\$784	\$531	\$254

The significance of this relationship between the size of monthly utility bills and the presence of concentrations of housing unaffordability, particularly when poverty is taken into account, is examined below. As will be seen, Poverty level households are not only trapped in lower quality housing due to the very fact of their Poverty, but are also less able to respond to the resulting high energy bills through cost-effective energy efficiency investments.

The Ability of Low-Income Tenants to Pursue Energy Efficiency Investments

Low-income tenant households in New York do not have the general ability to invest in energy efficiency measures to control their energy consumption, and thus to improve their overall housing affordability, without external assistance. Through a review of various housing

characteristics in New York, it is possible to gain some insight not only into the need for low-income energy efficiency investments, but also into the capacity of low-income New York residents to generate those investments without outside assistance. The discussion below examines three types of housing characteristics: (1) the housing-related characteristics of the people who live in those units; (2) the characteristics of the housing units themselves; and (3) the cost characteristics of housing in New York.

Housing Related Characteristics of Renters

The housing-related characteristics of New York's low-income households that tend to make energy efficiency investments unavailable to low-income households without outside assistance are relevant to a consideration of energy and housing unaffordability in New York. Low-income households are systematically excluded from being able to access energy efficiency as a mechanism to control home energy bills because of market barriers that are unique to low-income households.

Market barrier issues are of particular significance to the low-income community. Low-income households face market barriers that are different from, and more extensive than, those which residential households face in general. These market barriers impede the availability of energy efficiency to low-income customers, even if such efficiency would be an effective, and cost-effective, mechanism to use in controlling home energy costs. Many efficiency investments are beyond the financial ability of low-income customers to implement.

Other market barriers prevent low-income customers from being able to realize the bill reductions generated by energy efficiency. The finding above that New York's low income households tend to live in rental dwellings has two significant applications to any consideration of whether energy efficiency is accessible to low-income households even before looking at market barriers. First, tenants have little or no incentive to improve their landlord's property and receive little, if any, of the increased value of the property. Second, tenants do not generally have the authority to make decisions over improvements to major housing systems, whether it be a heating/cooling system or a hot water system. Indeed, even major appliances such as refrigerators are often owned (and thus controlled) by the property owner rather than by the household.

Setting aside these inherent limitations on the renter population to be able to pursue energy efficiency investments, one additional substantive market barrier for the adoption of energy efficiency in renter populations involves the mobility of New York renter households.

One attribute of low-income tenants that impedes their ability to use energy efficiency as a mechanism to reduce home energy consumption is their tendency to be more mobile. Census data demonstrates quite clearly that, compared to the proportion of the total population that changes residences each year, nearly twice as many low-income households move. As a result,

even in those instances where a tenant may have the authority to invest in an energy efficiency measure, and assuming a financial ability to do so, the payback period required to justify such an investment would not match the household's tenure. A low-income tenant household, in other words, will not invest in a measure with a two-year payback if that household intends to move to a different dwelling in 12 months. A low-income household will not invest in a measure with a three-year payback if that household does not anticipate remaining in the home for more than two years.

Table 38 below presents data on the median “year household moved in” for homeowners and renters for the State of New York as well as for each county. As the Table documents, there is no overlap between homeowners and renters in the median year in which the household moved into their current premises. For the state as a whole, as well as for each county except four (Bronx, Kings, New York, Queens), the median year in which a tenant moved into their home was 2006 or later;²⁹ in Queens County, the median year moved in was exactly 2005. In contrast, for homeowners, the median year moved in for homeowners was 1995 or earlier for the state overall and for 42 counties. In 20 counties, the median year moved in for homeowners was 1996 through 1998. In only one county was the median year moved in for homeowners in 1999 or later.

This data can be used as a surrogate for households that do not have a sufficient length of tenure to be able to justify nearly any energy efficiency investment. Few energy efficiency investments provide a one-year payback. In addition to excluding many low-income households completely from the efficiency market, restricting investments exclusively to measures that would generate a one-year payback would result in substantial cream-skimming of usage reduction, with the bulk of cost-effective usage reduction missed.

²⁹ The move in date was top-coded at 2005 given that the data base used is the 2011 five-year data.

Table 38. Median Year Moved in by Tenure (New York State and Counties) (2012 5-year data)

Geography	Total:	Owner occupied	Renter occupied
New York State	2001	1995	2005+
Albany	2002	1995	2005+
Allegany	2000	1995	2005+
Bronx	2002	1995	2003
Broome	2000	1994	2005+
Cattaraugus	1999	1994	2005+
Cayuga	1999	1994	2005+
Chautauqua	2000	1994	2005+
Chemung	2001	1994	2005+
Chenango	1999	1995	2005+
Clinton	2001	1996	2005+
Columbia	1999	1995	2005+
Cortland	2001	1995	2005+
Delaware	1998	1994	2005+
Dutchess	2001	1996	2005+
Erie	2001	1994	2005+
Essex	1999	1994	2005+
Franklin	1999	1994	2005+
Fulton	2000	1994	2005+
Genesee	1998	1994	2005+
Greene	2000	1996	2005+
Hamilton	1996	1992	2005+
Herkimer	1999	1994	2005+
Jefferson	2003	1996	2005+
Kings	2002	1996	2003
Lewis	1997	1993	2005+
Livingston	2000	1996	2005+
Madison	1999	1995	2005+
Monroe	2002	1996	2005+
Montgomery	2000	1994	2005+
Nassau	1996	1994	2005+
New York	2002	2000	2003
Niagara	2000	1995	2005+
Oneida	2000	1994	2005+

Table 38. Median Year Moved in by Tenure (New York State and Counties) (2012 5-year data)

Geography	Total:	Owner occupied	Renter occupied
Onondaga	2001	1995	2005+
Ontario	2001	1998	2005+
Orange	2001	1997	2005+
Orleans	1999	1995	2005+
Oswego	2000	1995	2005+
Otsego	2000	1995	2005+
Putnam	1999	1996	2005+
Queens	2001	1996	2005
Rensselaer	2001	1995	2005+
Richmond	2000	1997	2005+
Rockland	1999	1995	2005+
St. Lawrence	2000	1995	2005+
Saratoga	2001	1998	2005+
Schenectady	2001	1995	2005+
Schoharie	1998	1994	2005+
Schuyler	1998	1995	2005+
Seneca	2000	1995	2005+
Steuben	2000	1995	2005+
Suffolk	1998	1995	2005+
Sullivan	2001	1997	2005+
Tioga	1998	1994	2005+
Tompkins	2004	1997	2005+
Ulster	2001	1996	2005+
Warren	2001	1996	2005+
Washington	1999	1995	2005+
Wayne	1999	1996	2005+
Westchester	2001	1996	2005+
Wyoming	1998	1994	2005+
Yates	2000	1996	2005+

SOURCE: Table B25039, American Community Survey (2012 5-year data).

The very fact that households are renters presents market barriers that homeowners do not face when considering the accessibility of energy efficiency measures as a bill reduction technique. The additional fact that these households are *low-income* renters presents additional market barriers. For example, one consequence of the income data presented above involves the inability of low-income households to afford even cost-effective energy efficiency improvements.

As might be expected for households with annual incomes at or below \$10,000 to \$25,000, low-income households tend to have extremely low liquidity. The payback period for any particular energy efficiency measure becomes irrelevant if the household does not have the investment capital with which to begin. The importance of this, for example, might lie with appliance replacements. It is often cost-effective for a consumer to spend somewhat more money for a more energy efficient new appliance. In such a purchase decision, if a less efficient refrigerator costs \$600 and the more efficient refrigerator costs \$800, it may well be cost-effective for the customer to pay the \$200 difference to purchase the more efficient appliance. A reliance on such purchase decisions, however, will by definition exclude households that are not in the market to purchase a new refrigerator with which to begin. It is axiomatic to note that it is unlikely that many low-income households have recently spent \$600 for a new refrigerator. Nor would their landlords spend more than the minimum to replace a refrigerator.

The percentage of New York renters with income this low is quite high as is documented in Table 39. Statewide, one-in-seven (14%) of all renters have an annual income of \$10,000 or below; nearly two-of-five (37%) have an annual income of \$25,000 or less. In 19 counties, half or more of all renters have annual incomes lower than \$25,000, while in 31 counties, one-in-six tenants (or more) have annual income of less than \$10,000.

Housing Unit Characteristics of Rental Units

The housing characteristics of New York's rental housing indicates that it would be difficult to reduce the energy consumption of rental housing through the installation of low-cost / no-cost usage reduction measures accompanied by energy education.

The energy inefficiency experienced by low-income households is not subject to substantial reduction through behavioral changes. To the extent that reductions are to be realized, investment in infrastructure and appliances is needed, not merely "education" or low-cost/no-cost measures. Having found that a substantial number of New York's low-income households, particularly those that are tenants, cannot be expected to implement energy efficiency on their own, this section turns to a discussion of the extent to which there is likely to be a *need* for energy efficiency investments. The first way to develop a surrogate for energy efficiency is to consider the age of the housing units in which low-income households live. While no direct measurement exists of the number of energy inefficient housing units in New York, some correlation can be drawn between energy efficiency and the age of housing units.

Table 39. Renter Household Income (New York and Counties) (2012 5-year data)

Geography	Total Renters	Less than \$5,000	\$5,000 to \$9,999	\$10,000 to \$14,999	\$15,000 to \$19,999	\$20,000 to \$24,999	\$25,000 to \$34,999	\$35,000 to \$49,999	\$50,000 to \$74,999	\$75,000 to \$99,999	\$100,000 to \$149,999	\$150,000 or more	Less than \$10,000	Less than \$20,000	Less than \$25,000
New York	3,260,455	6%	8%	9%	7%	7%	12%	14%	16%	9%	7%	5%	14%	30%	37%
Albany	50,031	6%	8%	9%	8%	7%	13%	17%	17%	8%	5%	2%	14%	31%	38%
Allegany	4,839	5%	14%	15%	13%	8%	14%	15%	9%	4%	2%	1%	19%	47%	55%
Bronx	377,020	7%	12%	10%	9%	7%	12%	15%	15%	7%	5%	1%	19%	38%	45%
Broome	26,759	10%	11%	11%	12%	9%	14%	14%	12%	5%	2%	1%	20%	43%	52%
Cattaraugus	8,935	7%	10%	14%	12%	10%	14%	16%	13%	4%	1%	1%	16%	42%	52%
Cayuga	8,850	8%	7%	13%	10%	10%	14%	14%	14%	7%	1%	1%	15%	39%	48%
Chautauqua	17,116	8%	13%	14%	12%	9%	15%	14%	11%	3%	2%	0%	21%	47%	56%
Chemung	11,674	6%	11%	12%	12%	11%	15%	10%	13%	5%	3%	2%	18%	42%	52%
Chenango	4,632	4%	13%	13%	10%	11%	14%	16%	14%	3%	2%	1%	17%	40%	50%
Clinton	9,688	5%	11%	13%	9%	10%	15%	14%	14%	4%	3%	0%	17%	39%	50%
Columbia	6,729	3%	7%	8%	10%	7%	16%	17%	16%	8%	6%	1%	10%	29%	36%
Cortland	6,053	7%	11%	12%	8%	10%	14%	17%	13%	5%	1%	1%	18%	38%	48%
Delaware	4,876	6%	9%	13%	10%	9%	13%	17%	17%	5%	1%	0%	15%	38%	47%
Dutchess	31,838	4%	7%	8%	7%	7%	13%	15%	18%	10%	7%	3%	12%	26%	34%
Erie	129,263	8%	12%	11%	9%	8%	14%	15%	13%	5%	3%	1%	20%	41%	49%
Essex	4,366	2%	9%	13%	11%	7%	14%	17%	17%	8%	1%	1%	12%	36%	43%
Franklin	5,281	5%	13%	14%	11%	10%	15%	12%	12%	5%	2%	1%	18%	43%	53%
Fulton	6,872	6%	16%	14%	11%	7%	13%	15%	13%	3%	3%	0%	21%	46%	53%
Genesee	6,373	6%	10%	14%	10%	6%	17%	14%	15%	6%	1%	1%	16%	39%	46%
Greene	5,158	5%	10%	10%	11%	9%	18%	14%	16%	6%	2%	0%	15%	36%	44%
Hamilton	402	2%	11%	10%	9%	7%	10%	14%	22%	7%	1%	5%	13%	31%	39%
Herkimer	7,387	6%	11%	13%	13%	10%	15%	16%	9%	5%	2%	0%	17%	42%	52%
Jefferson	18,853	6%	7%	9%	9%	9%	16%	19%	16%	6%	3%	1%	13%	30%	39%
Kings	636,778	7%	9%	9%	7%	6%	12%	14%	16%	9%	7%	4%	16%	31%	38%
Lewis	2,395	7%	9%	10%	10%	13%	17%	17%	12%	4%	2%	1%	15%	35%	48%
Livingston	6,025	12%	8%	10%	12%	8%	13%	14%	16%	4%	4%	0%	20%	41%	49%
Madison	6,555	7%	7%	9%	11%	6%	13%	17%	19%	5%	4%	1%	14%	35%	41%

Table 39. Renter Household Income (New York and Counties) (2012 5-year data)

Geography	Total Renters	Less than \$5,000	\$5,000 to \$9,999	\$10,000 to \$14,999	\$15,000 to \$19,999	\$20,000 to \$24,999	\$25,000 to \$34,999	\$35,000 to \$49,999	\$50,000 to \$74,999	\$75,000 to \$99,999	\$100,000 to \$149,999	\$150,000 or more	Less than \$10,000	Less than \$20,000	Less than \$25,000
Monroe	99,510	9%	11%	9%	10%	9%	15%	15%	13%	6%	3%	1%	20%	39%	48%
Montgomery	6,331	7%	10%	11%	11%	11%	15%	18%	10%	4%	2%	1%	17%	39%	50%
Nassau	80,645	3%	6%	7%	6%	5%	9%	14%	18%	12%	12%	8%	9%	22%	28%
New York	567,229	5%	7%	6%	5%	5%	8%	10%	14%	10%	12%	17%	12%	24%	28%
Niagara	26,342	7%	12%	13%	11%	10%	15%	13%	12%	4%	2%	1%	20%	44%	54%
Oneida	29,280	6%	11%	11%	11%	9%	16%	16%	13%	5%	2%	1%	17%	39%	48%
Onondaga	62,637	8%	11%	11%	9%	8%	15%	15%	14%	5%	4%	1%	18%	38%	47%
Ontario	10,742	3%	9%	12%	11%	10%	15%	16%	16%	5%	3%	1%	12%	34%	44%
Orange	36,912	5%	7%	9%	7%	7%	13%	15%	18%	9%	8%	3%	11%	27%	34%
Orleans	3,674	6%	10%	17%	14%	8%	14%	14%	10%	5%	1%	0%	16%	48%	56%
Oswego	12,075	8%	11%	12%	10%	9%	16%	14%	13%	4%	2%	0%	19%	42%	51%
Otsego	6,855	8%	10%	14%	12%	9%	14%	18%	12%	3%	2%	1%	17%	43%	52%
Putnam	5,796	4%	4%	5%	8%	6%	14%	14%	16%	12%	11%	4%	9%	22%	28%
Queens	426,053	4%	6%	6%	6%	6%	12%	15%	19%	11%	10%	4%	10%	22%	28%
Rensselaer	21,907	5%	9%	9%	8%	8%	15%	15%	17%	7%	4%	1%	14%	31%	40%
Richmond	49,387	7%	8%	7%	8%	7%	11%	14%	16%	11%	8%	3%	15%	31%	37%
Rockland	28,817	3%	5%	8%	9%	6%	12%	14%	18%	10%	10%	4%	9%	25%	32%
St. Lawrence	11,908	9%	12%	13%	9%	12%	12%	14%	13%	4%	2%	1%	20%	43%	55%
Saratoga	23,103	4%	4%	8%	7%	7%	13%	17%	21%	10%	7%	2%	8%	24%	31%
Schenectady	18,616	5%	7%	12%	10%	9%	15%	15%	16%	7%	3%	1%	12%	33%	43%
Schoharie	2,984	4%	11%	18%	17%	4%	11%	16%	10%	4%	4%	0%	16%	51%	55%
Schuyler	1,538	3%	6%	13%	8%	12%	21%	15%	19%	3%	1%	0%	9%	30%	41%
Seneca	3,269	6%	6%	14%	10%	9%	16%	18%	13%	6%	2%	0%	12%	35%	44%
Steuben	11,619	5%	11%	13%	12%	10%	13%	17%	12%	3%	3%	1%	16%	41%	50%
Suffolk	95,332	4%	4%	6%	6%	6%	11%	15%	21%	12%	11%	5%	9%	21%	26%
Sullivan	9,765	7%	9%	9%	10%	9%	12%	17%	17%	6%	2%	2%	16%	35%	44%
Tioga	4,256	6%	11%	11%	9%	7%	15%	14%	16%	8%	2%	2%	17%	37%	44%
Tompkins	17,226	13%	8%	10%	7%	7%	13%	15%	15%	6%	4%	2%	21%	38%	45%

Table 39. Renter Household Income (New York and Counties) (2012 5-year data)

Geography	Total Renters	Less than \$5,000	\$5,000 to \$9,999	\$10,000 to \$14,999	\$15,000 to \$19,999	\$20,000 to \$24,999	\$25,000 to \$34,999	\$35,000 to \$49,999	\$50,000 to \$74,999	\$75,000 to \$99,999	\$100,000 to \$149,999	\$150,000 or more	Less than \$10,000	Less than \$20,000	Less than \$25,000
Ulster	21,516	4%	8%	8%	11%	7%	13%	17%	18%	8%	5%	2%	12%	31%	38%
Warren	8,699	2%	9%	12%	9%	7%	16%	14%	17%	9%	4%	2%	11%	32%	38%
Washington	6,370	3%	9%	15%	10%	10%	17%	14%	13%	7%	1%	1%	12%	37%	47%
Wayne	8,246	4%	9%	15%	11%	8%	16%	17%	13%	4%	2%	1%	13%	39%	48%
Westchester	131,143	4%	6%	7%	7%	6%	12%	15%	18%	11%	9%	6%	10%	23%	29%
Wyoming	3,764	5%	8%	12%	14%	8%	12%	17%	18%	4%	1%	0%	13%	40%	48%
Yates	2,161	6%	13%	12%	13%	12%	11%	18%	10%	4%	1%	0%	19%	44%	56%

SOURCE: Table B25118, American Community Survey (2012 5-year data)

Low-income households tend to have inefficient heating consumption because they live in old and energy inefficient housing units. There can be no question about the relationship between income and the age of the housing units in which these households live. Table 40 shows that hundreds of thousands of New York households live in old, and presumptively energy inefficient, housing units. According to the 2011 American Community Survey (5-year data), more than 60% of New York's renters (2.025 million) live in homes that were constructed before 1960 (i.e., are 50 or more years old). Indeed, nearly 40% (1.271 million) of New York's renters live in homes constructed prior to 1940.

While the age of the housing unit is not a conclusive indicator of energy inefficiency for all end-uses, the age of a housing unit and the efficiency of home heating has been found to be closely associated.³⁰ It is necessary to make some associations from the data presented above, but the conclusions flowing from those associations are not difficult to reach. Low-income households disproportionately live in the oldest and least energy efficient housing units in New York. The Affordability Gap documented in the beginning of this paper is caused in no small part not merely because of low incomes, but also because those low incomes lead to the presence of housing characteristics that, in turn, contribute to high and unaffordable home energy bills.

Cost Characteristics of Rental Units

The discussion below considers how and why the very fact of high energy costs to New York's low-income customers creates a barrier to the implementation of energy efficiency measures as a strategy to control those costs. As home energy prices increase as a percentage of income, low-income households have fewer available discretionary resources to invest in measures that could reduce their family expenditures. The discussion examines the stress on household income by focusing on total shelter costs. This impact is true throughout the state. It is a particular problem for the lowest income households.

³⁰ There is further a relationship between the age of housing units and the age of appliances, including both refrigerators and domestic hot water heaters.

Table 40. Renter-Occupied Structures by Year Structure Built (New York) (2012, 5-year data)

Geography	Total:	Total Renter Occupied	Built 2005 or later	Built 2000 to 2004	Built 1990 to 1999	Built 1980 to 1989	Built 1970 to 1979	Built 1960 to 1969	Built 1950 to 1959	Built 1940 to 1949	Built 1939 or earlier	Pct 1960 or earlier	Pct 1950 or earlier	Pct 1940 or earlier
New York	7,215,687	3,260,455	80,990	95,719	151,924	192,492	331,840	382,494	425,902	328,167	1,270,927	62%	49%	39%
Albany	123,544	50,031	1,079	1,598	3,478	3,867	8,140	4,980	4,002	3,770	19,117	54%	46%	38%
Allegany	18,936	4,839	118	53	588	469	645	434	454	240	1,838	52%	43%	38%
Bronx	471,923	377,020	11,091	9,382	14,096	14,695	31,475	46,774	58,320	40,817	150,370	66%	51%	40%
Broome	80,257	26,759	202	172	1,374	2,292	4,079	3,634	3,546	3,121	8,339	56%	43%	31%
Cattaraugus	32,440	8,935	148	198	776	854	1,163	694	889	614	3,599	57%	47%	40%
Cayuga	31,807	8,850	32	159	388	781	1,574	696	478	420	4,322	59%	54%	49%
Chautauqua	55,499	17,116	279	230	748	1,522	1,863	955	1,681	1,399	8,439	67%	57%	49%
Chemung	35,528	11,674	140	170	754	591	1,465	1,179	1,199	1,003	5,173	63%	53%	44%
Chenango	20,003	4,632	41	61	240	516	784	252	342	182	2,214	59%	52%	48%
Clinton	31,527	9,688	188	413	787	1,325	1,286	1,022	896	559	3,212	48%	39%	33%
Columbia	25,681	6,729	103	326	536	767	656	423	658	335	2,925	58%	48%	43%
Cortland	17,915	6,053	55	134	346	474	471	671	433	307	3,162	64%	57%	52%
Delaware	20,177	4,876	143	151	280	597	706	343	197	260	2,199	54%	50%	45%
Dutchess	107,151	31,838	1,353	1,246	2,037	3,654	6,070	3,735	3,414	1,760	8,569	43%	32%	27%
Erie	379,478	129,263	2,004	3,933	7,255	7,647	13,551	12,768	17,078	13,712	51,315	64%	50%	40%
Essex	16,067	4,366	123	226	330	469	670	168	254	256	1,870	55%	49%	43%
Franklin	18,940	5,281	79	118	469	577	842	344	427	263	2,162	54%	46%	41%
Fulton	22,939	6,872	148	91	246	562	696	511	581	678	3,359	67%	59%	49%
Genesee	23,965	6,373	36	189	287	477	1,042	583	723	458	2,578	59%	48%	40%
Greene	18,922	5,158	151	54	420	675	780	458	433	333	1,854	51%	42%	36%
Hamilton	2,303	402	0	6	27	58	52	59	38	17	145	50%	40%	36%
Herkimer	26,470	7,387	43	70	408	538	998	705	675	724	3,226	63%	53%	44%
Jefferson	44,722	18,853	1,507	231	2,038	3,505	1,954	1,148	1,506	709	6,255	45%	37%	33%
Kings	907,785	636,778	13,244	13,078	17,290	17,967	39,855	66,535	78,496	65,437	324,876	74%	61%	51%
Lewis	10,602	2,395	8	82	224	476	323	107	154	168	853	49%	43%	36%
Livingston	24,201	6,025	301	261	574	587	763	623	488	427	2,001	48%	40%	33%

Table 40. Renter-Occupied Structures by Year Structure Built (New York) (2012, 5-year data)

Geography	Total:	Total Renter Occupied	Built 2005 or later	Built 2000 to 2004	Built 1990 to 1999	Built 1980 to 1989	Built 1970 to 1979	Built 1960 to 1969	Built 1950 to 1959	Built 1940 to 1949	Built 1939 or earlier	Pct 1960 or earlier	Pct 1950 or earlier	Pct 1940 or earlier
Madison	26,930	6,555	187	221	654	832	753	683	438	463	2,324	49%	43%	35%
Monroe	293,104	99,510	2,464	3,721	7,309	7,114	17,438	13,901	9,652	5,532	32,379	48%	38%	33%
Montgomery	20,059	6,331	68	133	357	340	590	478	677	626	3,062	69%	58%	48%
Nassau	443,315	80,645	1,607	1,984	2,865	4,728	8,863	12,191	18,383	10,320	19,704	60%	37%	24%
New York	733,393	567,229	13,683	18,635	20,867	31,317	50,520	62,432	56,333	51,941	261,501	65%	55%	46%
Niagara	88,589	26,342	676	401	1,653	2,228	3,620	2,457	3,005	2,688	9,614	58%	47%	36%
Oneida	91,568	29,280	642	241	1,179	2,145	3,621	2,664	4,070	2,485	12,233	64%	50%	42%
Onondaga	183,381	62,637	1,260	1,516	3,467	6,031	10,915	7,783	8,240	4,723	18,702	51%	37%	30%
Ontario	43,474	10,742	511	634	968	1,218	1,483	719	584	495	4,130	48%	43%	38%
Orange	124,939	36,912	1,249	2,362	3,740	4,155	4,697	3,344	2,563	1,557	13,245	47%	40%	36%
Orleans	15,896	3,674	97	23	326	320	428	241	185	151	1,903	61%	56%	52%
Oswego	45,600	12,075	110	268	977	1,636	1,725	971	1,176	1,020	4,192	53%	43%	35%
Otsego	24,713	6,855	137	137	665	540	960	554	419	316	3,127	56%	50%	46%
Putnam	34,998	5,796	128	572	429	699	971	493	507	547	1,450	43%	34%	25%
Queens	773,130	426,053	10,476	10,559	13,479	15,815	31,293	61,472	83,592	72,445	126,922	66%	47%	30%
Rensselaer	63,626	21,907	776	632	1,066	2,149	2,297	1,877	1,872	1,169	10,069	60%	51%	46%
Richmond	163,747	49,387	1,242	2,273	4,020	5,839	7,383	8,553	5,255	3,203	11,619	41%	30%	24%
Rockland	98,106	28,817	1,112	1,724	3,335	3,553	5,345	4,759	3,245	1,431	4,313	31%	20%	15%
St. Lawrence	41,825	11,908	85	250	960	1,247	2,137	1,382	1,223	768	3,856	49%	39%	32%
Saratoga	87,762	23,103	1,126	1,644	2,756	3,943	4,108	2,021	1,235	706	5,564	32%	27%	24%
Schenectady	58,203	18,616	464	728	1,176	1,291	2,537	1,620	1,653	1,771	7,376	58%	49%	40%
Schoharie	12,801	2,984	73	145	459	342	432	197	227	146	963	45%	37%	32%
Schuyler	7,610	1,538	28	14	118	237	275	59	149	95	563	52%	43%	37%
Seneca	13,257	3,269	55	61	187	439	378	464	178	211	1,296	52%	46%	40%
Steuben	41,101	11,619	94	340	939	1,117	1,978	1,045	901	669	4,536	53%	45%	39%
Suffolk	496,677	95,332	3,386	6,698	9,960	10,195	19,440	15,541	14,028	4,871	11,213	32%	17%	12%
Sullivan	29,432	9,765	538	407	765	1,684	1,435	965	923	886	2,162	41%	31%	22%

Table 40. Renter-Occupied Structures by Year Structure Built (New York) (2012, 5-year data)

Geography	Total:	Total Renter Occupied	Built 2005 or later	Built 2000 to 2004	Built 1990 to 1999	Built 1980 to 1989	Built 1970 to 1979	Built 1960 to 1969	Built 1950 to 1959	Built 1940 to 1949	Built 1939 or earlier	Pct 1960 or earlier	Pct 1950 or earlier	Pct 1940 or earlier
Tioga	20,458	4,256	128	76	312	433	583	246	520	176	1,782	58%	46%	42%
Tompkins	38,531	17,226	550	805	1,763	2,244	3,110	1,695	1,212	811	5,036	41%	34%	29%
Ulster	70,034	21,516	1,036	719	1,360	2,270	3,049	2,504	2,334	1,250	6,994	49%	38%	33%
Warren	28,392	8,699	457	397	708	740	1,494	1,142	812	477	2,472	43%	34%	28%
Washington	24,682	6,370	528	244	536	692	502	331	418	424	2,695	56%	49%	42%
Wayne	36,563	8,246	217	304	1,074	1,173	1,104	669	561	349	2,795	45%	38%	34%
Westchester	345,908	131,143	2,990	4,095	5,021	7,310	13,945	16,913	21,541	15,106	44,222	62%	45%	34%
Wyoming	15,549	3,764	109	35	293	399	341	155	279	325	1,828	65%	57%	49%
Yates	9,552	2,161	85	89	185	135	187	172	150	45	1,113	61%	54%	52%

SOURCE: American Community Survey, Table B25036 (2012, 5-year data)

One impact of the high home energy bills facing New York's low-income households is the stress that such bills place on the household budgets of New York's poor. A common assumption in reviewing basic family budgets is that total shelter costs should represent no more than 30% of a household's income.³¹ A household devoting in excess of 30 percent of income toward shelter costs is, under this reasoning, considered to be over-extended.

The U.S. Census Bureau reports shelter burdens, disaggregated by rental burdens and homeowner burdens. As shown in Table 41, statewide in New York, 75% of all renters with annual income less than \$10,000 have rent burdens exceeding 30% of income, while 70% have rental burdens of greater than 35% statewide. Similarly, more than 80% of renters with income between \$10,000 and \$20,000 statewide have rent burdens exceeding 30% of income, while 75% of these renters have burdens of greater than 35%. By the time annual incomes increase to \$20,000 - \$35,000, tenants with rents substantially in excess of affordable burdens drop somewhat (61% with burdens exceeding 35%).

Despite these statewide figures, the rent burdens vary widely by income throughout the various counties in New York. While only 22 counties have fewer than 70% of their renters with income less than \$10,000 having rental burdens of more than 30%, 46 counties have fewer than 70% of their renters with income between \$24,999 and \$35,000 having burdens of more than 30%. While 44 counties have fewer than half of their tenants with income between \$24,999 and \$35,000 with rental burdens of greater than 35%, only one (1) county has fewer than half of its counties with income less than \$10,000 have rental burdens of greater than 35%. As Table 41 documents, in other words, rental burdens as a percentage of income can vary widely from the statewide average in individual counties.

To the extent that shelter costs increase faster than income does, the unaffordability of rental housing in New York will continue to get worse.

High shelter burdens relate to energy efficiency in two ways. First, the high shelter costs, themselves, present an impediment to low-income households being able to invest in energy efficiency measures. If the household struggles to meet its day-to-day bills, it does not have the discretionary income to invest in energy savings measures, even if those measures are "cost-effective" over some reasonable period of time.

In addition, as home energy takes up an increasing proportion of total shelter costs, there is less money "left" to pay for the housing component of total shelter costs. As a result, New York households are either forced into increasingly lower-priced (and presumptively lower quality) housing, or those households face ongoing bill payment problems attributable to the mismatch between household resources and household expenses.

³¹ See, note 2, and accompanying text.

Table 41. Gross Rent as a Percentage of Income by Income: New York and Counties (2012, 5-year data)

Geography	Total:	Burden for renters with income less than \$10,000			Burden for renters with income \$10,000 - \$19,999			Burden for renters with income \$20,000 - \$34,999			Proportion of Tenants with Burdens > 30% and income:			Proportion of Tenants with Burdens > 35% and income:		
		Total	30.0 to 34.9 percent	35.0 percent or more	Total	30.0 to 34.9 percent	35.0 percent or more	Total	30.0 to 34.9 percent	35.0 percent or more	Less than \$10,000	\$10 - \$19,999	\$20 - \$34,999	Less than \$10,000	\$10 - \$19,999	\$20 - \$34,999
New York	3,260,455	467,019	23,076	327,216	518,159	35,537	390,171	601,395	67,652	368,462	75%	82%	73%	70%	75%	61%
Albany	50,031	7,089	244	5,180	8,576	394	6,632	9,801	1,262	5,744	77%	82%	71%	73%	77%	59%
Allegany	4,839	923	31	712	1,354	80	977	1,084	158	198	80%	78%	33%	77%	72%	18%
Bronx	377,020	72,928	4,645	52,991	70,907	5,523	52,958	72,579	7,374	47,319	79%	82%	75%	73%	75%	65%
Broome	26,759	5,386	178	4,061	6,072	540	4,117	6,170	877	2,251	79%	77%	51%	75%	68%	36%
Cattaraugus	8,935	1,464	51	1,098	2,317	192	1,456	2,130	449	539	78%	71%	46%	75%	63%	25%
Cayuga	8,850	1,350	18	1,060	2,060	232	1,045	2,104	223	601	80%	62%	39%	79%	51%	29%
Chautauqua	17,116	3,633	72	2,727	4,446	405	2,755	3,985	450	982	77%	71%	36%	75%	62%	25%
Chemung	11,674	2,092	54	1,577	2,788	150	2,066	3,041	419	976	78%	79%	46%	75%	74%	32%
Chenango	4,632	804	57	511	1,042	122	597	1,154	230	299	71%	69%	46%	64%	57%	26%
Clinton	9,688	1,605	45	1,137	2,197	142	1,427	2,493	406	845	74%	71%	50%	71%	65%	34%
Columbia	6,729	703	21	488	1,244	83	876	1,552	214	667	72%	77%	57%	69%	70%	43%
Cortland	6,053	1,110	11	832	1,220	71	810	1,454	186	416	76%	72%	41%	75%	66%	29%
Delaware	4,876	724	15	453	1,117	138	569	1,072	215	276	65%	63%	46%	63%	51%	26%
Dutchess	31,838	3,736	179	2,923	4,690	153	3,778	6,561	790	4,619	83%	84%	82%	78%	81%	70%
Erie	129,263	26,071	850	20,081	26,588	1,971	20,704	28,914	5,368	10,393	80%	85%	55%	77%	78%	36%
Essex	4,366	504	17	428	1,052	81	760	918	105	265	88%	80%	40%	85%	72%	29%
Franklin	5,281	941	30	609	1,328	107	908	1,307	225	313	68%	76%	41%	65%	68%	24%
Fulton	6,872	1,472	68	1,201	1,657	93	1,320	1,395	292	479	86%	85%	55%	82%	80%	34%
Genesee	6,373	995	32	668	1,521	127	1,004	1,488	291	463	70%	74%	51%	67%	66%	31%
Greene	5,158	791	27	564	1,051	131	723	1,347	128	688	75%	81%	61%	71%	69%	51%

Table 41. Gross Rent as a Percentage of Income by Income: New York and Counties (2012, 5-year data)

Geography	Total:	Burden for renters with income less than \$10,000			Burden for renters with income \$10,000 - \$19,999			Burden for renters with income \$20,000 - \$34,999			Proportion of Tenants with Burdens > 30% and income:			Proportion of Tenants with Burdens > 35% and income:		
		Total	30.0 to 34.9 percent	35.0 percent or more	Total	30.0 to 34.9 percent	35.0 percent or more	Total	30.0 to 34.9 percent	35.0 percent or more	Less than \$10,000	\$10 - \$19,999	\$20 - \$34,999	Less than \$10,000	\$10 - \$19,999	\$20 - \$34,999
Hamilton	402	52	4	17	74	0	53	72	6	2	40%	72%	11%	33%	72%	3%
Herkimer	7,387	1,252	53	1,004	1,867	181	1,081	1,845	392	517	84%	68%	49%	80%	58%	28%
Jefferson	18,853	2,371	143	1,408	3,344	198	1,804	4,642	702	2,008	65%	60%	58%	59%	54%	43%
Kings	636,778	99,887	5,533	65,778	99,725	6,673	76,478	116,037	11,467	79,880	71%	83%	79%	66%	77%	69%
Lewis	2,395	371	23	264	470	27	287	714	61	213	77%	67%	38%	71%	61%	30%
Livingston	6,025	1,199	0	815	1,286	105	925	1,248	314	437	68%	80%	60%	68%	72%	35%
Madison	6,555	926	28	557	1,345	87	797	1,285	168	361	63%	66%	41%	60%	59%	28%
Monroe	99,510	19,430	607	14,935	19,031	1,045	15,564	23,795	4,677	11,520	80%	87%	68%	77%	82%	48%
Montgomery	6,331	1,092	31	855	1,371	110	896	1,642	158	656	81%	73%	50%	78%	65%	40%
Nassau	80,645	7,525	397	5,213	10,583	806	7,597	11,804	596	9,207	75%	79%	83%	69%	72%	78%
New York	567,229	68,466	4,526	44,986	66,569	5,638	47,329	73,380	8,318	44,062	72%	80%	71%	66%	71%	60%
Niagara	26,342	5,172	140	3,979	6,347	549	4,589	6,529	1,185	2,010	80%	81%	49%	77%	72%	31%
Oneida	29,280	4,856	133	3,717	6,522	538	4,638	7,282	1,022	2,350	79%	79%	46%	77%	71%	32%
Onondaga	62,637	11,440	472	8,254	12,606	1,071	9,306	14,518	2,515	5,846	76%	82%	58%	72%	74%	40%
Ontario	10,742	1,253	83	945	2,443	184	1,783	2,688	508	988	82%	81%	56%	75%	73%	37%
Orange	36,912	4,078	102	3,272	5,908	172	5,079	7,490	542	5,692	83%	89%	83%	80%	86%	76%
Orleans	3,674	590	14	510	1,168	62	693	829	103	259	89%	65%	44%	86%	59%	31%
Oswego	12,075	2,302	89	1,670	2,723	182	2,016	2,994	397	1,332	76%	81%	58%	73%	74%	44%
Otsego	6,855	1,190	13	884	1,771	64	1,457	1,533	194	691	75%	86%	58%	74%	82%	45%
Putnam	5,796	502	39	338	760	36	611	1,185	43	929	75%	85%	82%	67%	80%	78%
Queens	426,053	43,159	1,747	29,670	51,950	2,261	44,043	76,963	4,520	62,171	73%	89%	87%	69%	85%	81%

Table 41. Gross Rent as a Percentage of Income by Income: New York and Counties (2012, 5-year data)

Geography	Total:	Burden for renters with income less than \$10,000			Burden for renters with income \$10,000 - \$19,999			Burden for renters with income \$20,000 - \$34,999			Proportion of Tenants with Burdens > 30% and income:			Proportion of Tenants with Burdens > 35% and income:		
		Total	30.0 to 34.9 percent	35.0 percent or more	Total	30.0 to 34.9 percent	35.0 percent or more	Total	30.0 to 34.9 percent	35.0 percent or more	Less than \$10,000	\$10 - \$19,999	\$20 - \$34,999	Less than \$10,000	\$10 - \$19,999	\$20 - \$34,999
Rensselaer	21,907	3,130	142	2,288	3,740	371	2,556	5,236	659	2,407	78%	78%	59%	73%	68%	46%
Richmond	49,387	7,543	372	4,875	7,522	482	5,321	8,525	649	5,857	70%	77%	76%	65%	71%	69%
Rockland	28,817	2,470	259	1,582	4,878	185	3,923	5,176	482	3,834	75%	84%	83%	64%	80%	74%
St. Lawrence	11,908	2,396	55	1,828	2,727	329	1,598	2,840	443	930	79%	71%	48%	76%	59%	33%
Saratoga	23,103	1,938	117	1,432	3,564	193	2,610	4,703	738	2,754	80%	79%	74%	74%	73%	59%
Schenectady	18,616	2,215	75	1,523	3,973	120	3,037	4,638	756	2,376	72%	79%	68%	69%	76%	51%
Schoharie	2,984	474	7	385	1,034	77	803	459	84	88	83%	85%	37%	81%	78%	19%
Schuyler	1,538	131	7	90	327	31	147	508	89	124	74%	54%	42%	69%	45%	24%
Seneca	3,269	387	0	300	761	36	516	832	121	301	78%	73%	51%	78%	68%	36%
Steuben	11,619	1,853	115	1,362	2,867	194	2,055	2,698	477	772	80%	78%	46%	74%	72%	29%
Suffolk	95,332	8,285	242	5,361	11,342	466	8,814	15,466	785	12,676	68%	82%	87%	65%	78%	82%
Sullivan	9,765	1,586	56	1,006	1,877	86	1,416	2,026	230	950	67%	80%	58%	63%	75%	47%
Tioga	4,256	714	29	515	844	91	502	934	104	202	76%	70%	33%	72%	59%	22%
Tompkins	17,226	3,629	12	2,356	2,912	131	2,505	3,475	643	2,054	65%	91%	78%	65%	86%	59%
Ulster	21,516	2,495	42	1,947	4,070	168	3,240	4,361	664	2,705	80%	84%	77%	78%	80%	62%
Warren	8,699	937	19	808	1,818	98	1,517	1,954	379	953	88%	89%	68%	86%	83%	49%
Washington	6,370	773	14	603	1,599	29	1,093	1,703	349	633	80%	70%	58%	78%	68%	37%
Wayne	8,246	1,086	80	709	2,154	132	1,610	1,995	298	682	73%	81%	49%	65%	75%	34%
Westchester	131,143	12,645	599	9,216	17,508	1,486	13,332	23,569	1,854	18,426	78%	85%	86%	73%	76%	78%
Wyoming	3,764	487	2	350	1,007	84	702	769	184	144	72%	78%	43%	72%	70%	19%
Yates	2,161	411	10	308	545	24	366	504	114	130	77%	72%	48%	75%	67%	26%

In either case, the very housing cost characteristics that cause the need for improving energy efficiency in order to reduce bills is also the characteristic that makes it less likely that such investments in energy efficiency can occur.

Energy and Housing Policy Implications

The empirical discussion above has several layers of policy significance to it. First and foremost, the discussion identifies in a dramatic fashion the connection between affordable energy and affordable housing policy. Substantial effort goes into the provision of affordable rental housing in New York. This effort is particularly needed because low-income households are disproportionately renters. Addressing only the rent aspect of total shelter costs, however, will ultimately be unsuccessful at delivering affordable housing. In a large minority of cases, even when contract rents are low, high utility costs push total shelter expenses into an affordable range.

In addition, given the clear relationship between poverty, energy inefficiency and household characteristics that impede the implementation of usage reduction measures, it is reasonable to conclude that while the need for energy efficiency (and the corresponding bill reductions) within New York's low-income renter population is extensive, these households are precisely those that are least able to implement energy efficiency measures without external assistance.

These two observations carry with them several policy implications:

- Affordable housing planning documents such as Consolidated Plans should contain a discussion of energy affordability and the factors that influence energy affordability, including energy consumption, in each participating jurisdiction. If old and energy inefficient homes are contributing to high shelter burdens through high energy bills, the presence of such housing units should be identified and addressed for the market barriers to affordable housing that they represent. If, in contrast, unaffordable utility bills can be attributed to prices rather than to usage, the barrier to affordable housing would be different and the remedy would be different as well.
- The affordable housing industry should be solicited as active participants in developing and implementing energy efficiency plans and processes delivered by New York utilities. The affordable housing industry includes those state and local agencies that administer public funds such as the federal Home Investment Partnership Program (HOME), Community Development Block Grant (CDBG), and Low-Income Housing Tax Credit (LIHTC). The utility processes should, however, also include the *developers* building housing using programs such as HOME, CDBG and LIHTC. In addition to involving Community Action Agencies (CAAs) (as the

primary delivery vehicle for the U.S. Department of Energy's Weatherization Assistance Program, WAP), utility usage reduction plans should involve the state's Community Development Corporations (CDCs) as the primary delivery vehicle for affordable housing production.

Given these policy implications, the discussion above further highlights the need for an independent third party administrator, at least for low-income utility programs. New York's utilities unquestionably have a long and successful history of delivering energy efficiency / usage reduction services. What the utilities do *not* do so well, however, is to combine their utility dollars with other public funds where the utility dollars are only one of many sources of funding (and may not even be the primary source). This need to mix and match funding sources, and to treat utility dollars as one of multiple leveraged resources, requires an expertise that extends beyond that reasonably expected from New York's utilities.

For too long, the pursuit of affordable housing has been kept in a silo apart from the pursuit of efficient energy use. Through its utility-funded energy efficiency programs, New York has a unique opportunity to extend low-income usage reduction well beyond the existing low-income initiatives. That opportunity should not be lost.

Ten Important Findings

1. A substantial proportion of the housing units in New York are inhabited by tenants. Not quite half (46%) of all occupied housing units are tenant-occupied.
2. Renter income throughout New York is substantially less than homeowner income. Statewide, the median household income of tenants in New York is less than half that of median homeowner income. Homeowner income climbed steadily in the three years 2010 through 2012, while renter income declined from 2010 to 2011 before rebounding in 2012.
3. Homeowner income is skewed toward the upper end, while renter income tends to cluster at the lower end. 70% of homeowner incomes are at \$50,000 or more, while only 38% of renter incomes are. In addition, 30% of renter incomes in New York have incomes of less than \$20,000, while only 8.8% of homeowner incomes are.
4. Renter housing in New York is occupied by moderately smaller household sizes than is homeowner housing. 38% of renter housing is occupied by one-person households, but only 23% of owner-occupied housing is.

5. Homeowner housing tends to be occupied by somewhat older householders as well. While 76% of New York's owner-occupied housing is occupied by a householder age 45 or older, only 51% of renter-occupied housing is.
6. By far, natural gas is the predominant primary heating fuel in New York for both homeowners and renters. More than half of both homeowners (57%) and renters (53%) heat with natural gas, followed by households heating with fuel oil (28% homeowners and 25% renters). A far higher percentage of renters (16%) than homeowners (6%), however, heat with electricity.
7. A real change in home heating fuels has occurred in New York from 2010 through 2012, with decreases happening in the use of fuel oil. The number of homeowners using fuel oil as a primary heating fuel has decreased by nearly seven percent (7%), while the number of renters using fuel oil as a primary heating fuel has decreased by nearly 10% in the three year period.
8. For low contract rent Census tracts in New York, irrespective of the housing burden deemed to demarcate "housing unaffordability" (35%+ or 50%+), the average median contract rents are roughly half of the contract rents for Census tracts as a whole (ranging from 52% to 56%). Despite these dramatically lower contract rents, the proportion of Census tracts with a concentration of overall housing unaffordability actually increases because of increases in utility bills. While rents are half as big, utility bills are nearly 50% larger.
9. New York renters often face unaffordable housing burdens even when they succeed in renting housing units at lower monthly contract rents. Indeed, the proportion of Census tracts with a concentration of housing unaffordability increases with lower contract rents, particularly when taking into account a concentration of Poverty as well.
10. Low-income households tend to have inefficient heating consumption because they live in old and energy inefficient housing units. There can be no question about the relationship between income and the age of the housing units in which these households live. Hundreds of thousands of New York households live in old, and presumptively energy inefficient, housing units. More than 60% of New York's renters live in homes that were constructed before 1960 (i.e., are 50 or more years old). Indeed, nearly 40% of New York's renters live in homes constructed prior to 1940.

Sources of Information for New York

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.nyscaaonline.org>: The New York State Community Action Association (NYSCAA) publishes its annual “New York State Poverty Report.”

<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: 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.fiscalpolicy.org>: The Fiscal Policy Institute provides annual reports on “The State of Working New York.” Each year discusses a different aspect of jobs and income in New York State. In addition, the Institute publishes a periodic “pulling apart” report, which examines income trends in New York State.