HOME ENERGY AFFORDABILITY IN NEW YORK:

The Affordability Gap (2011)

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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 second in a series of 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. In this respect, "affordability" is examined in terms of home energy burdens, bills as a percentage of income. If a New York household has an annual

[1] The first report prepared on behalf of NYSERDA was released in 2011. 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).

income of $12,000 and an annual home energy bill of $3,000, that household has a home energy burden of 25% ($3,000 / $12,000 = 0.25). An affordable home energy burden is set at 6%.[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.
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> * * *
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> 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[3] is determined based on the same fundamental model used for the annual Home Energy Affordability Gap calculated nationwide.[4] 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.[5] For example, 100% of Federal Poverty Level in a geographic area with a median household size of 2.4 persons will be lower than 100% of Federal Poverty Level in a geographic area with a median household size of 3.2 persons.

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

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

Separate bills are calculated for four end-uses: (1) space-heating; (2) space cooling; (3) domestic hot water; and (4) electric appliances (including lighting and refrigerators). Bills are calculated using the U.S. Department of Energy's "energy intensities" most recently made publicly available through the U.S. Department of Energy's Residential Energy Consumption Survey (RECS). The energy intensities for each state are those published for the Census Division in which the state is located. New York, for example, is located in the "Mid-Atlantic" Census Division. State-specific demographic data is obtained from the American Community Survey

[3] Reference is made throughout this report to New York's "60 counties." The primary data base used for this report does not report data for Schuyler or Hamilton Counties. Hence, references to New York's counties exclude these two areas and results in information for the 60, not 62, counties.
[4] See generally, www.HomeEnergyAffordabilityGap.com (last accessed August 28, 2012).
[5] The geographic area serving as the basis for the Home Energy Affordability Gap calculation is the county.

(ACS) published by the U.S. Census Bureau. The analysis uses three-year average ACS data; for example, the "2009" data is the three-year average (2007, 2008, 2009) with the most recent year being the reporting year. Heating Degree Days (HDDs) and Cooling Degree Days (CDDs) are obtained from the National Weather Service's Climate Prediction Center on a county-by-county basis. State price data for each end-use is obtained from the Energy Information Administration's (EIA) fuel-specific price reports (e.g., Natural Gas Monthly, Electric Power Monthly).

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 2011, the most recently completed full year. Price data from the following time periods is used:

Heating Prices	
Natural gas	February 2011
Fuel oil	February 2011
Liquefied petroleum gas (LPG)	February 2011
Electricity	February 2011
Cooling Prices	August 2011
Non-heating prices	
Natural gas	May 2011
Fuel oil	May 2011
Liquefied petroleum gas (LPG)	May 2011
Electricity	May 2011

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 2011;
- 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 in public and assisted housing.

In addition to these sections, this report presents an appendix consisting of county-specific "fact sheets" presenting the 2011 Affordability Gap based on an examination of the population of households with income at or below 500% of the Federal Poverty Level.[6]

[6] These Appendices can be combined with and compared to the corresponding data for 2008, 2009 and 2010 presented in the following report: Colton (June 2011). *Home Energy Affordability in New York: The Affordability Gap (2008 – 2010*), prepared for New York State Energy Development Authority (NYSERDA): Albany (NY).

Part 1: Home Energy Affordability in New York in 2011

Home energy in New York became substantially less affordable for a substantial part of the low-income population in 2011, thus significantly increasing the Home Energy Affordability Gap for the state from the preceding year. In this Part, we compare two years of data for the New York Home Energy Affordability Gap (2010 to 2011) to determine the extent of the change and to assess whether the Affordability Gap moves at different rates of change in different parts of the state. In addition, 2008 data is referenced where appropriate to provide further context.

Changes in Affordability Gap by Time and Income Range

The Home Energy Affordability Gap in New York has seen a considerable increase in the period 2010 to 2011. The Affordability Gap increased on both a per-household and an aggregate basis. Nonetheless, while the increased Affordability Gap was substantial from 2010, a further review of prior years indicates that the 2010 Affordability Gap was unusually "low," rather than the 2011 Gap being "high." While the 2011 Affordability Gap is higher than that of 2008, the 2011 Gap is more consistent with 2008 than with 2010. Data prior to 2008 has not been developed.[7]

Table 1 presents statewide data for the years 2008, 2010 and 2011. As can be seen, while the Home Energy Affordability Gap in New York fell by two-thirds in 2010 relative to 2008 ($1.6 billion vs. $4.5 billion), the 2011 Gap rose to historic levels. In 2011, the increased per-

[7] See, note 12, supra, and accompanying text. Year-by-year data extending back to 2003 can be found at www.HomeEnergyAffordabilityGap.com (last accessed September 8, 2012).

household Gap of $1,451, when combined with an increase in the total number of households with income at or below 500% of Poverty Level (4.290 million) yielded an historically high Affordability Gap of $6.23 billion.

Table 1. Changes in Affordability Gap and Poverty Penetration by Income Ranges (2011)

	2008	2010	2011
Statewide per household Gap	$1,071	$371	$1,451
Statewide aggregate Affordability Gap ($000)	$4,511,858	$1,551,884	$6,226,705
Statewide Number of households <500% FPL	4,207,221	4,185,077	4,290,943

The average statewide Affordability Gap increased the most at the highest income levels in 2011. According to the data presented in Table 2, for example, from 2010 to 2011, the per-household Gap for households with income:

- At between 300% and 399% of Poverty Level increased from $1 to $885;
- At between 200% and 299% of Poverty Level increased from $65 to $1,449;
- At between 185% and 199% of Poverty Level increased from $102 to $1,554.

At the lowest Poverty Levels, the increase in the Affordability Gap was perhaps greater in absolute dollar terms, $1,600 or more, and nonetheless presents a less dramatic change in circumstances. It is possible to assess the reason for these results. The dollar amount of increase at the lowest Poverty Levels is higher because, given the fact that households with these incomes were already facing unaffordable bills even at the bill levels in prior years, every dollar increase in home energy bills in 2011 was a dollar-for-dollar increase in the Home Energy Affordability Gap. In contrast, increases in the absolute dollar level of the per-household Affordability Gap at the higher income levels is less because some portion of any increase in bills is absorbed by the capacity of these households to pay some portion of the increase before the bills become unaffordable.[8]

[8] Consider two simple examples. Assume that a household with income below 50% of Poverty could afford to pay a $70 bill, but receives a $100 bill. She is facing an Affordability Gap of $30. If her bill increases to

Table 2. 2011 Changes in Per-Household Affordability Gap by FPL Ranges by Year

Poverty Level	2008	2010	2011
Less than 50%	$2,579	$1,479	$3,053
50-74%	$2,217	$1,092	$2,667
75 – 99%	$1,974	$845	$2,430
100 – 124%	$1,768	$617	$2,211
125 – 149%	$1,549	$369	$1,966
150 – 184%	$1,261	$153	$1,683
185 – 199%	$1,158	$102	$1,554
200 – 299%	$1,036	$65	$1,449
300 – 399%	$499	$1	$885
400 – 499%	$21	$0	$132
Statewide per household Gap	$1,071	$371	$1,451

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. In contrast, for those Poverty Ranges with somewhat higher incomes, where some portion of the bill-paying capacity remained

$120, the entire $20 increase adds to the Gap (with the total Gap becoming $50). In contrast, assume that a household with income between 300% and 400% of Poverty could afford to pay a $120 bill, but receives a bill of $100. This household has no Affordability Gap. If this customer's bill increases to $130, since the first $20 of increase still falls below the "affordable" level, the increase in the per-household Affordability Gap is only $10.

before any bill increase, 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.

Changes in Home Energy Burdens by Time and Income Range

Home energy bills in New York in 2011 presented, on a statewide average, unaffordable home energy burdens (bills as a percentage of income) for nearly every Poverty Level range at or below 500% of Poverty Level. Table 3 shows, as discussed above, how the unaffordability of 2011 home energy bills, as measured by a percentage of income, were dramatically less affordable than in 2010, and yet were simply returning to more "normal" levels of unaffordability rather than revealing a new and unexpected spike. When compared to 2010, households with more moderate income levels were facing particular problems in 2011. The 2011 home energy burdens for households with income at or above 185% of Poverty Level are nearly twice (or more) the levels these households faced only one year earlier. Each of these income ranges above 185% of Poverty Level moved from, on average, facing an affordable home energy burden in 2010 to facing an *unaffordable* home energy burden in 2011. The lowest of these Poverty Level ranges (185% to 199%) moved from an affordable 2010 burden of 5.9% in 2010 to a burden of 11.1% in 2011. Households with income at between 300% and 399% of Poverty moved from a 2010 home energy burden of 4.3% to a 2011 home energy burden of more than eight percent (8%), well above the six percent (6%) affordability threshold.

Table 3. Changes in Home Energy Burdens by Poverty Level Ranges by Year (2011)

Poverty Level	2008	2010	2011
Less than 50%	69.7%	41.1%	78.3%
50-74%	27.8%	16.4%	31.3%
75 – 99%	19.9%	11.7%	22.4%
100 – 124%	15.7%	9.3%	17.6%
125 – 149%	13.0%	7.6%	14.4%
150 – 184%	10.6%	6.3%	11.9%
185 – 199%	10.0%	5.9%	11.1%
200 – 299%	9.3%	5.5%	10.4%
300 – 399%	7.2%	4.3%	8.1%
400 – 499%	5.2%	3.1%	5.8%

Only households at the highest income range studied (400% to 499% of Poverty) experienced home energy bills that, on average, remained affordable in 2011. While seeing a near doubling

of their home energy burden (from 3.1% in 2010 to 5.8% in 2011), the 2011 burden nonetheless remained below the six percent (6%) demarcation of affordability.

Changes in Poverty Penetration by Time and Income Range

In 2011, New York experienced not merely an increase in home energy unaffordability, but also experienced an increase in the number of households at Poverty Level incomes. According to Table 4, the State has experienced a consistent growth in the number of households at the lowest Poverty Level ranges. With the exception of two Poverty Level ranges (less than 50%, 150-184%), each range of income at or below 150% of Poverty saw a growth in the number of households from 2008 to 2010 and another growth in 2011. Even the two Poverty Level ranges with exceptions, however, while seeing a decline in the number of households from 2008 to 2010, saw more households in 2011 (compared to 2010), raising the total number of 2011 households in that range to a level higher than 2008.

Table 4. Changes in Number of Households by Poverty Level Ranges by Year (2011)

Poverty Level	2008	2010	2011	Change: 2008 – 2011
Less than 50%	452,206	447,984	475,698	23,492
50-74%	246,210	248,639	256,946	10,736
75 – 99%	305,753	309,061	321,913	16,160
100 – 124%	284,887	290,680	303,130	18,243
125 – 149%	292,866	296,778	306,800	13,934
150 – 184%	283,632	278,667	292,649	9,017
185 – 199%	110,652	123,777	130,380	19,728
200 – 299%	180,838	172,054	169,556	(11,282)
300 – 399%	1,097,320	1,086,929	1,094,817	(2,503)
400 – 499%	952,657	931,108	939,053	(13,604)
Statewide total	4,207,221	4,185,077	4,290,943	83,722

In New York, every income range at or below 200% of Poverty saw an increase in the number of households in 2011 compared to 2008. Overall, there were 111,380 more households with income at or below 200% of Poverty Level in 2011 than in 2008. This increase came in a time

period where the total number of households at or below 500% of Poverty increased by fewer than 84,000 households.

As must be true, therefore, and as the data indicates, while the number of New York households with income at or below 200% of Poverty Level was increasing from 2008 to 2011, the number of moderate income households, those with income between 200% of Poverty and 500% of Poverty, was decreasing. The number of New York households at each income range above 200% of Poverty Level decreased from 2008 to 2011, with the total three-year *decrease* of households with income between 200% and 500% of Poverty Level reaching 27,400 households.

Given these changes in the mix of households with income below 500% of Poverty Level, it comes as no surprise that the aggregate Home Energy Affordability Gap in New York is increasing even faster than the per-household Affordability Gap is increasing at individual Poverty Level ranges. New York's population is seeing both an absolute and a proportionate increase in the number of lowest income households with the highest Affordability Gap, and a decrease in the more moderate income households with a lower Affordability Gap. As a result, the State has experienced, as seen throughout this analysis, a dramatic increase in the overall statewide Affordability Gap in 2011.

Six Important Findings

1. The Home Energy Affordability Gap in New York has seen a considerable increase in the period 2010 to 2011. The Affordability Gap increased both on a per-household and on an aggregate basis.

2. While the increased 2011 Affordability Gap was substantial from 2010, a further review of prior years indicates that the 2010 Affordability Gap was unusually "low," rather than the 2011 Gap being unusually "high." Although the 2011 Affordability Gap is higher than that of 2008, the 2011 Gap is more consistent with 2008 than with 2010.

3. In 2011, the increased per-household Gap of $1,451, when combined with an increase in the total number of households with income at or below 500% of Poverty Level yielded an historically high Affordability Gap of $6.226 billion.

4. The average statewide Affordability Gap increased the most at the highest income levels in 2011. From 2010 to 2011, the per-household Gap for households with income at between 300% and 399% of Poverty Level increased from $1 to $885; at between 200% and 299% of Poverty Level increased from $65 to $1,449; at between 185% and 199% of Poverty Level increased from $102 to $1,554. At the lowest Poverty Levels, the increase in the Affordability Gap was perhaps greater in absolute dollar terms, $1,600 or more, and yet presents a less dramatic change in circumstances.

5. Home Energy bills in New York in 2011 presented, on a statewide average, unaffordable home energy burdens (bills as a percentage of income) for nearly every Poverty Level range at or below 500% of Poverty Level. Only households at the highest income range studied (400% to 499% of Poverty) experienced home energy bills that, on average, remained affordable in 2011. At this highest income range, while seeing a near doubling of their home energy burden (from 3.1% in 2010 to 5.8% in 2011), the 2011 burden nonetheless remained below the six percent (6%) demarcation of affordability.

6. In 2011, New York experienced not merely an increase in home energy unaffordability, but also an increase in the number of households at Poverty Level incomes. The State has experienced a consistent growth in the number of households at the lowest Poverty Level ranges. In New York, every income range at or below 200% of Poverty saw an increase in the number of households in 2011 compared to 2008. Overall, there were 111,380 more households with income at or below 200% of Poverty Level in 2011 than in 2008. This increase came in a time period where the total number of households at or below 500% of Poverty increased by fewer than 84,000 households. In contrast, each income level above 200% of Poverty experienced a reduction in the number of households from 2008 to 2011.

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 500% of Poverty Level. The ratio of income to Federal Poverty Level is disaggregated into ten separate ranges. 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 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 5 below, at each step-increase in household income as a percentage of Poverty Level (i.e., from 0-49% to 50-74%, from 50-74% to 75-99%, from 75-99% to 100-124%, etc.), the per-household Affordability Gap *decreases*. While the per-household gap at the lowest range of Poverty is more than $3,000, the per-household gap at the next step-increase is less than $2,700. While the per-household Affordability Gap at 100-124%

of Poverty is roughly $2,200, the per-household Gap at the next step-increase (125-149%) is less than $2,000.[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 2011 was $1.452 billion, while the combined Affordability Gap for households with income between 50% and 100% of Poverty Level[10] was $1.468 billion. The reason is that while there were 476,000 households with income below 50% of Poverty, there were 580,000 households with income between 50% and 100% of Poverty.

Only when the 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 303,000 households with income between 100% and 124% of Poverty yields an aggregate Affordability Gap of $670 million, while the population of roughly 293,000 households with income between 150% and 184% of Poverty yields a Gap of only $492 million.

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 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.

[10] Be careful to note that not all Poverty Ranges presented in Table 5 are of the same size. There are some ranges presented in 25% increments (e.g., 50-74%), while some ranges are presented in smaller (e.g., 185-199%) or larger (0-49%, 150-184%) increments. The ranges at the upper income levels are presented in increments of 100% (e.g., 200 – 299%, 300-399%).

Table 5. Affordability Gap and Number of Households by Ratio of Income to Poverty Level (2011)				
Poverty Level	Number of Households	Average per HH Burden (% of income)	Average Per-HH Affordability Gap ($s)	Aggregate Gap ($s)
0 – 49%	475,698	78.3%	$3,053	$1,452,244,812
50 – 74%	256,946	31.3%	$2,667	$685,371,709
75 – 99%	321,913	22.4%	$2,430	$782,156,283
100 – 124%	303,130	17.6%	$2,211	$670,285,212
125 – 149%	306,800	14.4%	$1,966	$603,059,285
150 – 184%	292,649	11.9%	$1,683	$492,499,102
185 – 199%	130,380	11.1%	$1,554	$202,660,306
200 – 299%	169,556	10.4%	$1,449	$245,646,068
300 – 399%	1,094,817	8.1%	$885	$968,467,302
400 – 499%	939,053	5.8%	$132	$124,314,809
Total	4,290,943	---	$1,451	$6,226,704,888

Affordability at the Lowest Income Levels

On a statewide basis, households with income at or below 50% of the Federal Poverty Level experience energy burdens of nearly 80% of income. The average burden in dollar terms is more than $3,000 per household. The number of households experiencing such burdens is not insubstantial. Statewide, more than 475,000 low-income households have income at or below 50% of the Federal Poverty Level.

Table 3 discussed above shows that while the burden drops quickly as incomes rise, the home energy burden as a percentage of income remains above affordable levels statewide through income levels reaching well above Poverty Level. Even households with income between 300% and 399% of Poverty Level, on average, experience energy burdens of more than 6% statewide in New York. [11]

Table 6 shows that home energy affordability experienced a substantive deterioration in New York from 2010 to 2011. The average home energy burden for households with income at or

[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 300% and 399% of Poverty in New York in 2011 had bills that exceeded 6% of income.

below 50% of Federal Poverty Level decreased from nearly 70% in 2008 to just over 40% in 2010, but increased to 78% in 2011. The home energy burden for households with income between 125% and 150% of Federal Poverty Level decreased from 13% in 2008 to roughly 8% in 2010, but increased back to more than 14% in 2011.[12]

With this deterioration, Table 6 shows that home energy *un*affordability expanded to a much higher Poverty level in 2011. The year 2011 saw a return of substantial home energy unaffordability to households with income as high as between 300% and 399% of Poverty Level, the same income range as saw unaffordable bills in 2008. This stands in sharp contrast to 2010, when households with income greater than 185% of Poverty Level experienced affordable bills (burdens of less than 6% of income).

Table 6. Affordability Gap by Home Energy Burden and Poverty Level (2008, 2010, 2011)

Poverty Level	2008		2010		2011	
	Average per HH Burden (%)	Average Per HH Gap ($)	Average per HH Burden (%)	Average Per HH Gap ($)	Average per HH Burden (%)	Average Per HH Gap ($)
0 – 49%	69.7%	$2,579	41.1%	$1,479	78.3%	$3,053
50 – 74%	27.8%	$2,207	16.4%	$1,092	31.3%	$2,667
75 – 99%	19.9%	$1,974	11.7%	$845	22.4%	$2,430
100 – 124%	15.7%	$1,768	9.3%	$617	17.6%	$2,211
125 – 149%	13.0%	$1,549	7.6%	$369	14.4%	$1.966
150 – 184%	10.6%	$1,261	6.3%	$153	11.9%	$1,683
185 – 199%	10.0%	$1,158	5.9%	$102	11.1%	$1,554
200 – 299%	9.3%	$1,036	5.5%	$65	10.4%	$1,449
300 – 399%	7.2%	$499	4.3%	$1	8.1%	$885
400 – 499%	5.2%	$21	3.1%	$0	5.8%	$132

As always, however, 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 2011 ranges widely, with the $1,563 Gap in New York County (lowest) being less than

[12] Data on the 2009 Affordability Gap can be found in the previous year's report. Colton (June 2011). *Home Energy Affordability in New York: The Affordability Gap (2008 – 2010).*

half of the $3,509 Affordability Gap in Lewis County (highest) for households. Table 7 shows that for households with income between 100% and 124% of Poverty level, the average Affordability Gap was at or below $2,000 in three (3) counties and above $2,500 in 39 counties. Within this Poverty Level range, eleven (11) counties had a per-household Affordability Gap of less than $2,211 (the average per-household Gap for this Poverty Range), while 49 counties had a Gap greater than $2,211.

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 11 counties with the lowest average per-household Affordability Gaps in the 100% to 124% Poverty Range had a population of 150,530 households in that Poverty range (59%), while the 49 counties with the higher per-household Gaps had a population of only 106,416 households with income in that Poverty Level range (41%).

Table 7. 2011 Affordability Gap by County (Selected Incomes at or below 185% of Poverty Level)

	0 – 50% FPL		75 – 99% FPL		100 – 124% FPL		125 – 149% FPL		150 – 184% FPL	
Average Affordability Gap	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	---	0	---	0	---	1	$1,337	5	$1,350
$1,501-$1,700	0	---	0	---	1	$1,363	1	$1,591	7	$1,596
$1,701 - $2,000	0	---	1	$1,789	2	$1,922	9	$1,841	12	$1,876
$2,000 - $2,500	1	$2,353	10	$2,314	18	$2,255	25	$2,265	23	$2,203
$2,501 or more	59	$3,521	49	$3,020	39	$2,872	24	$2,872	13	$2,629

NOTES:

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

Table 7 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 100% of Poverty, the Affordability Gap levels is above

$2,500 in virtually every county, with 49 counties have a Gap that high for households with income as high as 75% to 99% of Poverty. As income increases, however, the spread increases. For households with income less than 150% of Poverty Level, some counties (but not many) (11) had an average Affordability Gap of less than $2,000, while the split of counties with a Gap from $2,000 to $2,500 (25 counties) and counties with a Gap of more than $2,500 (24 counties) was virtually the same. In contrast, for households in the 150% to 184% Poverty range, virtually as many counties had an average Gap of more than $2,500 (13) as had an average Gap of less than $1,700 (12).

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

Affordability at the Highest Income Levels

Home energy unaffordability was evident at New York's higher income ranges as well. In 2011, the Affordability Gap reached into much higher income ranges than in prior years. In the 300% - 400% Poverty Range, for example, no county had an Affordability Gap of $0, contrasted, to 54 counties with a Gap that low in 2010. In 2011, in the 400% to 499% Poverty range, 45 counties had an Affordability Gap of greater than $0, compared to none (0) in 2010.

As in 2010, however, it would be a mistake to view each of those 45 counties with a positive aggregate 2011 Affordability Gap equally. Of those 45 counties:

- Three (3) had an average per-household Gap of less than $100;
- Seven (7) more had a Gap of $100 or more but less than $200;
- Six (6) more had a Gap of $200 or more but less than $300.

In contrast, twelve (12) counties had a per-household Affordability Gap of $700 or more in the population of with income at 400% to 499% of Poverty, with two counties having Gaps exceeding $1,000 per household.

As discussed above for the lowest income ranges, however, care should be taken whenever considering "average" figures. Experience in individual counties can vary widely from the average. For households with income between 300% and 399% of Poverty Level, for example, the per household Affordability Gap in New York in 2011 ranges widely, with the $321 in New York County (lowest) being less than only one-seventh of the $2,134 Affordability Gap in Lewis County (highest) for households. For households with income between 300% and 399% of

Poverty level, the average Affordability Gap was at or below $900 in 13 counties and above $1,800 in five (5) counties. Within this Poverty Level range, thirteen (13) counties had a per-household Affordability Gap of less than $885 (the average per-household Gap for the Poverty Range), while 47 counties had a Gap greater than $885.

While the number of counties with these higher per-household Affordability Gaps is large, these counties do not necessarily represent the bulk of New York's population. The 13 counties with the lowest average per-household Affordability Gaps had a population of 2.752 million households with income between 300% and 399% of Poverty (64%), while the 47 counties with the highest per-household Gaps had a population of only 1.539 households with income in that Poverty Level range (36%).

Table 8. 2011 Average Per-Household Gap and Aggregate Gap by Selected FPL Ranges

Ratio of Income to Federal Poverty Level	Per Household Gap	Number of Counties with Aggregate Affordability Gap that is: /a/			Aggregate Affordability Gap
		Equal to $0	Less than $1.0 mm	Less than $2.0 mm	
185% - 200%	$1,554	0	15	38	$202,660,306
200% - 300%	$1,449	0	9	32	$245,646,068
300 – 400%	$885	0	0	0	$968,467,302
400% or more	$132	15	26	37	$124,314,809

NOTE:

/a/ The numbers in these columns are not additive. The "less than $1.0 mm" column is a subset of the "less than $2.0 mm" column.

Table 8 shows that the Affordability Gap in the highest income ranges pose a danger in assuming that the average Affordability Gap is closely associated with the aggregate Gap. For households with income between 300% and 400% of Poverty, for example, while the average Gap is only $885 per household, the aggregate Gap is one of the highest of *any* income range ($968.5 million). The reason is the large number of households who live with income between 300% and 400% of Poverty. In that Poverty range, no county has an aggregate Affordability Gap of less than $2.0 million, even though the average Gap is the second lowest of any income range. The distribution of counties by the size of the aggregate Affordability Gap shows that the per-

household Gap can easily mislead relative to the aggregate. While, for example, the per-household Affordability Gap for households between 185% and 200% of Poverty is $100 more than the Affordability Gap for households with income between 200% and 300% of Poverty, and the aggregate Affordability Gap is relatively close between those two Poverty ranges, while nine (9) counties in the higher range (200% - 300%) have an aggregate Gap of less than $1.0 million, fifteen (15) counties have an aggregate Gap that small in the lower range (185% to 200%). Even though the aggregate Gap for the Poverty range of 200% to 300% is higher (by $43 million), there are 32 counties with an aggregate Gap of less than $2.0 million in that Poverty range, compared to 38 counties with an aggregate Gap that low in the Poverty range with the higher statewide aggregate.

Measuring Energy Burdens rather than Dollar Gaps

The relative affordability of home energy can also be measured by the home energy burdens imposed on New York households. As discussed above, a home energy "burden" is the annual home energy bill divided by the household's annual income. A household with a home energy bill of $2,500 and an annual income of $10,000, in other words, has a home energy burden of 25%. Home energy burdens that exceed 6% of income are considered to be unaffordable.

Table 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 only four (4) New York counties did home energy burdens for households with income at or below 50% of Poverty reach as low as 75% of income or lower, with the lowest county burden reaching 68% (New York County). In contrast, 49 counties faced home energy burdens of more than 80% of income, up to and including twelve (12) with an average energy burden exceeding 100% of income at this Poverty range.

Table 9. Counties by Energy Burdens of Households at Selected Poverty Ranges (2011)

Less than 50% FPL		100 – 125% FPL		150 – 185% FPL		200 – 300% FPL	
Burden Range	Number of Counties	Burden Range	Number of Counties	Burden Range	Number of Counties	Burden Range	Number of Counties
70% or less	2	15% or less	0	10% or less	0	8% or less	0
>70 – 75%	2	>15 – 20%	29	>10 – 12%	12	>8 – 10%	5
>75-80%	7	>20-25%	31	>12 – 15%	35	>10 – 12%	30
>80%	49	>25%	0	>15%	13	>12%	25

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 100% of their income, the average home energy burden exceeded 20% of income in more than half of New York's counties (31), while it fell between 15% and 20% in the other half (29). In 47 New York counties, the home energy burden for households with income between 100% and 125% of Poverty exceeded 18% of income, more than three times the affordable level.

Even at 200% to 300% of Poverty Level, no county has an average energy burden that is affordable at 6% of income. Indeed, note that 25 counties at 200% to 300% of Poverty Level have average county-wide energy burdens of more than 12%, more than twice the affordable level. No county, however, has a burden exceeding 15% of income at that Poverty Level range.

Six Important Findings

1. The largest Home Energy Affordability Gap falls in the lowest ranges of Poverty in average per-household terms. At each step-increase in household income as a percentage of Poverty Level (i.e., from 0-49% to 50-74%, from 50-74% to 75-99%, from 75-99% to 100-124%, etc.), the per-household Affordability Gap *decreases*.

2. Just because the *average* per-household Affordability Gap is greater at the lowest Poverty ranges, the *aggregate* Affordability Gap does not necessarily follow that same pattern.

Because some income ranges at higher Poverty Levels have a greater number of households in them, the aggregate Affordability Gap at those higher Poverty ranges is greater even while the average Affordability Gap may be lower.

3. While the home energy burdens drop quickly as incomes rise, the home energy burden as a percentage of income remains above affordable levels statewide through income levels reaching well above Poverty Level. Even households with income between 300% and 399% of Poverty Level, on average, experience energy burdens of more than 6% statewide in New York.

4. Home energy *un*affordability expanded to a much higher Poverty Level in 2011. The year 2011 saw a return of substantial home energy unaffordability to households with income as high as between 300% and 399% of Poverty Level, the same income range as saw unaffordable bills in 2008. This stands in sharp contrast to 2010, when households with income greater than 185% of Poverty Level experienced affordable bills (burdens of less than 6% of income).

5. 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 2011 ranges widely, with the $1,563 in New York County (lowest) being less than half of the $3,509 Affordability Gap in Lewis County (highest) for households.

6. 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 11 counties with the lowest average per-household Affordability Gaps had a population of 150,530 households with income between 100% and 124% of Poverty (59%), while the 49 counties with the highest per-household Gaps had a population of only 106,416 households with income in that Poverty Level range (41%).

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:[13]

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

[13] As discussed above, the primary data base used for this analysis excludes Schuyler and Hamilton counties. Accordingly, the data for Region 3 (Finger Lakes) and Region 5 (The Adirondacks) will be somewhat less than it would have been had Schuyler (Region 3) and Hamilton (Region 5) been respectively included.

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

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. Of the state's total $6.23 billion Affordability Gap in 2011, $2.66 billion (43%) is in New York City. The aggregate Affordability Gap in New York City is nearly four times bigger (3.94x) the next largest Affordability Gap by region (Region 3: $674.64 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 ($1,339) in the state. Only Region 2 ($1,245/household) has a lower per-household Affordability Gap.

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 $500 million. Three more regions (Regions 2, 6 and 7) have an Affordability Gap of between $300 and $500 million, while two regions (Regions 5 and 8) have aggregate Gaps of between $150 and $200 million. Region 1, which has the smallest aggregate Affordability Gap of any region in the state, still had an Affordability Gap of more than $120 million in 2011.

Table 10 below shows the aggregate and average affordability Gap by region for the total population below 500% of Federal Poverty Level along with selected ranges of Poverty Level.

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 500% of Poverty Level was $1,451 in 2011. On the "high" end, Region 8 exceeds the statewide average by 46%, with an average Affordability Gap of $2,116. Similarly, Region 4 exceeds the statewide average Affordability Gap by 29% ($1,875), while Region 5 exceeds the statewide average by 38% ($1,996). The deviation on the "low" end is not quite as substantial. The largest deviation can be found in Region 2 ($1,245) (86% of statewide average), with Region 11 ($1,339) and Region 3 ($92% of statewide average) having the greatest per-household deviation.

Table 10. Aggregate and Average Home Energy Affordability Gap by Region and Selected Poverty Level Ranges (New York) (2011)

Region	Total		< 50% FPL		51% - 75% FPL		76% - 100%		125% - 150% FPL		200% - 300% FPL	
	Aggregate ($000)	Average	Aggregate ($000)	Average	Aggregate ($000)	Average	Aggregate ($000)	Average	Aggregate ($000)	Average	Aggregate ($000)	Average
1	$120,435	$1,515	$25,685	$3,132	$12,036	$2,773	$14,627	$2,520	$12,879	$2,044	$5,220	$1,646
2	$412,582	$1,245	$97,154	$2,905	$44,625	$2,558	$48,379	$2,330	$42,595	$1,852	$16,987	$1,435
3	$674,645	$1,380	$149,900	$3,083	$70,373	$2,722	$77,030	$2,481	$66,264	$2,018	$27,841	$1,607
4	$138,101	$1,875	$25,447	$3,636	$12,019	$3,267	$13,564	$3,026	$13,465	$2,518	$5,828	$2,092
5	$213,903	$1,996	$34,069	$3,762	$17,149	$3,384	$22,904	$3,175	$17,573	$2,690	$11,184	$2,284
6	$376,888	$1,698	$75,029	$3,432	$36,582	$3,083	$40,630	$2,811	$34,645	$2,346	$16,002	$1,928
7	$300,146	$1,556	$57,394	$3,299	$27,906	$2,938	$35,635	$2,752	$27,934	$2,254	$13,568	$1,866
8	$192,887	$2,116	$34,892	$3,864	$15,971	$3,495	$20,324	$3,248	$17,994	$2,769	$8,556	$2,357
9	$538,496	$1,584	$114,160	$3,489	$49,551	$3,091	$60,333	$2,833	$50,862	$2,311	$22,314	$1,861
10	$598,730	$1,583	$91,354	$3,847	$37,153	$3,429	$54,945	$3,158	$60,287	$2,613	$31,914	$2,142
11	$2,659,891	$1,339	$747,161	$2,823	$362,007	$2,450	$393,785	$2,185	$258,563	$1,678	$86,232	$1,235
Total / Avg	$6,226,706	$1,451	$1,452,245	$3,053	$685,372	$2,667	$782,156	$2,430	$603,509	$1,966	$245,646	$1,554

By count, there are more Regions (8 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) represent 65% of the State of New York's total population at or below 500% of Poverty Level. The three regions with the highest per-household Gap (and the greatest deviations more than the statewide average) represent only six percent (6.3%) of New York's population at or below 500% of 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 11 shows the aggregate affordability Gap by region and selected Poverty Level along with the percentage contribution each region makes to the state total.

One can see, for example, that while New York City contributes 43% of the aggregate statewide Gap, it contributes 50% of the aggregate Gap for households with income below 500% of Poverty. In contrast, five of the State's 11 regions contribute 5% or less of the aggregate Affordability Gap for households with income below 500% 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 37% of the statewide aggregate Gap; by the time incomes reach 200-300% of Poverty, New York City contributes only 35%; New York City contributes only 25% of the aggregate Gap in the range of 300 – 400% of Poverty.

For households with income between 125% and 150% of Poverty Level, only three of New York's eleven regions make double digit percentage contributions to the total statewide aggregate Affordable Gap. At 300% to 400% of Federal Poverty level, four regions made double digit percentage contributions to the state aggregate Gap while at 400 to 500% of Poverty, six regions made double digit contributions to the total statewide aggregate Gap.

Table 11. Aggregate Home Energy Affordability Gap by Region and Contribution to State Total (New York) (2011)

Region	Total		< 50% FPL		125% - 150% FPL		185% - 200% FPL		200% - 300% FPL	
	Aggregate	Statewide Contribution	Aggregate	Statewide Contribution	Aggregate	Statewide Contribution	Aggregate	Statewide Contribution	Aggregate	Statewide Contribution
1	$120,435,295	1.9%	$25,685,026	1.8%	$12,879,093	2.1%	$3,808,384	1.9%	$5,220,256	2.1%
2	$412,582,104	6.6%	$97,153,822	6.7%	$42,595,494	7.1%	$13,937,483	6.9%	$16,987,143	6.9%
3	$674,644,814	10.8%	$149,899,852	10.3%	$66,264,036	11.0%	$23,692,217	11.7%	$27,841,385	11.3%
4	$138,101,146	2.2%	$25,447,328	1.8%	$13,465,017	2.2%	$4,301,950	2.1%	$5,827,774	2.4%
5	$213,903,420	3.4%	$34,068,812	2.3%	$17,572,549	2.9%	$8,407,577	4.1%	$11,183,850	4.6%
6	$376,887,635	6.1%	$75,029,042	5.2%	$34,644,677	5.7%	$13,579,661	6.7%	$16,001,777	6.5%
7	$300,145,908	4.8%	$57,394,344	4.0%	$27,933,632	4.6%	$10,579,566	5.2%	$13,568,152	5.5%
8	$192,887,069	3.1%	$34,891,941	2.4%	$17,993,650	3.0%	$6,177,288	3.0%	$8,555,976	3.5%
9	$538,496,331	8.6%	$114,159,653	7.9%	$50,861,554	8.4%	$18,621,094	9.2%	$22,313,675	9.1%
10	$598,730,453	9.6%	$91,354,040	6.3%	$60,286,922	10.0%	$23,591,482	11.6%	$31,914,190	13.0%
11	$2,659,890,714	42.7%	$747,160,952	51.4%	$258,562,662	42.9%	$75,963,603	37.5%	$86,231,890	35.1%
Total	$6,226,706,339	100.0%	$1,452,244,812	100.0%	$603,059,285	100.0%	$202,660,306	100.0%	$245,646,068	100.0%

Contributions to Regional Totals by Income Range

Table 12 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 five ranges below 300% of Poverty (0 – 50%; 51 – 100%; 101 – 150%; 151 - 200%; 200 - 300%). Households with income greater than 300% of Poverty are excluded from this Table for space reasons.[14]

Statewide, the three lowest Poverty Level ranges (0-50%, 50-100%, 100-150%), despite their vastly different Affordability Gap levels on a per-household basis, contribute roughly similar amounts to the aggregate home energy affordability gap (from 20% to 24%). This equal contribution occurs in virtually every region, with New York City (Region 11) being the notable exception. The aggregate Affordability Gap drops by roughly half at between 150% and 200% of Poverty, with the contributions from higher Poverty Level ranges becoming increasingly smaller.

Table 12. Contribution to Regional Aggregate Affordability Gap by Selected FPL Ranges (2011)

Region	Aggregate Gap (100%)	0 – 50% FPL	50 – 100% FPL	100 – 150% FPL	150 – 200% FPL	200 - 300% FPL
1	$120,435,295	21%	22%	22%	11%	4%
2	$412,582,104	24%	23%	20%	12%	4%
3	$674,644,814	22%	22%	20%	12%	4%
4	$138,101,146	18%	19%	21%	12%	4%
5	$213,903,420	16%	19%	18%	11%	5%
6	$376,887,635	20%	20%	20%	12%	4%
7	$300,145,908	19%	21%	19%	12%	5%
8	$192,887,069	18%	19%	18%	11%	4%
9	$538,496,331	21%	20%	20%	12%	4%
10	$598,730,453	15%	15%	19%	13%	5%
11	$2,659,890,714	28%	28%	21%	10%	3%
Statewide	$6,226,706,339	23%	24%	20%	11%	4%

[14] It is because of this exclusion that the numbers in each row do not add up to 100%.

As can be seen in Table 12, while only one-quarter of the total statewide aggregate Affordability Gap is contributed by households with income below 100% of Poverty (23% and 24%), in Region 11 (New York City), those two Poverty Level ranges contribute somewhat more of the total aggregate Gap (28%). By the mid-Poverty Level range incomes (e.g., 100-150% of Poverty), the disparity between regions in contributions by Poverty ranges had narrowed (with the highest contribution of 22% compared to the statewide average of 20% and the lowest contribution of 18%). Differences in the percentage contributions in all regions had virtually disappeared by the time incomes reached the income range of 150-200% of Poverty (with all ranges falling between 10% and 13%, with the statewide average being 11%). The same coalescence of contributions by Poverty was evident in the highest Poverty Level range presented in Table 12.

On an intra-regional basis, the contributions by Poverty Level range, for regions other than New York City (Region 11), are relatively narrow for households with income below 200% of Poverty. In five Regions (Regions 4, 5, 7, 8, 10), for example, all income levels made a contribution to the Regional aggregate Affordability Gap of between 11% and 19%. In four other regions (Regions 1, 3, 6, 9), also, the spread between the Poverty Level range making the largest contribution (which tended to be those households with incomes below 50% of Poverty) and the smallest contributions was less than 10% (highest contribution around 20% and lowest contribution around 11-12%).

What can be concluded from Table 12 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 and Kings counties, for example, have the lowest (or next to lowest) per-household Affordability Gap at each Poverty Level examined. Queens, Erie and Richmond also consistently appear in the counties with the lowest per-household Affordability Gap, except for the below-50% of Poverty Level range. Monroe County, along with Chautauqua, Niagara, Chemung and Albany Counties, round out, in that order, the ten counties with the lowest per-household Affordability Gaps for households with income at or below 300% of Federal Poverty Level.

Table 13. Counties with Lowest Per Household Affordability Gap by Selected FPL Ranges (2011)

Counties with Lowest Per HH Affordability Gap									
< 50% FPL		100 – 125% FPL		150 – 185% FPL		185 – 200% FPL		200 – 300% FPL	
County	HH Gap	County	HH Gap	County	HH Gap	County	HH Gap	County	HH Gap
New York	$2,353	New York	$1,563	New York	$1,066	New York	$953	New York	$840
Kings	$2,762	Kings	$1,851	Kings	$1,279	Kings	$1,149	Kings	$1,019
Erie	$2,838	Erie	$1,994	Erie	$1,463	Queens	$1,336	Queens	$1,202
Chautauqua	$2,919	Richmond	$2,060	Queens	$1,470	Richmond	$1,340	Richmond	$1,207
Monroe	$2,926	Queens	$2,060	Richmond	$1,473	Erie	$1,342	Erie	$1,222
Niagara	$2,967	Monroe	$2,066	Monroe	$1,525	Monroe	$1,402	Monroe	$1,279
Chemung	$2,970	Chautauqua	$2,082	Chautauqua	$1,556	Chautauqua	$1,437	Chautauqua	$1,317
Albany	$2,972	Niagara	$2,112	Niagara	$1,575	Niagara	$1,453	Niagara	$1,331
Richmond	$2,992	Chemung	$2,132	Chemung	$1,605	Chemung	$1,485	Chemung	$1,365
Queens	$2,999	Albany	$2,134	Albany	$1,607	Albany	$1,487	Albany	$1,367

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, followed closely by Franklin County. Essex, Otsego and Seneca also consistently fall within the ten counties with the highest Affordability Gap per-household. Putnam, Tioga and Chenango counties, in that order, tend to

round out the ten counties with the highest per-household Affordability Gap in each Poverty Level range.

Table 14: Counties with Highest Per Household Affordability Gap by Selected FPL Ranges (2011)

Counties with Highest Per HH Affordability Gap									
< 50% FPL		100 – 125% FPL		150 – 185% FPL		185 – 200% FPL		200 – 300% FPL	
County	HH Gap	County	HH Gap	County	HH Gap	County	HH Gap	County	HH Gap
Chenango	$3,948	Chenango	$3,079	Chenango	$2,533	Chenango	$2,409	Chenango	$2,285
Tioga	$3,960	Tioga	$3,093	Tioga	$2,549	Tioga	$2,425	Tioga	$2,301
Washington	$3,978	Washington	$3,129	Putnam	$2,571	Putnam	$2,441	Putnam	$2,311
Sullivan	$3,991	Sullivan	$3,137	Washington	$2,596	Washington	$2,475	Washington	$2,353
Otsego	$3,996	Putnam	$3,144	Sullivan	$2,600	Sullivan	$2,478	Sullivan	$2,356
Seneca	$4,010	Seneca	$3,153	Seneca	$2,615	Seneca	$2,492	Seneca	$2,370
Essex	$4,012	Otsego	$3,162	Otsego	$2,637	Otsego	$2,518	Otsego	$2,399
Putnam	$4,054	Essex	$3,194	Essex	$2,680	Essex	$2,563	Essex	$2,446
Franklin	$4,281	Franklin	$3,435	Franklin	$2,903	Franklin	$2,782	Franklin	$2,661
Lewis	$4,383	Lewis	$3,509	Lewis	$2,959	Lewis	$2,834	Lewis	$2,709

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, are not 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 15 does not reveal the same substantial overlap between counties. Consider, for example, that Putnam, Chenango and Livingston Counties are found to be among the ten

counties with the lowest aggregate Affordability Gap for households with income between 100% and 125% of Poverty Level, but not for households with income below 50% of Poverty Level. Livingston and Genesee Counties are among the counties with the ten lowest aggregate Affordability Gaps for both of the two highest Poverty Level ranges (185-200% and 200-300%) in Table 15, but not for any of the lower income ranges. Orleans, Tomkins and Tioga appear in the ten counties with the lowest aggregate Affordability Gap only for the 200-300% of Poverty Level range, 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 a different level of Poverty.

Table 15. Counties with Lowest Aggregate Affordability Gap by Selected FPL Ranges (2011)

Counties with Lowest Aggregate Affordability Gap									
< 50% FPL		100 – 125% FPL		150 – 185% FPL		185 – 200% FPL		200 – 300% FPL	
County	HH Gap	County	HH Gap	County	HH Gap	County	HH Gap	County	HH Gap
Seneca	$2,236,814	Orleans	$1,209,459	Yates	$968,035	Yates	$425,248	Yates	$296,809
St. Lawrence	$2,496,739	Yates	$1,493,699	Seneca	$1,105,354	St. Lawrence	$431,267	Orleans	$588,756
Wyoming	$2,542,863	Essex	$1,698,676	Essex	$1,528,422	Wyoming	$525,377	Livingston	$713,977
Orleans	$2,553,485	Putnam	$1,807,979	Putnam	$1,568,644	Seneca	$536,599	Cortland	$725,337
Yates	$2,608,864	Lewis	$1,898,226	Cortland	$1,610,787	Cortland	$629,023	Seneca	$789,380
Lewis	$2,717,147	Wyoming	$2,027,109	Warren	$1,672,897	Livingston	$641,947	Genesee	$820,471
Essex	$2,945,403	Chenango	$2,162,906	St. Lawrence	$1,816,712	Genesee	$716,896	St. Lawrence	$950,643
Genesee	$3,333,640	Greene	$2,201,466	Lewis	$1,875,467	Herkimer	$725,471	Tompkins	$981,725
Warren	$3,522,345	Livingston	$2,301,390	Allegany	$1,896,433	Allegany	$727,444	Tioga	$993,090
Greene	$3,526,006	Seneca	$2,379,226	Wyoming	$1,937,657	Lewis	$833,218	Lewis	$1,040,394

Moreover, as can be seen in Table 15, at higher Poverty Levels, the role of population in driving the aggregate Affordability Gap becomes less and less of a factor for the lowest aggregate Gaps. As an increasing number of households experience an affordable bill, and thus contribute *no* dollars to the aggregate Affordability Gap, the absolute level of population in that Poverty range becomes less of a factor. Moreover, as the per-household Gap approaches $0, the per-household Gap becomes the more substantial influence and the overall influence of the population size declines. In determining the counties with the lowest aggregate Gaps, a growing number of households appear on the list with a $0 aggregate Gap. These instances involve a home energy

burden that is, on average, affordable, with no Affordability Gap being incurred at that income level.

The same result appertains, albeit to a lesser degree, for the ten counties with the largest aggregate Affordability Gap as set forth in Table 16. 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 50% of the Federal Poverty Level, as well as for households between 100% and 125% of Poverty, notwithstanding the fact that three of those counties (New York, Kings, Queens) had three of the five lowest per-household Gaps in the state for the below-50% Poverty Level, and *the* three lowest per-household Gaps for the 100 – 125% Poverty Level.

Table 16. Counties with Highest Aggregate Affordability Gap ($000) by Selected FPL Ranges (2011)

Counties with Highest Aggregate Affordability Gap									
< 50% FPL		100 – 125% FPL		150 – 185% FPL		185 – 200% FPL		200 – 300% FPL	
County	HH Gap	County	HH Gap	County	HH Gap	County	HH Gap	County	HH Gap
Onondaga	$35,189,524	Onondaga	$15,503,343	Onondaga	$11,836,421	Onondaga	$4,555,642	Onondaga	$5,754,705
Nassau	$38,485,548	Monroe	$24,234,435	Monroe	$17,030,030	Monroe	$7,684,310	Westchester	$8,865,651
Westchester	$48,324,562	Nassau	$25,803,775	Westchester	$17,878,352	Westchester	$7,874,183	Monroe	$9,120,669
Suffolk	$52,868,492	Westchester	$28,221,892	Erie	$23,075,505	Erie	$9,389,329	Erie	$11,495,074
Monroe	$58,565,820	Erie	$28,637,466	Nassau	$23,939,842	Nassau	$9,934,240	New York	$11,558,056
Erie	$74,739,290	Suffolk	$30,166,151	New York	$26,749,573	New York	$11,365,217	Nassau	$13,212,383
Queens	$130,982,188	New York	$49,452,220	Suffolk	$32,932,525	Suffolk	$13,657,242	Suffolk	$18,701,808
New York	$135,323,943	Bronx	$74,028,880	Bronx	$46,098,758	Bronx	$15,165,574	Bronx	$20,363,767
Bronx	$196,445,355	Queens	$74,632,657	Queens	$53,921,028	Kings	$23,333,436	Kings	$25,366,184
Kings	$258,648,091	Kings	$95,429,651	Kings	$59,002,974	Queens	$23,544,928	Queens	$25,465,371

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 17 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% – 74% of FPL) to moderate income (300% – 399% FPL).

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 74% of Poverty, for example, while the average statewide home energy burden is 31.3%, the county with the smallest burden is only four percent lower (at 27.4%), while the county with the largest burden is more than 13% higher (at 44.9%).

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 less than 2% lower (at 10.2%), the county with the highest burden is nearly 5% higher (at 16.7%). For households with income between 200% and 299% of Poverty, the statewide average burden is 10.4%. While the county with the smallest burden is only 1.5% lower (at 8.9%), the county with the highest burden is more than 4% higher (at 14.6%). 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 17. Limits of Home Energy Burdens by New York County: Selected Poverty Ranges (2011).

	50 – 74%	75 – 99%	100-124%	150-184%	200-299%	300-399%
Smallest burden in a County	27.4%	19.6%	10.2%	9.5%	8.9%	6.9%
Largest burden in a County	44.9%	32.1%	16.7%	15.6%	14.6%	11.2%
Average burden statewide	31.3%	22.4%	11.9%	11.1%	10.4%	8.1%

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 $6.23 billion Affordability Gap in 2011, $2.66 billion (43%) 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 $500 million. Three more regions have an Affordability Gap of between $300 and $500 million, while two regions have aggregate Gaps of between $150 and $200 million. The Region having the smallest aggregate Affordability Gap still had a Gap of more than $120 million in 2011.

3. By count, there are more Regions (8 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 65% of the State of New York's total population at or below 500% of Poverty Level. The three regions with the highest per-household Gap represent only six percent of New York's population at or below 500% of Poverty Level.

4. Statewide, the three lowest Poverty Level ranges (0-50%, 50-100%, 100-150%), 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, with New York City (Region 11) being the notable exception. The contribution to each regional aggregate Affordability Gap drops by roughly half at between 150% and 200% of Poverty, with the contributions from higher Poverty Level ranges 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 since 2008 to determine whether trends and patterns can be identified.[15]

Median Income

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

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

Median Income by Tenure

New York data confirms the commonly held view that tenants have significantly lower income than do homeowners. In New York, median tenant income remains half of the annual income of homeowners. In 2010, while tenant income was $35,223, homeowner income was $75,238.[16]

Table 18. Median Income by Tenure, 2008, 2009, 2010 (New York)

	2008	2009	2010	Change: 2008 – 2010
Total households	$56,033	$54,659	$54,158	-3.3%
Owner-occupied	$76,409	$74,777	$75,238	-1.5%
Tenant-occupied	$35,939	$34,907	$35,223	-2.0%

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

Both homeowners and tenants saw a decrease in their real (inflation-adjusted) income from 2008 to 2010. Both groups experienced a decrease in median income in 2009 relative to 2008, with homeowner incomes decreasing somewhat less than tenant incomes (homeowner decrease: 2.1%; tenant decrease: 2.9%). In contrast, both groups saw somewhat of a recovery in 2010, though not a recovery sufficient to bring incomes back to 2008 levels. In 2010, tenant decreases in income (2.0%) remained slightly greater than homeowner decreases (1.5%).

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 ($29,147), with progressive increases as households gain members, up to $59,743 for 2-person households; $69,281 for 3-person households; and $81,157 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

[16] In this one section, when dollar figures are presented, the 1-year ACS data is used. The 3-year averages tended to unreasonably mask year-to-year changes.

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

Table 19. Median Income by Household Size, 2008, 2009, 2010 (New York)

	2008	2009	2010	Change: 2008 - 2010
All households	$56,033	$54,659	$54,158	-3.3%
1-person	$30,615	$29,426	$29,147	-4.8%
2-person	$61,189	$59,931	$59,743	-2.4%
3-person	$71,027	$69,189	$69,281	-2.5%
4-person	$81,899	$81,960	$81,157	-0.9%
5-person	$80,095	$79,322	$78,620	-1.8%
6-person	$79,438	$78,187	$71,099	-10.5%
7+-persons	$80,994	$80,010	$79,538	-1.8%

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

Aside from age, by definition, households with a larger number of members are more likely also to have a greater number of worker incomes. By definition, in other words, a one-person household will not have two workers contributing to overall household income. In New York in 2010, 40% of all one-worker households represented one-person households; 60% of all two-worker households represented three- and four-person households.[17]

With one exception, smaller households experienced a greater decline in real incomes than did larger households over the three year period 2008 through 2010. Median income for a one-person New York household declined by nearly five percent (5%) from 2008 to 2010, with two- and three-person declines falling between two and three percent. With the exception of 6-person households, income declines for other household sizes were less than two percent over the three-year period. For all household sizes, however, median income experienced a decline from 2008 to 2010.

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

[17] American Community Survey (3-year data), at Table B08202.

median ($26,195 vs. $54,158). On the other hand, householders age 65 years or older have a median income somewhat less than 65% of the statewide median ($34,518 vs. $54,158).

Younger households experienced a greater decline in incomes in the three-year period 2008 through 2010 than did older householders. The three-year median income decline of 6.6% for householders aged 25 or younger was more than four times greater than that for householders age 25 to 44 and nearly three times greater than that for householders age 65 or older. Indeed, the income decline for those age 25 or younger was more than 50% greater (6.6% vs. 4.8%) than the age range with the next greatest income decline (45 to 64 years old).

Table 20. Median Income by Age of Householder, 2008, 2009, 2010 (New York)

Age of Householder	2008	2009	2010	Change: 2008 - 2010
Total households:	$56,033	$54,659	$54,158	-3.3%
Under 25 years	$28,035	$24,618	$26,195	-6.6%
25 to 44 years	$61,875	$61,539	$60,887	-1.6%
45 to 64 years	$68,191	$65,729	$65,271	-4.3%
65 years and over	$33,752	$33,882	$34,518	2.3%

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

Only householders age 25 to 64 experienced a continuous decline in median income from 2008 through 2010. For these working age householders, median income was less in 2009 than it was in 2008; median income was even less in 2010 than it was in 2009. Despite their overall greater three-year decline in income, householders age 25 or younger experienced a substantial decline in income from 2008 to 2009, with somewhat of an improvement in 2010. In contrast, aging householders (65 years or older) saw an improvement in real incomes each year, with a slight increase from 2008 to 2009 and a greater increase in 2010.

Median Income by Work Experience

Median income did not decline for full-time year-round workers in New York from 2008 to 2010. Real median income for full-time, year-round male workers increased by just over $500 ($50,382 to $50,905) from 2008 to 2010, while median income for full-time, year-round female workers increased from $41,240 to $42,219.

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 not show substantial declines. Full-time, year-round male

workers saw a decrease in real median income of only $127 from 2008 to 2009, which was recouped in 2010. Similarly, full-time, year-round female workers experienced a decrease in real median income of only $66 from 2008 to 2009, again a decrease that was recouped the following year.

Table 21. Median Income by Sex by Work Experience, 2008, 2009, 2010 (New York)

Work Status in past 12-Months	2008	2009	2010
Total (dollars):	$27,857	$27,602	$27,399
Male --			
Total (dollars)	$34,289	$33,611	$33,042
Full-time, year-round	$50,382	$50,235	$50,905
Other	$15,840	$15,945	$16,434
Female --			
Total	$22,323	$22,257	$22,495
Full-time, year-round	$41,240	$41,694	$42,219
Other	$11,503	$11,847	$12,351

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

This result for full-time, year-round workers should not detract from the overall year-to-year decrease in real median income for New York workers as a whole. The median income for New York workers as a whole decreased from $27,857 in 2008 to $27,602 in 2009 (a decline of 1% in real terms), and decreased further to $27,399 in 2010. Overall, the median income for New York workers as a whole was 1.6% less in 2010 than it was in 2008. In each year, the real median income for workers as a whole declined from the previous year in New York.

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.[18] Again, the three year period 2008 through 2010 is considered. The year 2010 is the most recent year for which data is yet available.

[18] The average ("mean") differs from the median in that very high, or very low, incomes can affect the average more substantially.

Mean Income by Income Quintile

Average income in New York declined in real, inflation-adjusted, terms from 2008 to 2010 at all levels of income from 2008 to 2010. Table 22 presents a 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 over all income ranges from 2008 through 2010. It cannot be said that income deteriorated disproportionately in the lower income brackets. The mean income for the lowest income quintile declined by 2.0% in the three-year period, while it declined by 4.6% in the highest income quintile.

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 2010 was $14,570. Poverty Level for a three-person household in 2010 was $18,310. The average household size in New York in 2010 was 2.59 persons. In contrast, income in the lowest income quintile in 2010 was $11,232.

Indeed, the bottom two quintiles of income in New York in 2010 were likely at or below 200% of Federal Poverty Level.[19] 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.

Table 22. Mean Income by Income Quintile, 2008, 2009, 2010 (New York)

Quintile Means	2008	2009	2010	Change: 2008 - 2010
Lowest Quintile	$11,464	$11,277	$11,232	-2.0%
Second Quintile	$32,266	$31,302	$31,059	-3.7%
Third Quintile	$56,417	$55,236	$54,621	-3.2%
Fourth Quintile	$89,968	$88,907	$88,453	-1.7%
Highest Quintile	$218,200	$213,017	$208,266	-4.6%
Top 5 Percent	$417,395	$400,541	$386,992	-7.3%

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

[19] This is probable though not certain. As discussed above, smaller households tend to have the lowest incomes in New York. Accordingly, the 2010 income of $31,059 in New York may represent one- and two-person households, placing them somewhat in excess of 200% of Poverty Level.

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 below 200% of Poverty Level in New York is less than $40,000.

Table 23. Mean Income by Ratio of Income to Poverty Level, 2008, 2009, 2010 (New York)

Persons	2008	2009	2010
Total	$81,839	$81,369	$82,121
Below 50%	$14,065	$12,298	$13,697
50 – 75%	$17,143	$17,573	$19,135
75 – 100%	$21,615	$21,776	$23,257
100 – 125%	$22,866	$26,615	$24,245
125 - 150%	$33,120	$31,967	$31,133
150 – 175%	$33,119	$37,547	$36,140
175 – 200%	$39,372	$40,799	$38,590
200 – 300%	$51,890	$51,796	$52,649
300 – 400%	$70,023	$69,657	$72,546
400% and above	$144,110	$145,634	$148,932

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

Indeed, in contrast to these "living wage" calculations by MIT, the mean income for households with income between 200% and 300% of Poverty Level was $52,649. The mean income for households with income between 175% and 200% of Poverty was only $38,590.

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 2010, 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 $14,890, while a household with a head of household between 18 and 64 years of age had an income nearly 80% higher ($26,398). An aging household living with an average income between 175% and 200% of Poverty had an average income ($25,516) 60% less than a household with a head of household age 16 to 64 ($41,219).

Table 24. Mean Income by Ratio of Income to Federal Poverty Level and Age, 2008, 2009, 2010

Persons	2008			2009			2010		
	Total	18-64	64-85+	Total	18-64	64-85+	Total	18-64	64-85+
Total	$81,839	$87,616	$52,712	$81,369	$87,127	$55,292	$82,121	$86,476	$57,141
Below 50%	$14,065	$16,455	$4,805	$12,298	$14,009	$8,098	$13,697	$16,426	$8,217
50 – 75%	$17,143	$18,847	$8,875	$17,573	$17,697	$8,285	$19,135	$20,802	$11,274
75 – 100%	$21,615	$23,636	$10,834	$21,776	$23,496	$12,879	$23,257	$23,742	$15,185
100 – 125%	$22,866	$24,944	$13,352	$25,615	$29,367	$13,842	$24,245	$26,398	$14,890
125 - 150%	$33,120	$34,822	$16,336	$31,957	$34,399	$19,651	$31,133	$34,155	$19,029
150 – 175%	$33,119	$35,617	$21,862	$37,547	$38,916	$23,033	$36,410	$38,602	$23,814
175 – 200%	$39,372	$40,811	$24,710	$40,799	$42,061	$29,621	$38,590	$41,219	$25,516
200 – 300%	$51,890	$51,662	$35,802	$41,796	$53,671	$34,249	$52,649	$52,445	$38,297
300 – 400%	$70,023	$69,630	$51,025	$69,657	$69,971	$53,982	$72,546	$73,041	$51,381
400% and above	$144,110	$143,011	$111.093	$143,634	$143,383	$113,070	$148,932	$144,722	$115,620

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

One reason for this, of course, 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 50% of the income that working age households do. The ratio of aging income to working-age income stays below 60% through 150% of Poverty (50 – 75% FPL: 54%; 100 – 125% FPL: 56%; 125 - 150% FPL: 56%). As Poverty Level increases, the income gap between aging households and non-aging households narrows. Between 150% and 200% of Poverty, the ratio of average aging incomes to non-aging incomes narrows to 62%, while above 200% of Poverty, the ratio narrows further to between 70% and 73%. At 400% of Poverty and above, the ratio of aging income to non-aging income is fully 80%. The difference in income at the lowest Poverty Levels, by age of the householder, in other words, cannot be attributed exclusively to the size of the household.

Poverty Status

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

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

The factors considered below include educational attainment, work experience and the receipt of Food Stamps. In addition to these assessments of Poverty status, the discussion below will also briefly consider the extent to which New York residents are recipients of public assistance income, including Food Stamps.[20]

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

[20] 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.

educational attainment. According to this Table, two-thirds of both men and women living with income below Poverty Level have only a high school degree or less. Within the male population, 35% of individuals age 25 or older who are living below Poverty have less than a high school education, while 36% of women do. An additional 22% of men in Poverty have only a high school degree, but no further education, while 21% of women do.

Table 25: Individuals by Sex by Educational Attainment by Below-Poverty Status, 2008, 2009, 2010 (New York) (persons age 25 and older)

	2008	2009	2010
Total:	12,774,874	12,895,019	12,784,167
Below Poverty:	1,411,713	1,423,233	1,465,703
Male:	545,257	559,937	575,756
Less than HS graduate	196,349	201,094	201,422
HS graduate /a/	173,814	175,853	182,026
Some college /b/	94,365	100,421	106,912
Bachelor's degree /c/	80,729	82,569	85,396
Female:	866,456	863,296	889,947
Less than HS graduate	313,440	311,374	317,460
HS graduate /a/	277,845	271,101	273,589
Some college /b/	169,699	174,474	187,730
Bachelor's degree /c/	105,472	106,347	111,168

SOURCE: American Community Survey, 3-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 2008 through 2010. The Poverty status of both men and women having a high school education or less has remained at 37% to 38% of that group of individuals 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 2008. In 2010, 13,285 more men age 25 years or older with a high school diploma or less lived in Poverty in New York. In contrast, in 2010, while an additional 4,020 women age 25 or older with less than a high school diploma lived in Poverty, 4,256 fewer women with a high school diploma, but no further education, lived in Poverty.

The substantial increase in Poverty status, in absolute even if not percentage terms, lies with the groups of men and women both who have "some college" (but not a degree) and who live in Poverty. From 2008 to 2010, the number of New York men living in Poverty with some college, but not a degree grew by 12,547, while the number of women in the "some college" population grew by 18,031.

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 800,000 men live with income below the Poverty Level , more than 1.1 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 61% of the total Poverty population, they represent only 53% of the overall population in New York.

Table 26: Individuals by Work Experience in Past 12-Months by Below-Poverty Status, 2008, 2009, 2010 (New York)(persons age 25 and older)			
Work Status & Poverty	2008	2009	2010
Total:	15,059,916	15,096,380	15,046,329
Below poverty level:	1,846,991	1,856,296	1,941,366
Male:	744,646	762,084	797,411
Full time, year-round	83,941	83,628	88,537
Part-time or part-year	230,960	235,026	235,913
Did not work	429,745	443,430	472,961
Female:	1,102,345	1,094,212	1,143,955
Full time, year-round	66,990	68,420	74,242
Part-time or part-year	311,718	306,886	315,097
Did not work	723,637	718,906	754,616
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-nine men (88,597 of 797,411, 11.1%) of men live in Poverty, despite working on a full-time, full-year basis. In contrast, only 6.5% of women (74,292 of 1,143,955) 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 (66.0% women vs. 59.3% 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 (30% 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 2008 through 2010. The proportion of men remained constant at 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 57.7% to 59.3%) 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 Fiscal Year 2009 (the last year for which data is available), 68% of all households eligible for Food Stamps actually participated in the Food Stamp program. Food Stamp participation experienced a dramatic increase from 2008 through 2010. 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.

Table 27: Receipt of Food Stamps by Poverty Status for Households, 2008, 2009, 2010 (New York)

Food Stamps in Last 12-Months? /a/ /b/	2008	2009	2010
Total:	7,111,130	7,143,008	7,221,564
Received Food Stamps	701,235	767,785	889,567
Income below Poverty	415,211	435,740	477,209
Income above Poverty	286,024	332,045	412,358
No Food Stamps	6,409,895	6,375,223	6,331,997
Income below Poverty	536,849	519,728	524,446
Income above Poverty	5,873,046	5,855,495	5,807,551

SOURCE: American Community Survey, 3-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. Indeed, of the 188,332 increase in participant households from 2008 to 2010, 126,334 (67%) from the population of households with income *above* the Federal Poverty Level.

This impact can be seen, as well, in the average income of Food Stamp recipients. Despite the increase in the number of households with above-Poverty incomes, the average income of Food Stamp recipients remains extremely low. In 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. Even then, 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, 2008, 2009, 2010 (New York)			
	2008	2009	2010
Total:	$55,401	$55,353	$55,217
Received Food Stamps	$13,717	$14,272	$15,624
Did not receive Food Stamps	$61,250	$61,601	$62,081
SOURCE: American Community Survey, 3-year data, Table B19058.			

The decrease in the differential between Food Stamp incomes and total incomes occurs because of the increasing income of Food Stamp recipients. From 2008 to 2010, the average income of a Food Stamp recipient household increased by 14%, from $13,717 to $15,624. In the same time period, the average income for New York's overall population remained nearly constant (showing an inflation-adjusted decrease from $55,401 to $55,217).

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 a decrease in their real (inflation-adjusted) income from 2008 to 2010.

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 during the economic downturn in New York, their incomes, though not increasing substantially beyond inflation, nonetheless did not show substantial declines. Full-time, year-round male workers saw a decrease in real median income of only $127 from 2008 to 2009,

which was recouped in 2010. Similarly, full-time, year-round female workers experienced a small decrease in real median income from 2008 to 2009, a decrease that was recouped the following year.

5. The lack of deterioration in real incomes for full-time, year-round workers, does not detract from the overall year-to-year decrease in real median income for the population of New York workers as a whole. The median income for New York workers as a whole (including those without full-time, year-round work) was less in 2010 than it was in 2008. In each year, the real median income for workers as a whole declined from the previous year in New York.

6. Average income in New York declined in real, inflation-adjusted, terms from 2008 to 2010 at all levels of income from 2008 to 2010. It cannot be said that income deteriorated disproportionately in the lower income brackets.

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 2010 were 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, of course, 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.

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-nine men of men live in Poverty, despite working on a full-time, full-year basis. In contrast, only 6.5% of women live in Poverty despite having full-time, full-year work. One reason for this is that more women live with Poverty Level incomes because they do not work at all. The 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 2008 through 2010. The change, for men, came in the increased

proportion of men who lived in Poverty because of the lack of work and a decrease in the amount of part-time work. A similar change is not evident for women.

12. Food Stamp participation experienced a dramatic increase from 2008 through 2010. Food Stamp participation in 2010 was 27% higher than Food Stamp participation in 2008, an increase of more than 188,000 household participants. One reason for the increase in Food Stamp participation is the dramatic increase in Food Stamp participants amongst New York households that have income above the Federal Poverty Level.

Part 5: A Special Focus on Public and Assisted Housing

As policymakers consider the significance of home energy unaffordability in New York, special attention should be directed toward the condition of tenants of public and assisted housing. As the data and discussion below will find, these tenants tend to be among the lowest income households in the State. Moreover, because of the very fact of their low-income status, they also tend to live in some of the least energy efficient housing, with no ability to change the nature of efficiency of that housing.[21]

Assisted Housing: Housing Unit and Appliance Characteristics

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

[21] In contrast to this special focus on tenants of public and assisted 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).

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

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

The data for the Northeast Region and Mid-Atlantic Division are reasonably consistent with each other, making it more likely that it accurately portrays assisted housing in New York. Table 29 sets forth the data.

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

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

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

Table 29. Energy Efficiency Attributes: Assisted Housing in the Northeast Region and Mid-Atlantic Census Division: 2005

Age of Housing Units

	Before 1940	1940 - 1949	1950 - 1959	1960 - 1969	1970 - 1979	1980 - 1984	1985 - 1989	1990 - 1994	1995-1999	2000 or later
Northeast	32%	17%	12%	6%	8%	15%	2%	---	6%	2%
Mid-Atlantic	32%	21%	12%	5%	4%	19%	---	---	7%	---

Age of Heating Unit

	<2 Years	2 – 4 Years	5 – 9 Years	10 – 19 Years	20+ Years	Don't Know
Northeast	9%	3%	5%	8%	31%	43%
Mid-Atlantic	11%	1%	7%	7%	36%	38%

Age of Domestic Hot Water Heater

	No Separate DHW	< 2 Years	2 – 4 Years	5 – 9 Years	10 – 19 Years	20+ Years	Don't Know	Don't Use DHW
Northeast	18%	12%	1%	11%	10%	3%	38%	6%
Mid-Atlantic	18%	15%	1%	14%	9%	4%	42%	7%

Whether Refrigerator Energy Star by Age of Refrigerator

	No	Yes	Don't Know	Too Old to be Energy Star
Northeast	17%	20%	5%	58%
Less than 2 years old	49%	47%	4%	0%
2 – 4 years old	25%	51%	24%	0%

SOURCE: 2005 Residential Energy Consumption Survey (Department of Energy, Energy Information Administration).

The lack of attention paid to energy efficiency in assisted housing is evident in the data on appliances as well. As of the 2005 RECS, most refrigerators in the Northeast Region were too old to be Energy Star rated. Even within the population of refrigerators that had been purchased recently enough to potentially be Energy Star, only half were. Roughly half of assisted housing

tenants reported having an Energy Star refrigerator when the refrigerator had been purchased within the past four years (and Energy Star units were available).

Public Housing Tenants

Public housing in New York serves some of the lowest income households in the state. Table 30 presents a distribution of public housing tenants in New York over the various income categorizations that the U.S. Department of Housing and Urban Development (HUD) uses in its housing programs. Under HUD's system of income categorization:

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

Public housing serves more than 232,000 households throughout the State of New York.

Relative Income: Distribution by Congressional District

Table 30 presents information by Congressional district to allow the reader to understand the geographic implications of the data. As can be seen, New York's public housing tenants are overwhelmingly "extremely low-income" (households with income at or below 30% of the area median income). The highest penetration of extremely low-income public housing tenants occurred in Congressional district #27 with 78%, followed closely by Congressional districts #20 and #25 (75% and 74% respectively).

In contrast, the lowest penetration of extremely low-income public housing tenants occurred in Congressional district #23, with 37%.[22] In no other Congressional District were fewer than 54% of the public housing tenants categorized as "extremely low-income," with the three next lowest penetrations occurring in Districts 22 (54%), 29 (55%) and 15 (56%). In five (5) of the 17 New York Congressional districts reporting data, the penetration of extremely low-income households within the public housing tenant population was between 70% and 80%. In five (5) more Congressional districts, the penetration of very low-income households was between 60% and 70%.

[22] While Housing Authorities in Congressional District 18 reported only 4% of their tenants with incomes at the "extremely low-income" level, those Housing Authorities failed to report data on 88% of their tenants.

Table 30. Distribution of Public Housing Tenants by Income Categorization (New York) (2012)

Congressional District /a/	Income Category						Total Households
	Extremely Low-Income	Very Low-Income	Low-Income	Above Low-Income	Not Available	Total /b/	
New York	9%	3%	2%	1%	85%	99%	232,062
10	59%	17%	15%	9%	0%	100%	5,938
12	64%	19%	11%	6%	0%	100%	2,150
13	69%	18%	11%	2%	0%	100%	693
14	68%	9%	14%	8%	0%	99%	225
15	56%	19%	17%	9%	0%	101%	3,546
16	65%	19%	12%	4%	0%	100%	2,765
17	58%	18%	17%	8%	0%	101%	2,123
18	4%	6%	2%	0%	88%	100%	331
20	75%	16%	4%	2%	3%	100%	921
21	71%	16%	6%	2%	5%	100%	2,509
22	54%	25%	16%	5%	0%	100%	444
23	37%	35%	21%	7%	0%	100%	1,374
24	70%	23%	5%	1%	0%	99%	879
25	74%	19%	6%	1%	0%	100%	914
27	78%	14%	7%	1%	0%	100%	639
28	63%	27%	9%	1%	0%	100%	461
29	55%	26%	17%	2%	0%	100%	62

NOTES:
/a/ Data not available for Congressional Districts 1, 2, 3, 4, 5, 6, 7, 8, 9, 11, 19 and 26.
/b/ Some totals may not add to 100% due to rounding.

In five of the New York Congressional Districts, more than 90% of the public housing tenants were either "extremely low-income" or "very low-income," meaning that tenants had incomes less than 50% of area median income. In an additional five Districts, between 80% and 90% of public housing tenants had incomes that were either "extremely low-income" or "very low-income." With the exception of Congressional District 18 (with its under-reporting as noted above), *no* Congressional District had fewer than 70% of its public housing tenants with income at either "extremely low-income" or "very low-income." The most wealthy of public housing tenants statewide in New York, in other words, nonetheless live with incomes less than half of area median income. This income status is consistent throughout the state.

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

In contrast, Table 31 presents the income of New York's public housing tenants in absolute dollar terms. In seven Congressional Districts, the *average* income of public housing tenants was less than $15,000 annually, though in no District did the average income fall below $11,000. In three (3) more districts, the average income fell at a level more than $15,000 but below $20,000. In no District but District 15 was the average income at or above $25,000. The proportion of public housing tenants having income at $25,000 or more ranged from as low at 3% to 7% (Districts 29 and 24 respectively) to somewhat more than 30% (Congressional Districts 10, 15, 17).

In contrast, the percentage of public housing tenants with annual income at or below $10,000 ranged from as low as 27% (Congressional District 15) to more than 50% (Congressional Districts 24, 25, 27 and 29). In eight Congressional Districts, between 30% and 40% of public housing tenants had annual income less than $10,000, while in an additional two Districts, the penetration of annual income less than $10,000 within the public housing population fell between 40% and 50%.

In two-thirds of New York's Congressional Districts with housing authorities reporting data, more than half of public housing tenants live with annual income of $15,000 or less.

Table 31. Distribution of Public Housing Tenants by Dollar Incomes (New York) (2012)

Congressional District /a/	Dollar Income								
	$0	$1 - $5,000	$5,001 - $10,000	$10,001 - $15,000	$15,001 - $20,000	$20,001 - $25,000	$25,000 or more	Total /b/	Avg Income
New York	1%	4%	30%	17%	13%	8%	27%	100%	$21,202
10	0%	3%	27%	17%	12%	8%	34%	101%	$24,333
12	0%	3%	30%	19%	12%	7%	29%	100%	$22,301
13	0%	4%	27%	16%	16%	10%	27%	100%	$20,139
14	0%	5%	31%	20%	10%	5%	27%	98%	$21,811
15	0%	3%	24%	16%	11%	9%	36%	99%	$25,132
16	0%	3%	26%	17%	15%	10%	29%	100%	$21,423
17	0%	3%	27%	16%	12%	8%	34%	100%	$24,098
18	0%	0%	21%	21%	24%	15%	20%	101%	$18,835
20	2%	8%	35%	22%	15%	7%	12%	101%	$14,513
21	5%	8%	33%	21%	12%	8%	14%	101%	$14,782
22	2%	3%	31%	21%	15%	10%	19%	101%	$16,621
23	1%	3%	30%	25%	20%	9%	12%	100%	$15,476
24	3%	10%	37%	22%	14%	8%	7%	101%	$12,573
25	10%	11%	32%	18%	13%	7%	9%	100%	$11,876
27	7%	9%	41%	16%	11%	6%	10%	100%	$12,436
28	2%	4%	30%	27%	20%	7%	10%	100%	$14,532
29	0%	0%	55%	22%	10%	9%	3%	99%	$12,553

NOTES:
/a/ Data not available for Congressional Districts 1, 2, 3, 4, 5, 6, 7, 8, 9, 11, 19 and 26.
/b/ Some totals may not add to 100% due to rounding.

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

Assisted Housing Tenants

Assisted housing tenants appear frequently to have even lower incomes than do public housing tenant in New York. For purposes of this analysis, "assisted housing" tenants are limited to those tenants receiving tenant voucher assistance.[23]

Table 32 presents information by Congressional district to allow the reader to understand the geographic implications of the data. As can be seen, New York's assisted housing tenants are overwhelmingly "extremely low-income" (households with income at or below 30% of the area median income). The highest penetration of extremely low-income public housing tenants occurred in Congressional district #8 with 83% of assisted housing tenants being "extremely low income," followed closely by Congressional districts #9 and #13 (82% and 80% respectively).

In contrast, even those Congressional Districts with the lowest penetration of extremely low-income public housing tenants, in fact reported having three of every five (60%) or more extremely low-income tenants. The lowest penetration of assisted tenants with income at or below 30% of area median income occurred in Congressional district #18, with 60%, followed closely by Districts 6 (61%), 23 and 29 (63% each).

Out of New York's 29 Congressional Districts, 19 reported having 70% or more of their assisted housing tenants with income at or below 30% of the area median, while eight (8) more Districts reporting penetrations of income this low in between 60% and 70% of the assisted housing tenants. In the three Districts noted immediately above, the penetration of "extremely low-income" tenants exceeded 80% of all assisted housing tenants.

[23] Excluded, for example, are tenants in housing supported by project-based certificates, by project-based vouchers, and by homeowner vouchers.

Table 32. Distribution of Assisted Housing Tenants by Income Categorization (New York) (2012)

Congressional District	Income Category						Total Households
	Extremely Low-Income	Very Low-Income	Low-Income	Above Low-Income	Not Available	Total /a/	
New York	67%	16%	4%	0%	13%	100%	143,265
1	72%	15%	2%	0%	11%	100%	2,406
2	69%	18%	3%	0%	10%	100%	2,241
3	73%	17%	3%	0%	6%	99%	1,092
4	75%	17%	3%	0%	5%	100%	2,414
5	79%	12%	3%	0%	6%	100%	1,013
6	61%	14%	5%	0%	20%	100%	2,894
7	76%	16%	4%	0%	3%	99%	6,566
8	83%	9%	3%	1%	4%	100%	7,903
9	82%	6%	1%	0%	11%	100%	3,722
10	74%	14%	5%	0%	6%	99%	10,571
11	78%	14%	5%	0%	2%	99%	6,394
12	76%	13%	3%	0%	7%	99%	5,720
13	80%	7%	1%	0%	11%	99%	1,487
14	64%	18%	12%	5%	1%	100%	1,676
15	77%	16%	6%	1%	1%	101%	8,748
16	78%	14%	3%	0%	4%	99%	24,707
17	72%	16%	5%	0%	6%	99%	9,702
18	60%	23%	9%	1%	7%	100%	3,241
19	70%	15%	4%	0%	11%	100%	2,988
20	64%	25%	5%	0%	6%	100%	2,061
21	71%	21%	2%	0%	6%	100%	3,812
22	67%	25%	6%	1%	2%	101%	4,608
23	63%	28%	5%	1%	3%	100%	2,696
24	64%	27%	5%	0%	4%	100%	3,212
25	70%	21%	2%	0%	7%	100%	3,347
26	66%	25%	3%	0%	6%	100%	2,320
27	75%	18%	1%	0%	6%	100%	4,569
28	75%	20%	2%	0%	3%	100%	8,489
29	63%	29%	4%	0%	5%	101%	2,052

NOTES:
/a/ Some totals may not add to 100% due to rounding.

In 17 of New York's 29 Congressional Districts, more than 90% of the assisted housing tenants were either "extremely low-income" or "very low-income," meaning that tenants had incomes less than 50% of area median income. In an additional nine Districts, between 85% and 90% of assisted housing tenants had incomes that were either "extremely low-income" or "very low-income." Only one Congressional District (#6) had fewer than 80% of its assisted housing tenants with income at either "extremely low-income" or "very low-income." The most wealthy of assisted housing tenants statewide in New York, in other words, nonetheless live with incomes less than half of area median income. This income status is consistent throughout the state. It appears in small towns and large cities. The income status appears in rural and urban area, North and South, East and West.

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

In contrast to the discussion above of income as a percentage of area median income, Table 33 presents the income of New York's assisted housing tenants in absolute dollar terms. Statewide, New York's assisted housing tenants have an average annual income of $15,130. This average is somewhat misleading, however. In 14 of the state's Congressional Districts, the average income of assisted housing tenants was *less* than $15,000, while in 15 Districts, the average income was between $15,000 and $20,000. In no District did the average income of assisted housing tenants exceed $20,000.

The percentage of assisted housing tenants with annual income at or below $10,000 ranged from as low as 24% (Congressional District 19), closely followed by Congressional District 3 (26%) and Congressional District 2 (27%). In three Congressional Districts, more than 50% of assisted housing tenants had annual income less than $10,000, while in an additional three Districts, the penetration of annual income less than $10,000 within the assisted housing population fell between 40% and 50%.

In fourteen of New York's Congressional Districts, more than two-thirds of assisted housing tenants live with annual income of $15,000 or less, while in an additional 10 Congressional Districts, more than half of assisted housing tenants do.

Table 33. Distribution of Assisted Housing Tenants by Dollar Incomes (New York) (2012)

Congressional District	Dollar Income								
	$0	$1 - $5,000	$5,001 - $10,000	$10,001 - $15,000	$15,001 - $20,000	$20,001 - $25,000	$25,000 or more	Total /a/	Avg Income
New York	1%	4%	35%	23%	16%	9%	13%	101%	$15,130
1	2%	3%	24%	20%	17%	12%	22%	100%	$18,376
2	1%	3%	23%	17%	16%	11%	27%	98%	$19,663
3	1%	2%	23%	20%	16%	12%	26%	100%	$19,543
4	2%	4%	23%	17%	16%	11%	27%	100%	$19,231
5	0%	1%	42%	25%	12%	9%	10%	99%	$14,624
6	0%	3%	31%	22%	15%	10%	18%	99%	$16,720
7	0%	4%	34%	21%	17%	9%	15%	100%	$15,760
8	0%	2%	39%	27%	13%	8%	11%	100%	$15,154
9	0%	1%	50%	29%	9%	5%	6%	100%	$13,128
10	1%	4%	28%	23%	18%	10%	17%	101%	$16,473
11	0%	4%	39%	21%	13%	8%	14%	99%	$15,276
12	0%	3%	37%	22%	16%	10%	12%	1005	$15,120
13	0%	2%	44%	29%	11%	6%	7%	99%	$13,379
14	1%	4%	33%	19%	12%	7%	25%	101%	$19,735
15	0%	4%	39%	19%	14%	8%	15%	99%	$15,615
16	0%	4%	38%	20%	16%	9%	13%	100%	$14,981
17	1%	3%	29%	22%	17%	10%	18%	100%	$16,813
18	1%	2%	25%	19%	16%	12%	25%	100%	$19,098
19	1%	2%	21%	30%	19%	12%	15%	100%	$16,515
20	1%	5%	33%	27%	18%	10%	7%	101%	$13,786
21	3%	6%	33%	24%	17%	9%	9%	101%	$13,694
22	3%	5%	34%	24%	16%	9%	9%	100%	$13,688
23	3%	7%	40%	25%	15%	6%	4%	100%	$12,089
24	3%	6%	37%	25%	15%	8%	5%	99%	$12,477
25	5%	5%	34%	23%	18%	8%	8%	101%	$13,071
26	2%	5%	34%	27%	19%	8%	6%	101%	$13,350
27	2%	7%	43%	24%	14%	6%	4%	100%	$11,887
28	3%	6%	36%	23%	16%	9%	7%	100%	$12,940
29	2%	5%	40%	26%	16%	6%	4%	99%	$12,398

NOTES:
/a/ Some totals may not add to 100% due to rounding.

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

Second, despite this lower quality housing, because of the very fact of their poverty, New York's assisted housing tenants would be unable to pursue efficiency measures on their own, even should they have the authority to do so in their rental housing. The payback period for any particular energy efficiency measure, of course, becomes irrelevant if the household does not have the investment capital with which to begin. Given their documented low-incomes, few, if any, assisted housing tenants in New York are shopping for new appliances or other usage reduction investments, whether or not "cost-justified."

Six Important Findings

1. The age of housing structures subsidized through an assisted housing program reveals an older housing stock that might benefit from weatherization. Roughly half of all assisted housing is 60 years old or older, nearly 70% is at least 70 years old. Very few assisted housing units have been built in the past 25 years. Corresponding to the age of the housing unit is the age of the heating unit. The number of heating units aged 20 years or older is nearly twice the number of heating units aged 10 year or younger.

2. Public housing in New York serves some of the lowest income households in the state. New York's public housing tenants are overwhelmingly "extremely low-income" (households with income at or below 30% of the area median income). The most wealthy of public housing tenants statewide in New York, in other words, live with incomes less than half of area median income. This income status is consistent throughout the state.

3. In two-thirds of New York's Congressional Districts with housing authorities reporting data, more than half of public housing tenants live with annual income of $15,000 or less.

4. Assisted housing tenants appear to frequently have even lower incomes than do public housing tenant in New York. Even those Congressional Districts with the lowest penetration of extremely low-income public housing tenants, in fact, reported having three of every five (60%) or more "extremely low-income" tenants.

5. In 17 of New York's 29 Congressional Districts, more than 90% of the assisted housing tenants were either "extremely low-income" or "very low-income," meaning that tenants had incomes less than 50% of area median income. In an additional nine Districts, between 85% and 90% of assisted housing tenants had incomes that were either "extremely low-income" or "very low-income."

6. In fourteen of New York's Congressional Districts, more than two-thirds of assisted housing tenants live with annual income of $15,000 or less, while in an additional 10 Congressional Districts, more than half of assisted housing tenants do.

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.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.