
SECTION 2. MARKET OVERVIEW

Characterization of Low-Income Households¹

More than seven million New Yorkers (the total New York population is 19 million)² have incomes below 80% of SMI and are considered low-income residents on this basis.³ These consumers occupy 2.7 million residential units, including 1.2 million publicly-assisted residential units. Energy expenses for all low-income households in New York are estimated to exceed \$4 billion per year.⁴ The energy burden⁵ for low-to-moderate-income households in the Northeast ranges between 7%-29%, compared to 3% for middle-to-higher-income households. Average energy burdens of different regions of the country are compared in Figure 2-1 across different income levels.

New York has an estimated 550,000 units of publicly-assisted low-and moderate-income multifamily housing, many of which are heated with electricity. The State has spent over \$800 million annually to assist low-income residents in multifamily public housing reduce their energy burden. Even with such a large investment, energy efficiency measures have been difficult to implement in this sector because of such barriers as capital scarcity, disincentives to non-owner occupied buildings and tenant conversions, and lack of information on energy use decisions.

Much of New York's publicly-assisted housing has high energy costs as a result of using electric-resistance heat in poorly insulated buildings. Over 50% of the energy costs of low-income households is spent on space and domestic hot water heating. Additionally, the private residential housing stock for low-income households is generally energy-inefficient and of poor quality. The combination of poor housing stock, high energy costs, and New York's cold winter climate makes it difficult for low-income households to lower their energy use and costs.

Statewide Distribution of Low-Income Households. Approximately 25% of New York City's residents are considered very low-income. Regionally, the largest share of very low-income households are in Chautauqua, Cattaraugus, Allegany, and Steuben counties (in the Southwest portion of the State); Yates,

¹ For additional data and information on residential, including low-income household energy-use characteristics, refer to Appendix C of this report.

² The 2001 population of New York was 19,011,378. Source: U.S. Census Bureau. State and County Quick Facts, New York, 2001. <http://quickfacts.census.gov/qfd/states/36000.html>

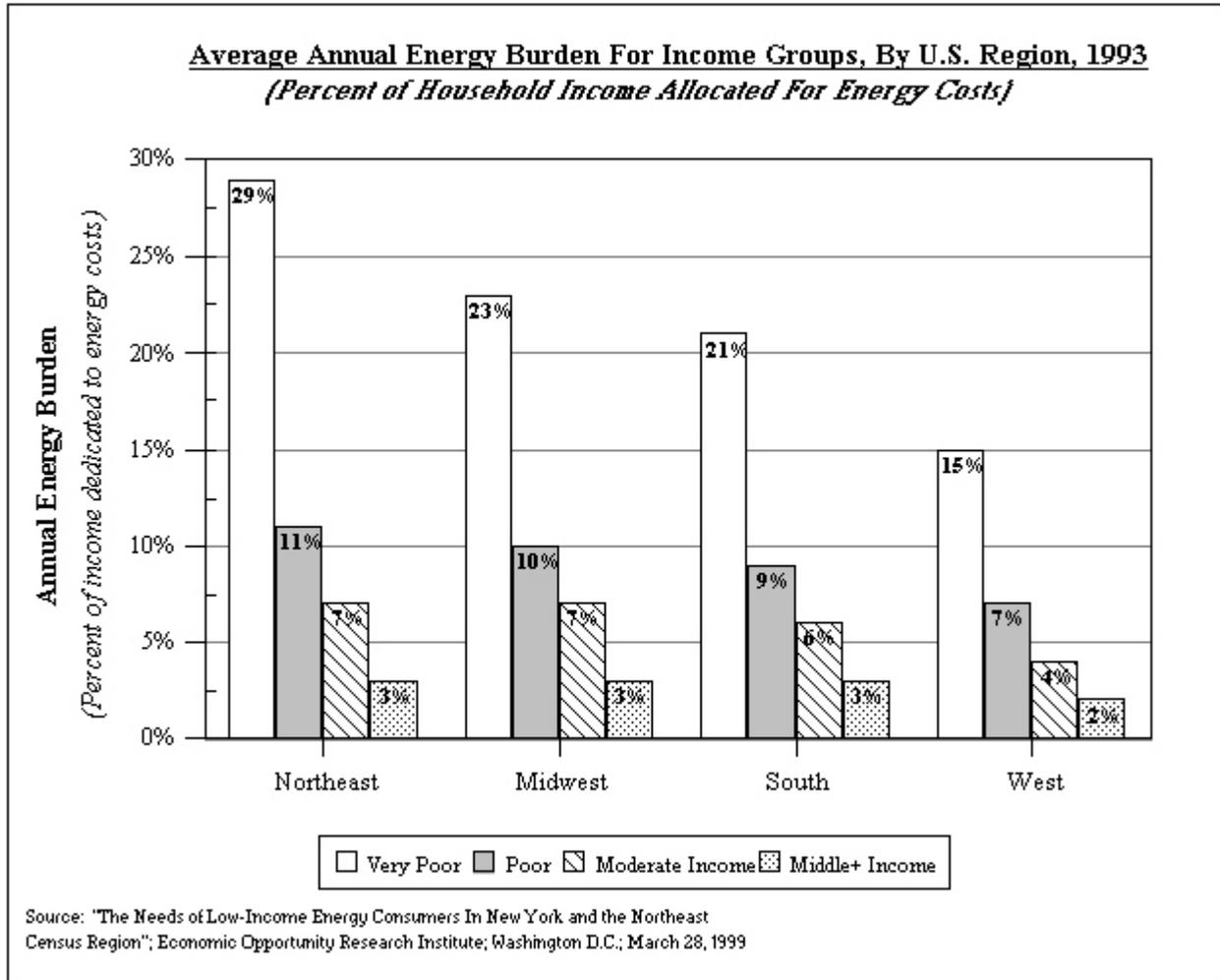
³ 80% of area median income is defined as *lower income* by the U.S. Housing Act. The U.S. Department of Housing and Urban Development (HUD) uses 80% of area median income as the threshold for many housing assistance programs.

⁴ NYSERDA.

⁵ Energy burden is defined as the proportion of gross income that is contributed to direct energy cost (*i.e.*, heating, cooling, electricity use). Low-income households carry a heavier energy burden because they have lower annual incomes compared to all other households, meaning the proportion of income they spend on energy costs compared to other household income segments (*i.e.*, Middle+ Income) is significantly greater, leaving less money for life essentials.

Tompkins, and Otsego counties (in the Central region of the State); St. Lawrence, and Franklin counties (in the North Central portion of the State); and Sullivan, Kings, Bronx, and New York counties (in the Southeastern portion of the State).⁶ The distribution of New York households below the Federal poverty threshold is illustrated in Figure 2-2.⁷

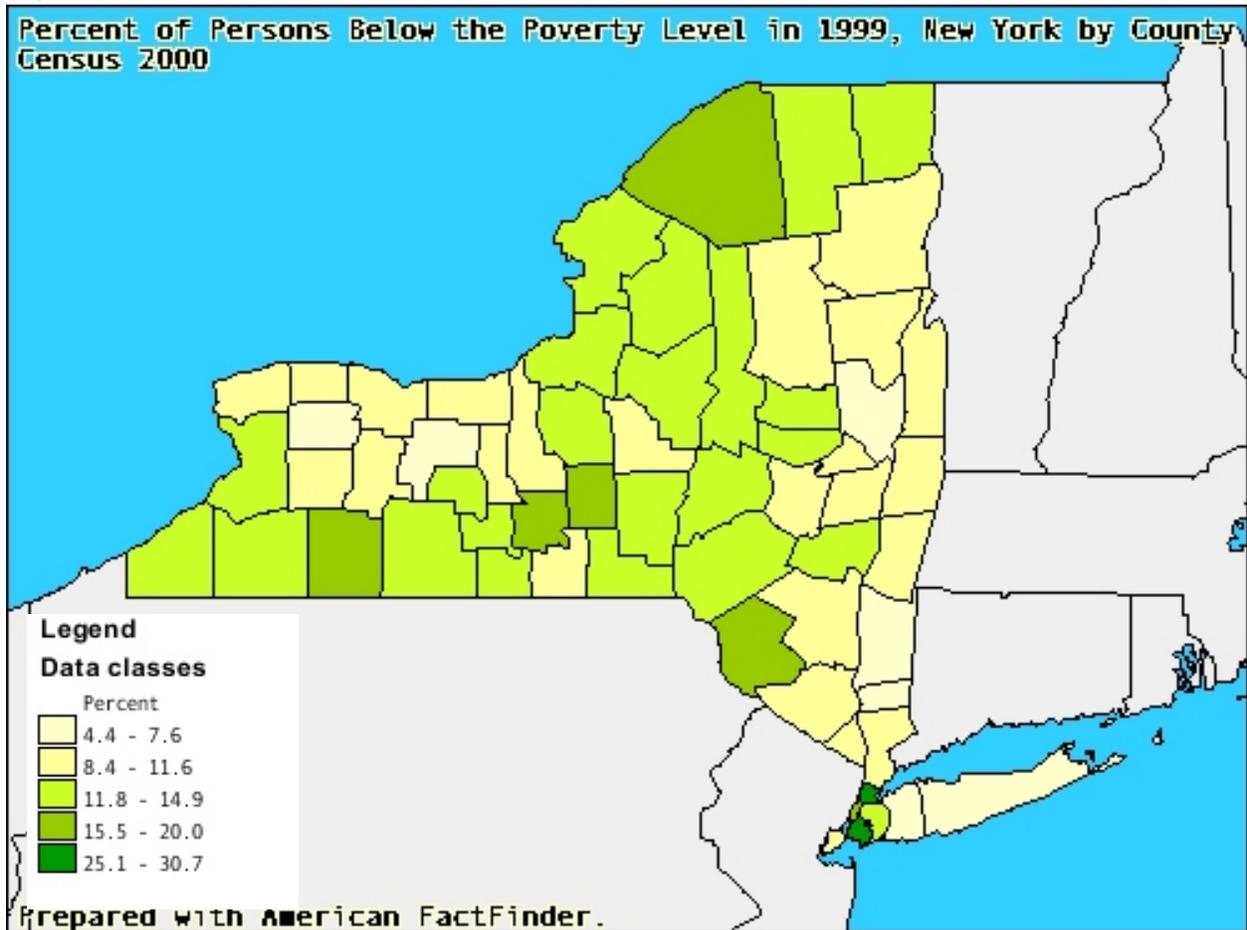
Figure 2-1.



⁶ U.S. Census Bureau. <http://factfinder.census.gov>.

⁷ Source for Figure 2-2 was American FactFinder (Percent of Persons Living Below the Poverty Level 1999, New York by County: 2000 Census, <http://factfinder.census.gov>)

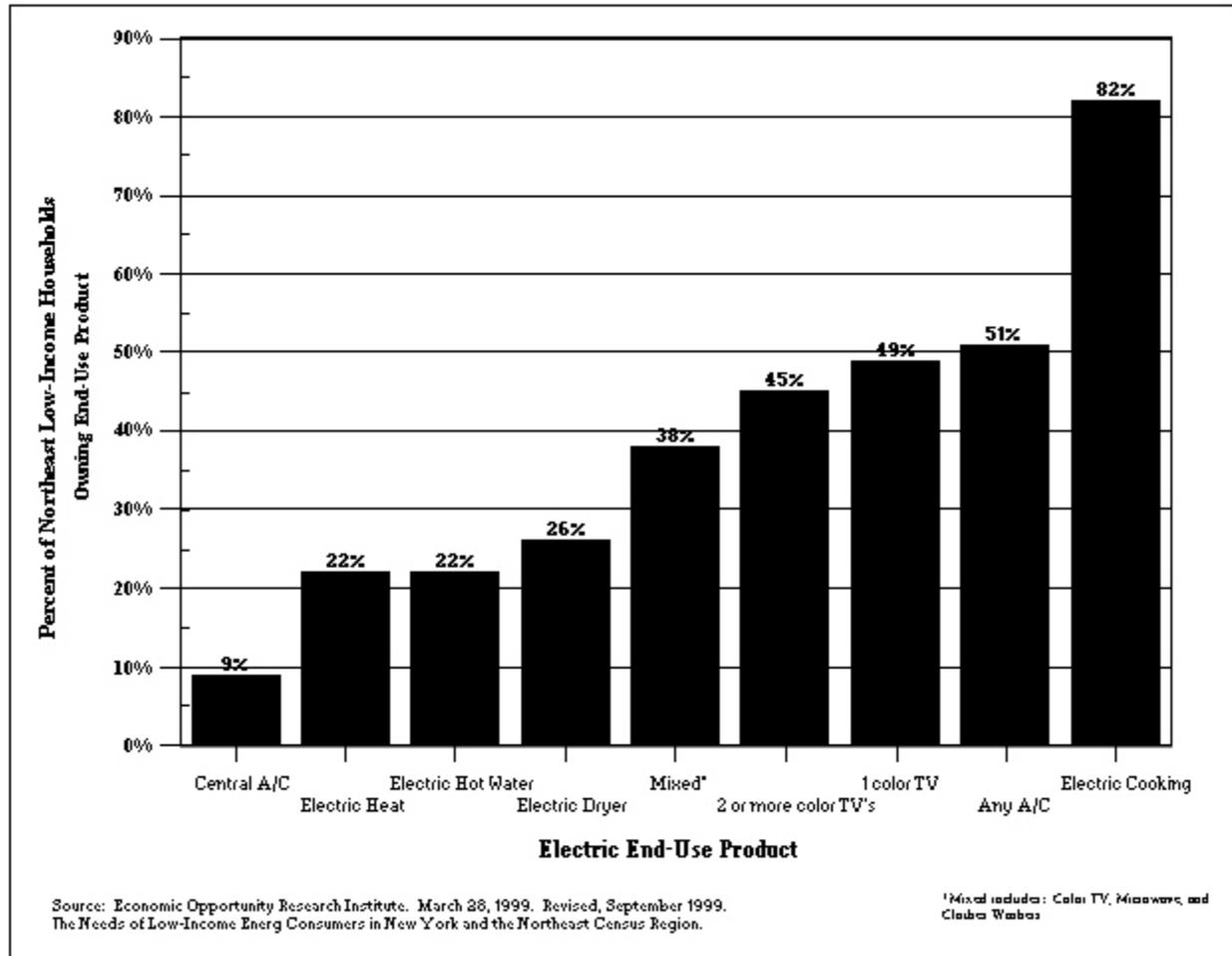
Figure 2-2.



Energy Use Characteristics of Residential Households. The residential sector, including low-income households, is the second highest user of electricity (behind the commercial sector) in New York, using 41,970 GWh of electricity in 2000. Over the past fifteen years, electricity use for this sector has been increasing steadily at a rate of approximately 1.6% per year (electricity use in the commercial sector has increased at rate of approximately 2.2%, and electricity use in the industrial sector has decreased at a rate of approximately 0.01% over this time).⁸ Low-income households contribute to this steady electric growth through their use of electric end-use products such as room and central air conditioners, televisions, microwaves, and electric cooking appliances. Figure 2-3 provides appliance saturation rates for low-income households of the Northeast region of the United States.

⁸ New York State Energy Research and Development Authority. December 2001. *Patterns and Trends. New York State Energy Profiles: 1986-2000.*

Figure 2-3. Saturation Rates for Electric End-Use Products of Low-Income Households in the Northeast.



Energy Expenditures of Residential Households. The residential sector of New York spent over \$12 billion in 2000 to pay for energy, representing a 14.5% increase in expenditures from the previous year.^{9,10,11} Of this total expenditure, electricity represented 49.3% or \$5.9 billion in 2000, as shown in Figure 2-4. Between 1999 and 2000, electricity expenditures increased by 2.1% or \$123.7 million.¹²

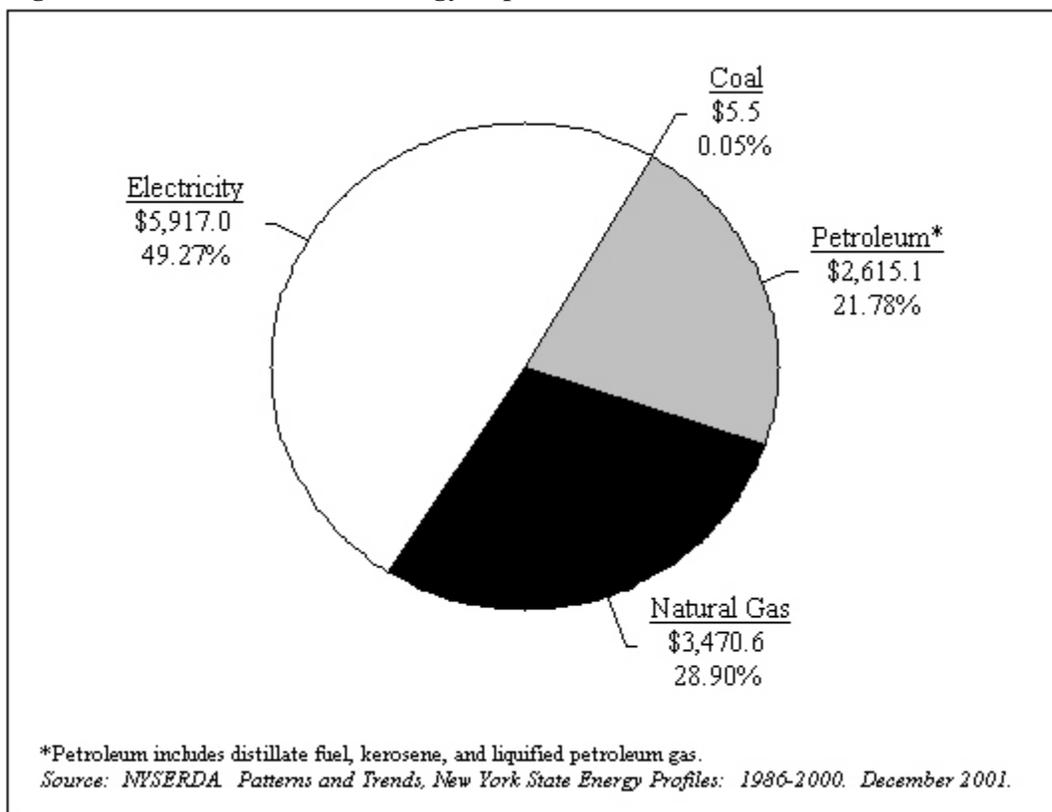
⁹ This includes expenditures for coal, petroleum, distillate oil, kerosene, liquified petroleum gas (LPG), natural gas, and electricity.

¹⁰ New York State Energy Research and Development Authority. December 2001. *Patterns and Trends. New York State Energy Profiles: 1986-2000.*

¹¹ The 14.5% increase in energy expenditures for the residential sector between 1999 and 2000 was driven by increases in the expenditures for petroleum products. Overall petroleum expenditures increased by 68.8% between 1999 and 2000. Of this total, distillate fuel expenditures increase by 75.7%, kerosene fuel expenditures increased by 81.3%, and liquified petroleum gas expenditures increased by 30.4%.

¹² New York State Energy Research and Development Authority. December 2001. *Patterns and Trends. New York State Energy Profiles: 1986-2000.*

Figure 2-4. NYS Residential Energy Expenditures, 2000



On average, residential households in New York paid 14.1¢ per kilowatt hour (kWh) for electricity in 2000, 71.5% more than the average kWh rate paid for electricity by residential households nation-wide.¹³ Electricity prices for New York residential consumers have been increasing over the past fifteen years at an annual rate of 1.3%¹⁴, as shown in Figure 2-5.¹⁵

Figure 2-6 shows the average annual end-use expenditures made by low-income households in the Northeastern U.S. As shown, space heating and electric hot water comprise the largest electric expenditures.

¹³ Energy Information Administration. www.eia.doe.gov.

¹⁴ New York State Energy Research and Development Authority. December 2001. *Patterns and Trends. New York State Energy Profiles: 1986-2000.*

¹⁵ Although retail electricity rates increased at a rate of 1.3% between 1986 and 2000, this rate of increase was lower than the inflation rate. Since 1996 the PSC has issued orders that will result in cumulative customer savings of about \$6 billion through 2003, with additional savings of about \$1.5 billion expected thereafter. Some long-range planning scenarios project a decrease in electricity rates over the next few years. Source: *New York State Energy Plan and Final Environmental Impact Statement. June 2002.*

Figure 2-5.

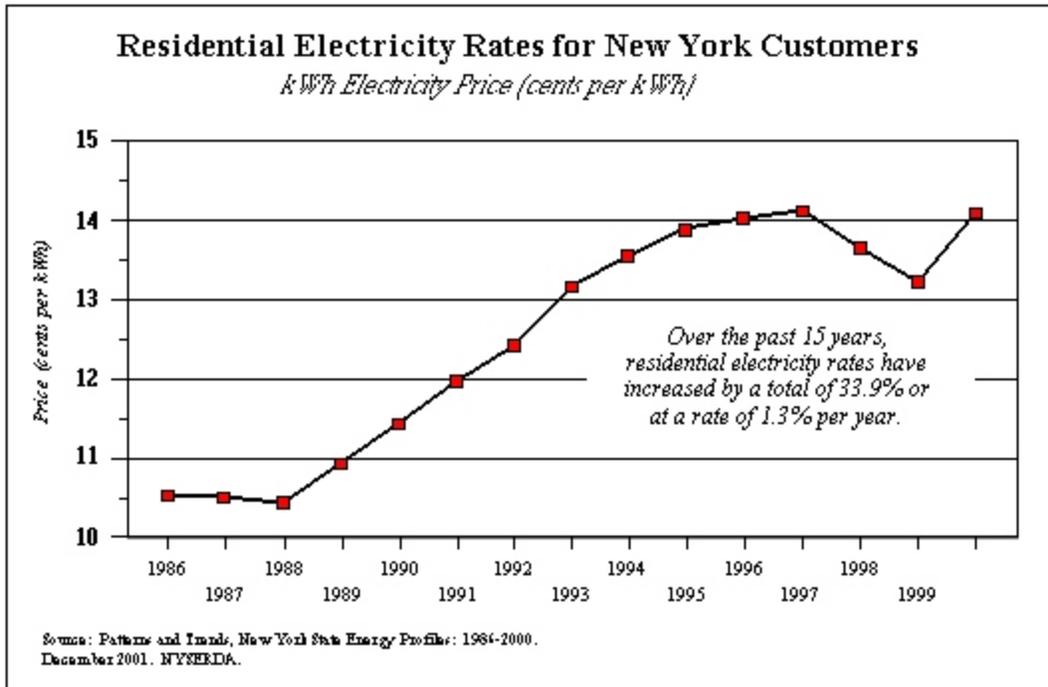


Figure 2-6. Average Annual Expenditures by Electric End-Use for Low-Income Households

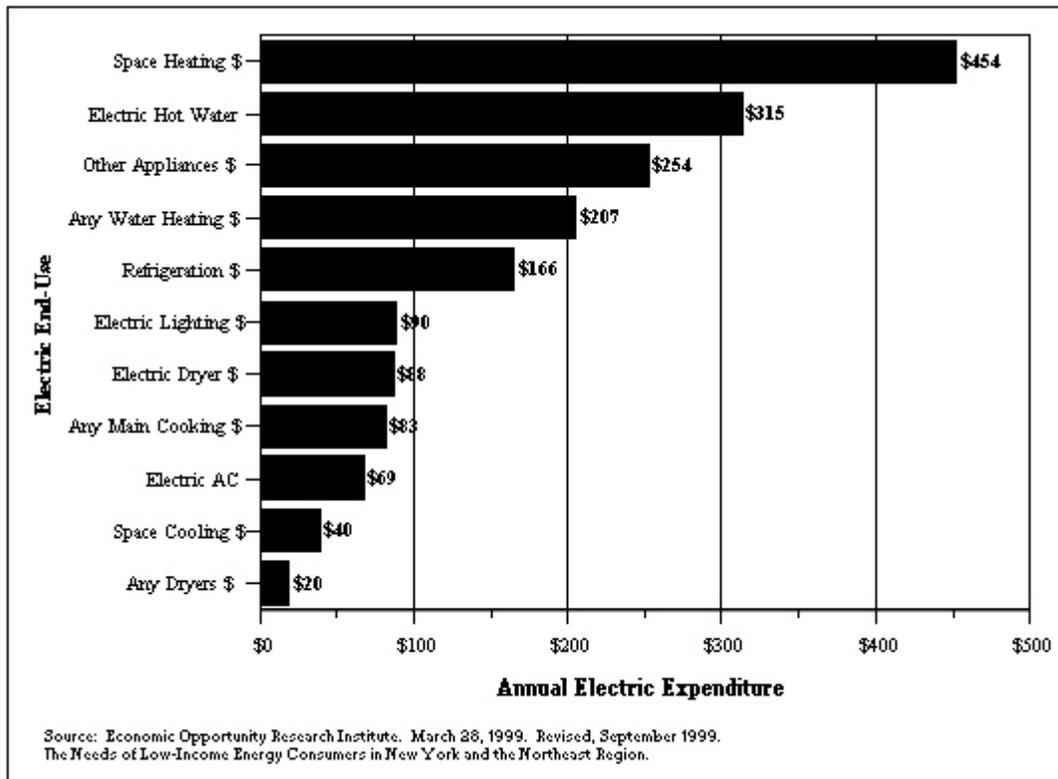


Table 2-1 provides summary characteristics on New York’s low-income households.

Table 2-1. New York State Low-Income Household Characteristics At A Glance

Trait	Low-Income Sector
Number of low-income households.	- 2.7 million households (7.0 million New York residents) are characterized as lower-income. ^a
Number of people living below the poverty level: New York’s national ranking.	- New York was ranked 5 th in the nation in 1998 with regard to the number of people living below the poverty level. ^b
Number of residential units characterized as low-income.	- Over 2.7 million residential units are characterized as low-income in New York. ^c
Average electricity use among low-income households.	- On average, low-income residents in New York use more than 5,000 kWh of electricity annually. ^c
Low-income electricity costs per kWh.	- The low-income population of New York paid an average of 14.1 cents per kWh of electricity in 2000. ^c
Low-income electricity costs per household.	- Low-income households of New York spend approximately \$700 annually on electricity. ^c
Low-income energy costs per household.	- Low-income households in New York on average spent between \$1,300 to \$1,400 in 1993 to meet their energy needs. ^c
Energy burden of low-income residents in New York, and the Northeast.	<p>- In past years, HEAP participants have paid over 23% of their income for their winter gas bill alone.</p> <p>- The energy burden (percentage of income designated toward energy needs) for the low-income population of New York averages 28%, a figure that is higher than the national average low-income energy burden of 22%.^d</p> <p>- The Northeast has the highest energy burden in the country.^d</p>
<p>^a Quoted in New York State Division of Housing and Community Renewal Consolidated Plan, 2001-2005.</p> <p>^b U.S. Census Bureau. www.census.gov/statab/ranks/rank19.txt.</p> <p>^c Energy Information Administration. Table 1. Consumption and Expenditures in New York State Households, 1993. and Table 4. Electricity Consumption and Expenditures in New York State Households, 1993. Household Energy Consumption and Expenditures 1993 Supplement: States. www.eia.doe.gov/</p> <p>^d Economic Opportunity Research Institute; Washington D.C. March 28, 1999. <i>The Needs of Low-Income Energy Consumers in New York and the Northeast Census Region</i>.</p>	

Low-Income Awareness of, and Barriers to, Statewide Energy Assistance Programs

To effectively use the tools and assistance available, it is essential that low-income customers have knowledge of and access to energy assistance programs. Research conducted by NYSERDA demonstrates that the majority of low-income customers (over 55%) are unaware of energy assistance programs. In addition to measuring levels of overall awareness, the research attempted to understand the barriers low-income customers face when trying to access energy assistance programs. Such information is critical to understanding the need for low-income energy assistance programs in the State, including public awareness and educational efforts.

Awareness of Energy Assistance Programs, Pre-and-Post Baseline Results

The **New York Energy Smart**SM Low-Income Public Awareness program, implemented by Rueckert Advertising, Inc., conducted baseline and follow-up studies in 2001 and 2002 to gather and analyze data on low-income households' level of awareness, knowledge, and understanding of State and community-based energy services available to them in the State. The studies were implemented through telephone surveys targeting energy assistance-eligible households (based upon income and number of household members). Data from the 2001 study was analyzed and compared to data from the 2002 study to determine if any changes occurred in the target population over the two years of the public awareness campaign. In 2001, 2,557 interviews were completed and in 2002, 2,468 interviews were completed. Colwell and Salmon Communications, Inc. conducted the data collection and analysis of these studies.¹⁶ Baseline indicators used in the development of the 2001 and 2002 market studies are shown in Figure 2-7.

Figure 2-7. Baseline Indicators Used in the Development of the 2001 and 2002 Surveys

- Awareness that programs are available to income-eligible households.
- Awareness of specific types of energy assistance programs.
- Source of program awareness.
- Past/current participation in low-income programs.
- Perceived barriers to entry if an individual was a non-participant in the past.
- Satisfaction with past participation.
- Shortcomings of programs among past participants.
- Other benefits from participation.
- Anticipated future participation.
- Interest level in programs/interest in participation.
- Level of recommendation.

Key findings from the 2,557 eligible households responding to the 2001 telephone survey include:

- Two-in-five respondents (43%) report difficulty paying their utility bills.
 - Less than half (39%) of respondents are aware of energy assistance programs.
 - Among those aware, payment assistance (36%) and budget plans (32%) are recognized by the largest proportions of residents.

¹⁶ The 2001 and 2002 market studies conducted by Colwell & Salmon Communications, Inc. were segmented by utility service area. Households were screened to include income-eligible households only, based upon income and the number of household members (2001 State Median Income data). Quota samples for each utility service area were used to obtain a statistically significant number of surveys in each area.

- HEAP is known by most of the respondents who could name any program (63%). Few other energy assistance programs are known by name by the survey respondents.
- One-out-of-four respondents (22%) heard about energy assistance programs through word-of-mouth.
- One-third (34%) of those surveyed in 2001 have participated in an energy assistance program. Half of these (17%) are currently enrolled in a program, and the other half (17%) have participated in past programs.
 - The largest proportion of respondents who have participated in a program (78%) participated in a HEAP program.
 - Saving money is considered the greatest benefit (49%) and reason for participation in energy assistance programs.
 - Approximately 91% of current and past respondents were satisfied with their participation in the various programs.
 - The majority (86% of current participants and 92% of past participants) are very interested in participating in energy assistance programs if their household qualifies.
- Survey respondents who are not participating in any program report that they have no need (42%) or claim that they do not qualify (26%) for an energy assistance program.
- Survey respondents suggest that direct mail (53%) is the best way to inform them of energy assistance programs. Television (48%) and utility bill inserts (43%) would also be effective.

In May 2002, Colwell and Salmon Communications, Inc., the contractor for the baseline awareness survey, provided a post-awareness program and follow-up to the summer 2001 study.

A breakdown, by utility service area, of low-income households participating in the 2001 and 2002 surveys who reported difficulty in paying their utility bills is shown in Table 2-2.

Table 2-2. Low-Income Households Incidence of Difficulty Paying Utility Bills

Utility	2001	2002
Con Edison	44%	34%
Niagara Mohawk Power Corporation	42%	31%
New York State Electric and Gas Company	37%	30%
Rochester Gas and Electric Company	42%	31%
Central Hudson Gas and Electric Company	41%	29%
Orange and Rockland Utilities, Inc.	51%	34%
Average Statewide	43%	32%

Source: Colwell and Salmon Communications, Inc. May 2002. Final Baseline Report.

Table 2-3 shows respondent awareness of energy assistance programs in New York and participation in programs by utility territory for the 2001 and 2002 baseline surveys.

Table 2-3. Awareness and Program Participation

Utility	Awareness of Energy Assistance Programs*		Participation in Energy Assistance Programs**	
	2001	2002	2001	2002
Con Edison	26%	23%	25%	26%
Niagara Mohawk Power Corporation	57%	51%	37%	34%
New York State Electric and Gas Company	56%	52%	40%	37%
Rochester Gas and Electric Company	49%	54%	34%	29%
Central Hudson Gas and Electric Company	42%	40%	29%	26%
Orange and Rockland Utilities, Inc.	35%	33%	31%	28%
Average Statewide	39%	36%	34%	31%

*Awareness of Energy Assistance Programs including (1) HEAP, (2) WAP, (3) Power Partners, (4) Utility Budget Plan, (5) Low-Income Plan, (6) Public Assistance, (7) Home Performance with ENERGY STAR®, (8) Direct Installation, (9) On Track, (10) Residential Reduced Rate, (11) Affordability Program, (12) Energy Saving Partners, (13) REACH, and (14) Aggregation, were tested through the survey. Awareness of Types of Energy Assistance Programs including (1) Payment assistance, (2) Budget plans/budget ones, (3) Emergency assistance, (4) Energy management/conservation, (5) Energy efficiency improvement, and (6) Arrears forgiveness were tested through the survey.

** Past or current participation; lower participation reported for 2002 is a statistical anomaly.

Survey respondents awareness of specific energy assistance program types increased between 2001 and 2002, as shown in Table 2-4.

Table 2-4. Awareness of Specific Types of Energy Assistance Programs

Energy Assistance Program	Percent Aware (Aided Response)	
	2001	2002
Payment Assistance	36%	42%
Budget Plans	32%	47%
Weatherization	27%	40%
Emergency Assistance	27%	37%
Energy Management / Conservation	19%	38%
Energy Efficiency Improvement	20%	29%
Appliance Upgrade	18%	29%
Arrears Forgiveness	8%	14%

Source: Colwell and Salmon Communications, Inc. May 2002. Final Baseline Report.

The 2001 and 2002 baseline studies also assessed how low-income households became aware of energy

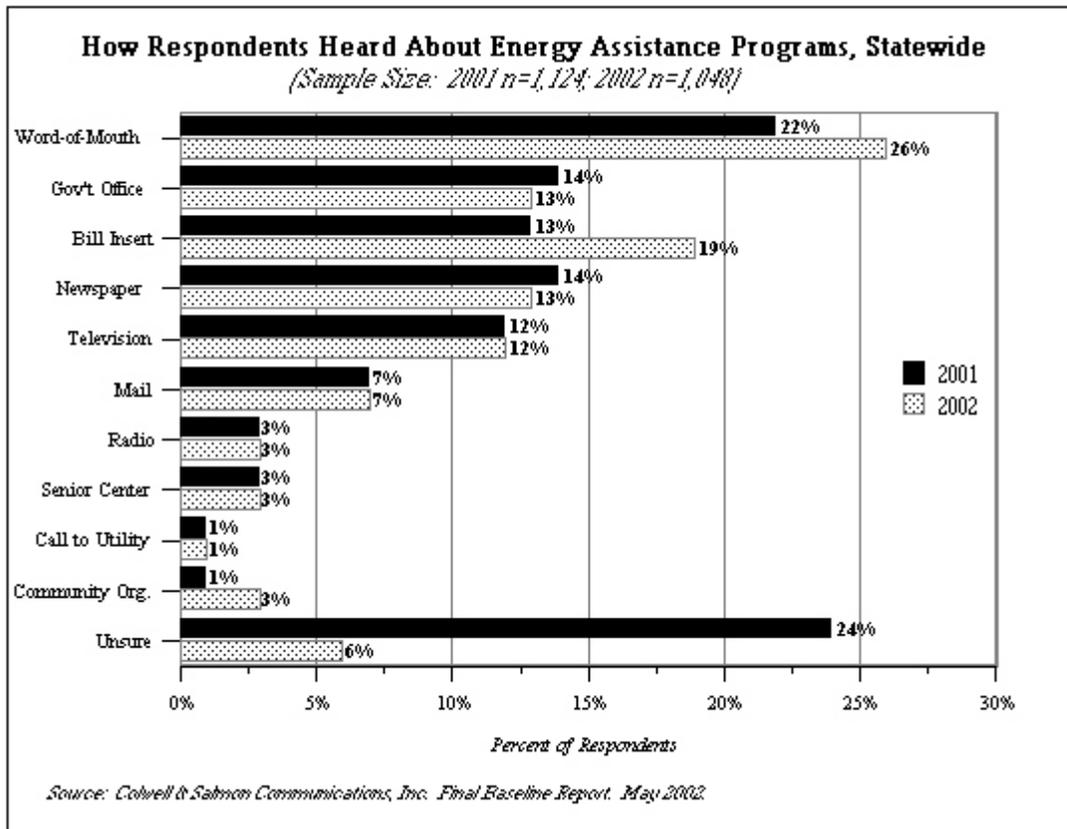
assistance programs. Awareness of programs was found to be generated by word-of-mouth, government offices, and utility bill inserts, as shown in Table 2-5 and Figure 2-8. The most effective ways to inform low-income households of assistance programs is through direct mail, utility inserts, and television, as shown in Table 2-5.

Table 2-5. Low-Income Awareness Communication Summary: A Comparison

Communication Strategy		2001 Baseline	2002 Follow-Up
How awareness is generated	Word-of-Mouth	22%	26%
	Government Office	14%	13%
	Newspaper	14%	13%
	Utility Bill Insert	13%	19%
Best ways to inform low-income households	Direct Mail	53%	55%
	Television	48%	52%
	Utility Bill Insert	42%	60%

Source: Colwell and Salmon Communications, Inc. May 2002. Final Baseline Report.

Figure 2-8.



Implications of the Awareness Study

In July 2002, Rueckert Advertising and Public Relations, LLC, provided a final report on the Low-Income Public Awareness Campaign to NYSERDA.¹⁷ Rueckert Advertising teamed with Colwell and Salmon Communications, Inc. to develop and implement pre-and-post-campaign research that provided the Low-Income Public Awareness project team with the basis for evaluating the success of the marketing program in increasing awareness among targeted low-income households. As shown in Table 2-3 above, and as identified by Rueckert Advertising, a slight decrease in awareness occurred over the 2001 to 2002 awareness campaign period (from a Statewide awareness percentage of 39% in 2001 to 36% in 2002). The Rueckert Advertising analysis stated that allowing for a normal +/- 2-5% statistical error inherent in random telephone surveys (as was conducted by Colwell and Salmon Communications, Inc.), the percentage difference is not significant enough to claim it as a change in awareness.¹⁸ The Rueckert Advertising analysis could not conclude whether or not program awareness remained the same between 2001 and 2002.

While the Rueckert Advertising analysis did not show an increase in awareness, the analysis did demonstrate an increase in the awareness of payment assistance programs (up 6%), budget plans (up 15%), and weatherization programs (up 13%), all shown above in Table 2-4. Payment assistance programs, budget plans, and weatherization plans were the focus of the low-income awareness television spots. Rueckert Advertising indicated, given these results, that the advertising did reach the target audience.¹⁹ With regards to current energy assistance program participation, the Rueckert Advertising final report stated that because the 2001-2002 winter season was unseasonably mild, New Yorkers felt less of an energy burden than in previous winter seasons; thus participation was down.

There are many reasons why higher levels of awareness may not have been measured by Rueckert Advertising's analysis of the efforts of the Low-Income Public Awareness Campaign. Historically, efficacy of Public Awareness programs cannot truly be evaluated until the message has been marketed for at least one year. Advertising for the Low-Income Public Awareness Campaign ran for just over three months. Additionally, low-income households face barriers to participation in energy assistance programs for low-income households and some could have deterred participation in low-income energy assistance programs.

¹⁷ Rueckert Advertising & Public Relations, LLC. July 2002. Low-Income Public Awareness Campaign 2001-2002 Final Report.

¹⁸ Ibid.

¹⁹ Ibid.

Barriers to Energy Assistance Programs for Low-Income Households

The following list of barriers are impediments to low-income customers' ability to have the knowledge and awareness of, and, therefore, enrollment in New York low-income assistance programs:

- Feeling that energy assistance is not needed.
- Perception that monetary savings are not significant enough to participate in energy assistance programs.
- Perception that the enrollment process is complicated and time consuming.
- Perception that their income level is not within qualification level.
- Feeling that other people deserve and need the programs more than they do.
- Feeling of embarrassment to enroll in programs.
- Fear of losing confidentiality – worried that the programs/state agencies would have access to personal information or disqualify them from current benefits.
- Concern that their financial credit is being jeopardized by participating in the programs.
- Unaware that programs exist.
- Aware of programs, but do not know contact information or eligibility requirements.
- Language and education (illiteracy) barriers among customers.
- Previous negative experiences with another low-income program (*e.g.*, welfare, food stamps).
- Worry about the level of service from their energy supplier if they participate in an energy assistance program. Customers have a fear of utility shut-offs, which have been correlated to increased levels of homelessness in some areas.²⁰
- Worry that participation in one program may jeopardize their access to other energy assistance programs.

²⁰ A Philadelphia study found that 32% of low-income households move after utility termination. A study of homelessness in Northern Kentucky indicated that utility shutoffs were among the primary causes of homelessness in that region. Source: Oppenheim, Jerrold, and Theo MacGregor. November 19, 2001. *"The Economics of Low-Income Electricity Efficiency Investment"*. Prepared for Entergy Corp.

Residential, Low-Income, and Public Housing Barriers²¹

Barriers also exist that complicate low-income households' ability in improving their homes. The following list, in no particular order, more fully defines these barriers:

- Lack of current and objective information regarding energy efficiency opportunities. Consumers lacking such information are unable to make informed decisions regarding building construction and retrofit and appliance replacement, in terms of energy efficiency opportunities.
- Limited availability of capital to fund energy efficiency improvements.
- Technical and physical barriers associated with building operations and maintenance and appliance efficiency improvement due to the age and physical design of buildings and energy systems.
- Reluctance or inability to pay for or finance (and support loan repayments) investments in energy efficiency, even on an interest-free basis.
- Inability of energy efficiency service providers and programs to effectively deliver assistance to dispersed rural populations.
- Higher return on investments are required for low-income households compared to general residential households due to the demands placed on their limited incomes. Low-income households generally require paybacks of less than one year for energy efficiency investments compared to general residential households which require a payback period of roughly three years.
- Large numbers of the low-income population tend to live in rental dwellings and have little or no incentive to improve their landlords' properties. Low-income households do not receive any of the increased value of the property and, in fact, may face rent hikes as a result of improvements.
- Insufficient tenure at a particular address to justify the cost-effectiveness of energy efficiency and building improvements. Nearly 25 percent of the low-income population moves to a new residence each year. In order for an energy conservation investment to be cost effective to the tenant, tenants must reside at their residences for the duration of the payback period.
- Master-metered buildings provide little or no incentive to conserve energy. Master-metered buildings do not individually monitor a household's electricity consumption, and therefore, tenants have no incentive to alter their behavior to conserve electricity.
- Landlords owning housing occupied by tenants whose electricity use is individually metered have little incentive to invest in conservation improvements on their tenants' behalf. There are few financial benefits for landlords to invest in energy conservation measures in households which are individually metered and in which tenants pay their own electric bill directly to the utility.

²¹ New York State Energy Plan: Volume II - Issue Reports. October 1994. Issue 5, Public Housing and Low-Income Energy Efficiency. While these barriers are eight years old, these have been found to be prevalent in today's market, given program experience to date.

- Rent control requirements limit the ability of landlords to pass on the cost of energy efficiency improvements.
- Many HUD regulations hinder the prompt design and installation of building improvements, renovations and maintenance.
- Strained or distrustful relations between public housing residents and building management staff hinder or preclude cooperative efforts to improve energy efficiency.

NYSERDA, through the design and implementation of its **New York Energy SmartSM** Low-Income Energy Affordability Program, directly targets market barriers such as those listed above. The next section of this report details the portfolio of Low-Income Energy Affordability Programs that have been designed to target and overcome some of the market barriers identified above. The section discusses the purpose, eligibility, and benefits of the individual programs.