

Understanding and Alleviating Energy Cost Burden in New York City

**NYC Mayor's Office of Sustainability and
the Mayor's Office for Economic Opportunity**

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EXECUTIVE SUMMARY

High energy utility costs, defined as the sum of electricity, natural gas and fuel oil expenses, can have significant negative economic and health consequences for low-income families. In 2016, New York State set a target that low-income New Yorkers should pay no more than 6% of their income toward energy bills. However, despite this policy goal, the City's analysis indicates that 460,493 low-income families in New York City are still paying over 6% of their pre-tax income toward their energy bills. To address this issue, a multi-pronged approach is required, ranging from expanding energy efficiency investments and access to low-cost renewable power to increasing State and utility subsidies for low-income families.

INTRODUCTION

Access to clean, reliable and affordable energy is a basic human necessity. Energy is needed to heat, cool and light homes, power information and communications devices, and operate the appliances we rely on for food, healthcare and sanitation. For those dependent upon energy to operate medical devices or keep their homes cool in a heat wave, energy access can be a matter of life and death. New Yorkers should not be forced to choose between paying their energy bills and paying for rent, food, medical bills and other basic necessities.

The inability to pay utility bills – in this report defined as the sum of electricity, gas and fuel oil expenses for heating and cooking – has been shown to have negative health and economic impacts.¹ Being unable to afford energy bills can lead to chronic stress and trigger anxiety and depression.² Sacrificing comfortable home temperatures can exacerbate asthma symptoms and other chronic health conditions, thus posing additional health risks. Additionally, energy unaffordability can damage credit and even lead to housing insecurity, forcing families to undergo disruptive relocations.³

New York City (NYC) has taken bold steps toward improving the sustainability and resiliency of its energy supply. Guided by its commitment to carbon neutrality by 2050, the City has set goals of deploying 1,000 MW of solar power by 2030 and 500 MW of energy storage by 2025, in addition to working with New York State officials and regulators to increase access to large-scale

¹ <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4819257/>

² *Ibid*

³ *Ibid*

renewables. Dirtier fuel oils that were used for heating have been phased out in NYC, which has resulted in significant improvements to the city's air quality. Additionally, in the aftermath of Hurricane Sandy, where large swaths of the city were without power – some for weeks – the City has been working with local utilities to harden energy infrastructure against future storms and heat waves that are expected to be made worse by the effects of climate change.⁴ New York City will continue to pursue its resilience and sustainability goals, but additional steps are needed in collaboration with the State and local utilities to mitigate the impact of high energy utility bills, otherwise known as “energy cost burden,” so that all New Yorkers can affordably access the energy they need.

New York City has among the highest energy rates in the country. New York City's residential electricity rates are just below Hawaii's, which are the highest of any state in the United States.⁵ To promote greater energy affordability, Governor Cuomo launched the State's first energy affordability policy in 2016 with a target of limiting energy costs for low-income New Yorkers to no more than 6 percent of their pre-tax income.⁶ Six percent has become a widely used threshold of energy affordability, based on the notion that families can afford to spend 30% of their income on shelter, while energy utility bills typically represent 20% of that housing expenditure.⁷ This “6 percent” policy was formally adopted by the Public Service Commission, New York State's utility regulator, in 2016.

Energy cost burden is a function of the amount of energy consumed, the energy rates charged to consumers net of support programs, and the amount of income earned. Addressing energy cost burden therefore requires a multi-pronged approach. This report assesses the extent to which low-income NYC families are still burdened by energy bills and proposes policies that can lower the outstanding burden.

⁴ Following Hurricane Sandy, Con Edison alone invested \$1 billion in hardening the electric, gas and steam system.

⁵ <https://www.nytimes.com/interactive/2017/02/10/nyregion/how-new-york-city-gets-its-electricity-power-grid.html>

⁶ <https://www.nysed.gov/About/Newsroom/2016-Announcements/2016-05-19-Governor-Cuomo-Announces-New-Energy-Affordability-Policy>

⁷ https://energyefficiencyforall.org/sites/default/files/Lifting%20the%20High%20Energy%20Burden_0.pdf

DATA AND METHODOLOGY

This analysis uses data from the 2017 American Community Survey, an ongoing survey administered by the US Census Bureau that includes questions related to employment, education and housing. This dataset is a statistically representative sample from which to extrapolate reliable citywide statistics, and is used specifically to calculate NYC's poverty measure, which is used to inform and track progress of the City's policies and programs to address poverty and promote equitable economic development.⁸ Within the survey's set of questions about housing, respondents self-report the previous month's costs of electricity, fuel oil and natural gas. Accordingly, this analysis is based on respondents who reported energy expenses greater than \$0 dollars. In NYC, this represents 2,863,130 families paying energy utility bills. Of these families, 1,111,978 families are living below 200% of the Federal Poverty Level (FPL), which is the current threshold that qualifies a family to be defined as low-income as part of New York State's energy affordability policy discussed earlier.

To calculate energy expenses on an annual basis, the previous month's self-reported electric and gas expenses were multiplied by 12 for each family unit. Because the survey is conducted evenly throughout the year, higher bills from families surveyed in high energy months (e.g. summer) are proportionally offset by lower bills from families surveyed in low energy months (e.g. fall and spring). Household fuel expenses are reported in the census as an annual cost and were therefore not adjusted. Note that expenses are reported as the amount paid and are therefore net of any direct bill reduction programs. However, because Home Energy Assistance Program (HEAP) benefits are paid to most NYC residents separate from utility bills, average HEAP benefits were deducted from the self-reported costs. Average HEAP benefits were estimated at \$46.50 per year, based on

caseload statistics from the Office of Temporary and Disability Assistance.⁹

Throughout this report, energy cost burden is calculated as the ratio of reported annual energy utility bills minus a HEAP benefit divided by annual pre-tax income. Income is the pre-tax aggregate of earnings, pensions, retirement income, interest, dividends, child support, assistance from outside the household, unemployment compensation, Social Security, Supplemental Security Income and public assistance. Not included are tax credits and non-cash benefits, (e.g. food stamps and housing subsidies).¹⁰

This report defines a low-income family as any family making less than 200% of the FPL. This is the threshold the State uses to define low income in its energy affordability policy commitment.¹¹ Those income levels are displayed in Table 1.

Table 1. Poverty Thresholds 2017

| Family Size | 200% of Federal Poverty Level ¹² |
|-------------|---|
| 1 person | \$24,120 |
| 2 people | \$32,480 |
| 3 people | \$40,840 |
| 4 people | \$49,200 |
| 5 people | \$57,560 |
| 6 people | \$65,920 |
| 7 people | \$74,280 |
| 8 people | \$82,640 |

⁸ The NYC poverty measure is a key data source and analysis to evaluate poverty rates in New York City. The NYC poverty measure is an alternative measure in comparison to the official U.S. measure of poverty as it includes a threshold that accounts for the higher cost of living in New York City. It also incorporates the value of programs intended to alleviate poverty, adjusting family incomes for benefits such as the Supplemental Nutritional Assistance Program (SNAP) and the Earned Income Tax Credit. The work has received nationwide attention and contributed to development of the Federal Supplemental Poverty Measure. More information about the measure and the City's annual poverty report can be found here: <https://www1.nyc.gov/site/opportunity/poverty-in-nyc/poverty-measure.page>

⁹ <https://otda.ny.gov/resources/caseload/2017/2017-09-stats.pdf>

¹⁰ <https://www.thebalance.com/federal-poverty-threshold-3305793>

¹¹ <https://www.governor.ny.gov/news/governor-cuomo-announces-new-energy-affordability-policy-deliver-relief-nearly-2-million-low>

¹² Source HHS 2017 poverty guidelines. <https://aspe.hhs.gov/2017-poverty-guidelines>

ANALYSIS AND RESULTS

| Table 2. Utility Burdened (>6% Income) 2017 | | |
|---|-------------------|----------------------------------|
| | Families Burdened | Families Burdened and < 200% FPL |
| Total burdened (% of all families) | | |
| | 609,850 (18%) | 460,493 (14%) |
| Borough Breakout (% of cost burdened families) | | |
| Bronx | 139,468 (23%) | 116,483 (25%) |
| Brooklyn | 193,391 (32%) | 147,227 (32%) |
| Manhattan | 78,106 (13%) | 68,448 (15%) |
| Queens | 157,956 (26%) | 103,135 (22%) |
| Staten Island | 40,929 (7%) | 25,200 (5%) |
| Renter / Owner Status Breakout (% of cost burdened families) | | |
| Owner-with Mortgage | 128,173 (21%) | 63,083 (14%) |
| Owner-Free & Clear | 110,749 (18%) | 63,342 (14%) |
| Renter | 370,928 (61%) | 334,068 (73%) |

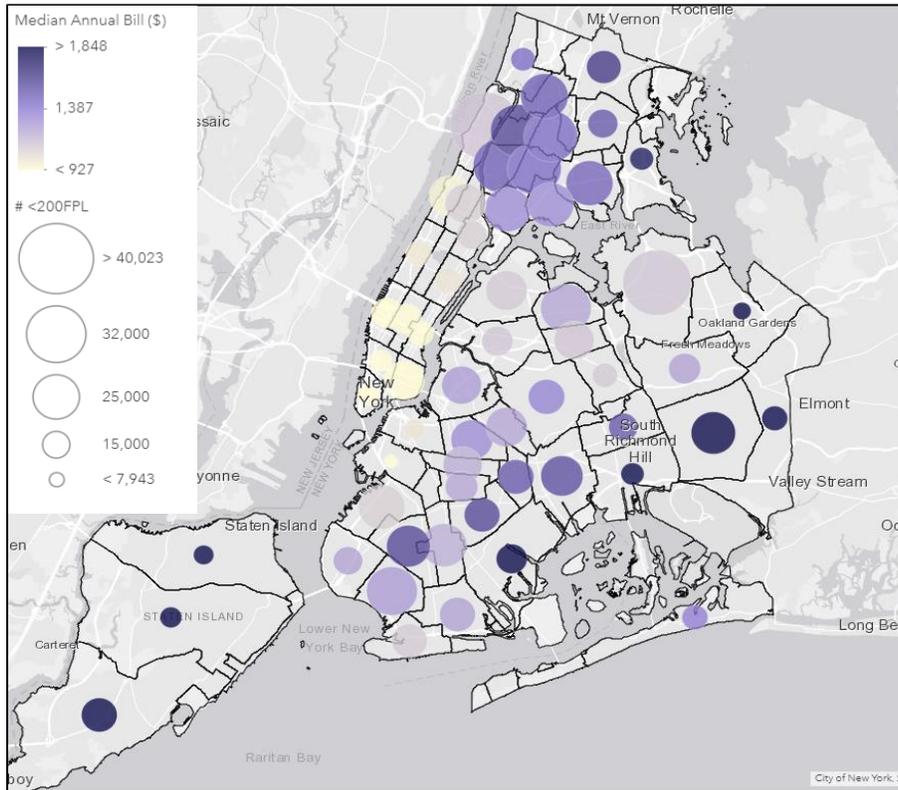
Table 2 shows that 609,850 families pay greater than 6 percent of their household income and are therefore considered energy cost burdened. This represents 18 percent of families across all incomes living in NYC. Regarding performance against the State target that low-income New Yorkers should pay no more than 6 percent of their income toward energy bills, there were 460,493 families living below 200% FPL and paying over 6 percent of their income toward their energy bills.

Table 2 also provides a better understanding of the energy cost burdened population. Thirty-two percent of low-income and energy cost burdened families live in Brooklyn, 22 percent live in Queens, and 25 percent live in the Bronx. By comparison, just 15 percent live in Manhattan and 5 percent live in Staten Island. The majority (73%) are renters.

Energy cost burden disproportionately affects low-income New Yorkers. Seventy-eight percent of all energy cost burdened families earn below 200% of the FPL, compared to 22 percent of energy cost burdened families

who earn above 200% FPL. Forty-one percent of all families living below 200% FPL are energy cost burdened, while only 7 percent of all families earning above 200% FPL are energy cost burdened.

Map 1 below shows the geographic distribution of energy cost burden by NYC community district. The map also displays the median energy cost burden for families living below the 200% FPL threshold. The darkest shades of purple represent the districts where low-income families pay the most toward energy utility bills. Additionally, the size of the circle reflects the concentration of low-income families in that district. The largest bubbles have the highest number of low-income families that are energy cost burdened. Clearly, energy cost burden varies geographically across the city. While the cost burden is most intense in Staten Island and Southeast Queens, there are very high concentrations (or more numbers) of energy cost burdened families in the South and Central Bronx.



Map 1: Median Energy Cost Burden for and Concentration of Families <200% FPL

Table 3 shows the 10 neighborhoods with the highest median energy cost burden for families earning below 200% FPL. Annual energy bills over \$1,600 per year represent a significant share of income for these families. Future pilot programs to alleviate energy cost burden should prioritize neighborhoods where the cost burden is most acute.

| Table 3: 10 Highest Median Energy Cost Burdened Neighborhoods | |
|---|---------------------------|
| Neighborhood | Median Annual Energy Bill |
| Port Richmond, Stapleton & Mariners Harbor | \$2,985 |
| Howard Beach & Ozone Park | \$2,574 |
| New Springville & South Beach | \$2,520 |
| Tottenville, Great Kills & Annadale | \$2,390 |
| Queens Village, Cambria Heights & Rosedale | \$2,259 |
| Canarsie & Flatlands | \$2,150 |
| Bayside, Douglaston & Little Neck | \$1,990 |
| Jamaica, Hollis & St Albans | \$1,897 |
| Co-op city, Pelham Bay & Schuylerville | \$1,771 |
| Wakefield, Williamsbridge & Woodlawn | \$1,644 |

POLICY RECOMMENDATIONS

Energy cost burden is a function of the amount of energy consumed, the energy rates charged to consumers net of support programs, and the amount of income earned. While interventions to boost incomes (e.g. job training, fair wages, and subsidies for other necessities like healthcare, food, and shelter) are one part of the broader equation to address this issue, this report and its recommendations primarily focus on policies to impact energy rates and energy consumed.

Table 4 below shows the effects of various hypothetical energy bill cost reductions on NYC families earning below

and above 200% FPL. Such reductions could be achieved through direct bill discounts, lower cost energy supply, and energy efficiency programs. Even with aggregate bill reductions as high as \$50 per month, over 270,000 low-income families would remain energy cost burdened. This suggests there is likely no single solution that can solve energy cost burden for all low-income New Yorkers. A multi-pronged intervention, as laid out in the recommendations below, is the best way to achieve the ambitious goal of eliminating energy cost burden for low-income families.

Table 4: Energy Cost Burden under Various Reductions

| | | Current 2017 | Potential Reductions | | | | | All Families NYC |
|----------|------------|--------------|----------------------|---------|---------|---------|---------|------------------|
| | | | \$2/mo | \$5/mo | \$10/mo | \$25/mo | \$50/mo | |
| <200 FPL | % Burdened | 41% | 41% | 39% | 37% | 32% | 24% | |
| | Families | 460,493 | 450,628 | 438,154 | 412,791 | 353,879 | 270,586 | 1,111,978 |
| >200 FPL | % Burdened | 7% | 7% | 7% | 6% | 6% | 5% | |
| | Families | 78,254 | 76,329 | 71,288 | 66,778 | 57,220 | 42,950 | 2,212,961 |

Recommendation 1: ensure energy bill discounts are sufficient

Bill discounts are an important tool for lowering energy bills without adversely impacting quality of life. One primary source of such discounts is the Home Energy Assistance Program (HEAP), a federally funded, State-run program that offers heating energy discounts to state residents that earn under 60% of State Median Income (SMI). In 2017, the standard benefit for those who directly pay for gas or electric-based heat was \$350 for the heating season.¹³ An additional \$26 dollars in benefits were available to families who earn below 130% of the FPL, while another \$25 dollars were available to families with a vulnerable member.¹⁴ For those with heat included in their rent (e.g., families who do not directly pay for their heat), the base benefits are significantly lower at approximately \$30-\$35 per heating season. Because NYC has a high concentration of renters with heat included in their rents, NYC residents receive much lower HEAP benefits on average than the rest of the

state. Because landlords are passing these heating costs on to tenants, NYC residents have higher rent burdens and are receiving less utility bill assistance. The State should work to address this inequity in HEAP benefits by providing more benefits to families who are indirectly paying for heat through their rent.

The State's 2016 announcement regarding its energy affordability policy for low-income households included a commitment of \$248 million to support low-income energy utility bill discounts, which were intended to eliminate energy cost burden for low-income families.¹⁵ These discounts were included in this analysis. In NYC, discounts are available to customers who currently receive benefits from HEAP, Supplemental Nutrition Assistance Program (SNAP), and Temporary Assistance for Needy Families (TANF), Supplemental Security Income (SSI), and Medicaid. While these discounts are

¹³ <https://www.nyserda.ny.gov/All-Programs/Programs/Low-Income-Forum-on-Energy/LIFE-Webinar-Series#201610Heap>

¹⁴ Defined as a household member who is age 60 or older, under age 6 or permanently disabled.

¹⁵ The 2018 monthly low-income discounts for most Con Edison customers amount to \$10 for non-heating electric, \$10 for heating electric, \$3 for non-heating gas, and \$50 for heating gas. All discounts are already netted out of the utility expenditures reported in ACS since numbers are reported as costs incurred. For National Grid, non-heating gas customers also receive \$3 per month, while heating gas discounts range from \$18-\$57.

certainly helpful to low-income families, given the analysis shown above, it is necessary to expand benefit amounts further to substantively reduce energy cost burden. As shown in Table 4, even after these discounts have been accounted for, too many families remain energy cost burdened. Moreover, as utilities seek rate increases for their capital and operating expenses, these discounts must rise commensurately to maintain their effectiveness.

Recommendation 2: promote energy efficiency investments

Much of the city's most affordable housing is also the oldest and least energy efficient. Weatherization upgrades, boiler replacements, and new appliances can significantly reduce the amount of energy consumed in a building without imperiling the comfort of residents. Unfortunately, as over 80% of New Yorkers living below 200% FPL are renters, most do not have direct control over these basic cost-saving improvements. Landlords are typically responsible for these upgrades, but when tenants receive most of the benefits through lower energy bills, landlords may be less incentivized to undertake these investments. When landlords do make these upgrades, some major capital improvements can trigger rent increases for rent-controlled tenants, exacerbating housing affordability challenges.

The NYC Accelerator serves as one example of a successful City-run program that supports such investments. The Accelerator offers free technical assistance and advisory services to support energy efficiency improvements and supports the design and construction of low-carbon buildings. The program is open to all NYC properties over 25,000 square feet, and also to smaller buildings (greater than 5,000 square feet) in the neighborhoods of Harlem, Washington Heights-Inwood and Central Brooklyn.

Additionally, the State offers several existing programs that help mitigate the renter/landlord dilemma. EmPower New York provides no-cost energy efficiency solutions for low-income New Yorkers, including appliance upgrades, insulation and lighting replacements. Additionally, Weatherization Assistance Programs can help low-income renters access energy audits and subsidize actions to insulate walls, repair and replace heating systems, insulate pipes, install energy efficient appliances and lighting, and replace windows, among

other measures.¹⁶ The expansion of such programs, coupled with the rollout of NYC Local Law 97, which has prescriptive efficiency measures for large buildings with affordable housing, could significantly increase investment in energy efficiency that would reduce low-income energy cost burden. Similarly, New York State's recently passed New York Climate Leadership and Community Protection Act should further direct substantive funding for energy efficiency and clean energy investments to low-income communities across NYC. Another area of focus could be to expand financing programs for affordable housing that can support such investments.

Recommendation 3: increase access to low cost renewable energy

Another way to lower energy bills is through lower-cost, locally-generated energy. Accordingly, City and State efforts should be geared toward continuing to expand access to low-cost clean energy for low-income families and communities. This can be done in a number of ways.

Solar PV, for example, can harness a building's roof space for renewable energy generation and reduce the need for electricity drawn from the grid. As solar installation costs have come down in recent years, deploying solar can lead to significant energy cost savings. Since many renters and low-income families may not have direct control over their roof space, community solar is an attractive alternative structure that allows subscribers to pay for the energy from solar arrays without having to own or host the systems directly. Community solar provides subscribers with energy credits that offset their utility bills for the electricity generated by the project, and thus can vastly democratize the benefits of renewable energy. Solar for All is a new State program that allows low-income New Yorkers to receive no-cost community solar subscriptions and is expected to expand to NYC in 2020.

There are several City efforts underway to expand community solar for low-income families in NYC. The NYC Economic Development Corporation is implementing a community solar project in Sunset Park, which is intended to serve low-income residents in the surrounding community. The New York City Housing Authority (NYCHA) is leasing out its roof space to solar developers who will generate solar for low-income

¹⁶ <http://www.nyshcr.org/programs/weatherizationassistance/>

subscribers. Con Edison, NYC's electric utility, is also offering community solar subscriptions for low-income New Yorkers for arrays it will host on its property. These programs will help offset higher-cost grid electricity for participants. While identifying suitable roof space remains a key hurdle to greater solar adoption in NYC, these programs can play an important role in both alleviating energy cost burden and de-carbonizing the city's energy supply.

CONCLUSION

Despite a wide variety of programs to reduce energy cost burden, too many New Yorkers continue to struggle with energy affordability. While the existing programs and recommendations discussed above can lead to significant improvements over time, potentially rising natural gas prices, necessary clean energy and resilience investments, and future rate increases can also set back the gains being made. Careful attention must be paid to ensure that future changes in the energy system and energy ratemaking do not unduly push higher energy utility bill costs onto low-income families.

Fundamentally, and building upon the progress and existing efforts to-date, the City and State must work together to:

1. Ensure energy bill discounts are sufficient
2. Promote energy efficiency investments
3. Increase access to low-cost renewable energy

Finally, this methodology and the approach behind this analysis can serve as a way to track progress against the 6% energy affordability target.