

Energy Insecurity Among Chicago Homeowners

A Picture of
Families Struggling
to Keep Up



ELEVATE ENERGY
Smarter energy use for all

This white paper details the results of a survey and qualitative interviews with lower income Chicago homeowners.

All survey and interview respondents had previously applied to participate in a home upgrade program for distressed communities; out of 391 program applicants, 65 homeowners responded to the survey (a 17% response rate) and 8 homeowners also completed follow-up interviews. The results are discussed first, with quotes from interviewees leading each section of quantitative findings. Participant demographics and study methods are discussed at the end. The overall picture is of insufficient access to affordable energy and coping mechanisms in which families restrict their energy use and make other tradeoffs. Too often, lower income Chicago homeowners sacrifice their health, wellbeing, and comfort in the struggle to afford utility services.

01

CHICAGOANS ARE STRUGGLING WITH UTILITY COSTS

“I’m very conscious about what I buy in the stores and places like that. You have to be selective when you’re living on a fixed income, very much so.”

01



CHICAGOANS ARE STRUGGLING WITH UTILITY COSTS

More than 89% of the lower income Chicago homeowners in our study experienced energy insecurity from 2018 to 2019, whether struggling to afford bills, falling behind on payments, being uncomfortable at home, or receiving shut-off notices. These low-income households are largely senior-led (54%) and have higher than average utility and water bills. Half of households reported using the stove for supplemental heat, moving to different rooms, and/or leaving the house entirely, to address the high cost of maintaining a comfortable temperature. Some of these coping strategies, like using the oven, pose safety and public health risks. About two-thirds of households kept their home temperature at an uncomfortable level to save money. Only 38% of respondents received assistance to pay for their bills; Low-Income Home Energy Assistance Program (LIHEAP) was the most common form of assistance.

| Energy Insecurity Indicator | Prevalence ¹ |
|---|-------------------------|
| Reduced expenses for basic household necessities (e.g., rent, food, medicine, transportation) to pay my energy bill | 51% |
| Received disconnection notice (any fuel) | 29% |
| Reduced your energy consumption to uncomfortable or inconvenient levels to save on my energy bill | 68% |
| Experienced extremely hot or cold temperatures at home | 49% |
| Received a disconnection due to non-payment (any fuel) | 4.6% |
| Any of the above | 89% |

Energy insecurity among low-income homeowners in Chicago is especially acute. These indicators were included in a national survey conducted by the Energy Information Administration, which found that one-third of U.S. households experienced at least one form of energy insecurity.²

1. Percentage of respondents who experienced the indicator at least once in the last year
2. U.S. Energy Information Administration, 2015

02

UTILITY COSTS EXACERBATE INCOME INSTABILITY

“[My gas bill] was \$267 in March. It don’t make me feel good, but I just thank god that when a bill comes out, my social security check magically gets some of it.”

02

UTILITY COSTS EXACERBATE INCOME INSTABILITY

Energy and water costs among our respondents are high, and 58% had difficulty keeping up with their utility bill payments. In particular, the typical winter natural gas bill was \$272 per month. Reported monthly water costs were \$98, more than five times higher than the \$19 for 2017 water costs reported in a Chicago Tribune investigation of water affordability.³ Utility costs make up a large share of household expenses: for households earning 150% of the federal poverty level and assuming mean gas and electricity costs, energy burden is 12% in the summer and 20% in winter. By comparison, previous analysis by Elevate Energy found that energy burden was 13% in Illinois⁴, and ACEEE reported the median low-income household in Chicago experienced a 7% energy burden.⁵ Thus, this analysis offers a more precise picture of the extent and temporality of energy burden in Chicago.

Self-reported “typical” monthly utility bills

| | Summer | Winter | Any season |
|-------------|--------|--------|------------|
| Electricity | \$146 | \$138 | |
| Gas | \$102 | \$272 | |
| Water | | | \$98 |

3. *Chicago Tribune*, 2017
4. *Elevate Energy*, 2016
5. *American Council for an Energy Efficient Economy*, 2016



02

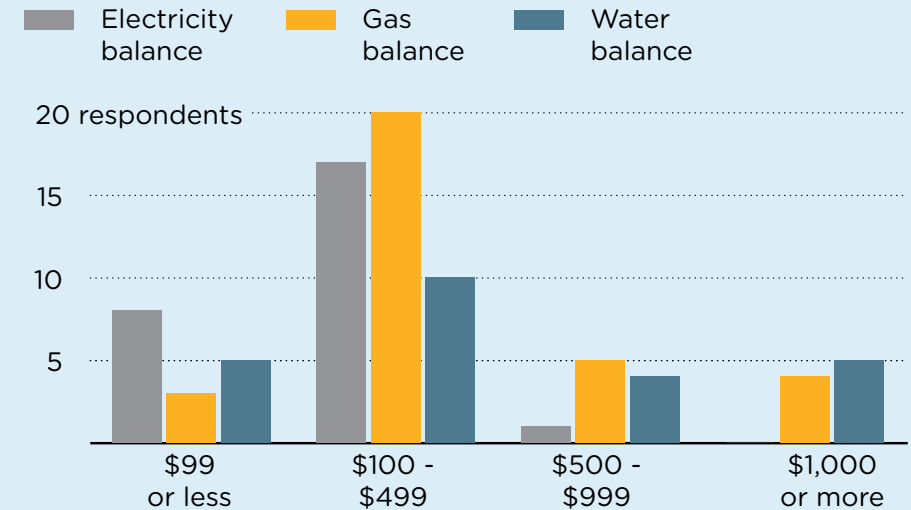
UTILITY COSTS EXACERBATE INCOME INSTABILITY

Nearly half of respondents reported paying bills late or making partial payments, and 31% missed an electricity, gas, or water payment at some point in the last year. Like ongoing payment challenges, we find a high percentage of respondents who carried a balance on their utility bills for more than a month: 40% of respondents carried a balance on their electricity bill, 49% on their gas bill, and 37% on their water bill. The amount of the balance was generally higher for gas and water bills; only one respondent carried an electricity balance over \$500, while nine respondents (14%) carried a balance over \$500 for both gas and water.

Percent of respondents experiencing trouble keeping up with utility bills in the last 12 months (sometimes, often, or always)

| | Paid a bill late | Made a partial payment | Missed a payment | Any bill payment issue |
|-----------------|------------------|------------------------|------------------|------------------------|
| Electricity | 38.5% | 38.5% | 23.1% | 50.8% |
| Gas | 35.4% | 41.5% | 27.7% | 46.2% |
| Water | 33.8% | 38.5% | 18.5% | 41.5% |
| Any bill | 49.2% | 50.8% | 30.8% | 58.5% |

Respondents with utility balances for more than one month



Disconnections due to non-payment are rare; only one respondent experienced an electricity shut-off in the last 12 months, and two respondents experience gas shut-offs. However, the impact of being disconnected can be substantial and long-lasting. In interviews, one family discussed the pain and disruption of a shut-off many years ago: “We had kids, and the lights and gas got cut off... We were close to this part of the house and we slept in the back.”

02

UTILITY COSTS EXACERBATE INCOME INSTABILITY

Disconnection notices are more common: 38% of respondents received at least one disconnection notice on their electricity, gas, or water bill (29% on electricity or gas), which is substantially higher than the national average of 14.5%.⁶ Only five respondents reported being enrolled in a shut-off protection plan, in which a utility agrees to forgo shutoff due to a medical reason or other vulnerability.

In addition to bill payment challenges, respondents might prioritize keeping up with their utility bills at the expense of other needs. For example, one participant reported having to sacrifice medications to keep up with her natural gas bill: “[My bill is] \$142, I got to pay to stay on [Percentage of Income Payment Plan], you know. So I gotta do without other stuff. Medications, some medication sometimes I can't buy it.” Among our survey respondents, 35% reported sometimes, often, or always reducing their expenses for basic household necessities (e.g., rent, food, medicine, or transportation) to pay their energy bill.

Together, these patterns of bill payment challenges, disconnection notices, disconnections, and budget trade-offs paint a picture of substantial economic energy insecurity. About 71% of our survey respondents experienced at least one of these challenges for electricity, gas, or water costs, or 68% for electricity and natural gas only. These challenges are more common than we might find if we only examined overall financial health, since 52% of respondents reported sometimes, often, or always having to juggle general household bills.

“I try to pay when I can, you know, right now [I’m] heating two floors this past winter. If I’m laid off work at the time, I try to apply for LIHEAP and get assistance. If not, I just pay some on the heating bills and try to catch up when I’m paying them off.”

6. U.S. Energy Information Administration, 2015

03

PHYSICAL DISCOMFORT IS WIDESPREAD

“In the winter, I know my living room is real drafty. It might be getting cold from the hallways, not having any heat out there so it’s usually the living room in the winter. In the summer, the kitchen can be hot sometimes.”

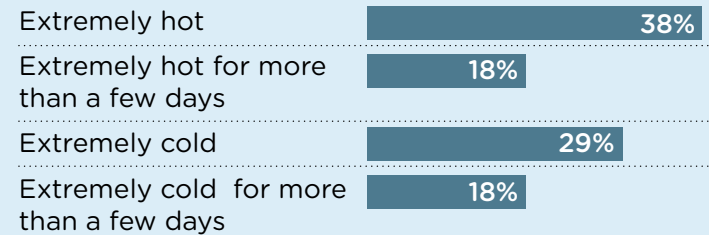
03



PHYSICAL DISCOMFORT IS WIDESPREAD

Housing quality and characteristics are major determinants of energy costs, and low-income households are more likely to face challenges related to poor-quality housing. And, homes with deferred maintenance issues are often not eligible for traditional energy efficiency upgrades due to health and safety concerns. In this survey, we asked participants to rate their housing in terms of energy efficiency, draftiness, and other characteristics of the physical structure that are related to energy use as well as comfort. Overall, 40 respondents (62%) rated their home as somewhat, moderately, or extremely drafty. As shown in the figure below, respondents also reported experiencing extreme heat and cold at home, sometimes lasting for more than a few days. “Extreme” was defined as needing to wear an extra layer or leave the house entirely.

Extremely hot and cold home temperatures



A more severe form of physical energy insecurity is the prevalence of service outages, whether unplanned due to weather or planned due to infrastructure maintenance. Service outages for this sample are relatively rare and short: no respondents experienced a service outage for their gas utility; 24 respondents (40%) experienced a service outage for their electricity but only one respondent experienced an electricity service outage that lasted longer than 24 hours.

04

HOMEOWNERS COPE IN VARIOUS WAYS

“I went up over my limit on my bill because I was sick with flu, and I kept the heater going constantly. Oh God, it killed me. It’s killing me now. I mean, yeah. [My bill is] \$142, I got to pay to stay on [Percentage of Income Payment Plan], you know. So I gotta do without other stuff. Medications, some medication, sometimes I can’t buy it.”

04

HOMEOWNERS COPE IN VARIOUS WAYS

When a household is experiencing uncomfortable home temperatures or high energy bills, there are various behavioral responses and coping mechanisms they might employ. For example, 52% of respondents reported that they sometimes, often, or always reduce energy use to uncomfortable or inconvenient levels to save on their energy bills.

The most extreme coping mechanism (moving to a new home or apartment due to energy issues) was not found among any of our respondents. We asked whether respondents had moved during the last 12 months, so it's still possible that some respondents have experienced this in the past.

The other behavioral responses to energy insecurity issues were more common:

- » **22%** of respondents sometimes, often, or always used their stove or oven for heating.
- » **31%** of respondents sometimes, often, or always restricted sleeping and family activities to certain rooms to save on their energy bill.
- » **18%** of respondents sometimes, often, or always left home for all or part of the day to save on their energy bill.
- » **48%** of respondents sometimes, often, or always engaged in at least one of these coping mechanisms.



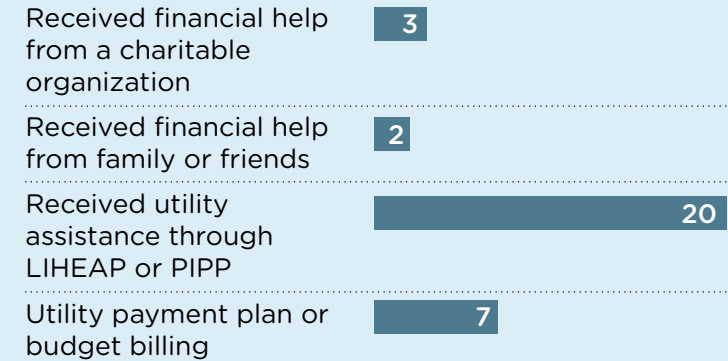
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HOMEOWNERS COPE IN VARIOUS WAYS

While these day-to-day behavioral responses are designed to manage energy needs or reduce energy costs, households experiencing energy insecurity can also engage in coping mechanisms or behavioral responses on the financial side. Utilizing financial assistance, energy assistance, or payment plans to help cover their bills was a common response among our respondents, and 25 respondents (38%) reported receiving some kind of assistance or enrolling in a payment plan. The most common type of assistance is from federal and state energy assistance programs, either the Low-Income Home Energy Assistance Program (LIHEAP) or Illinois’s Percentage of Income Payment Plan (PIPP), which allows participants to pay a fixed percentage of their income on utility bills, regardless of their energy use.

While 31% of our respondents received utility assistance from federal or state programs, in 2017 less than 13% of eligible households actually received LIHEAP assistance.⁷ This could be due to the relatively high percentage of households with seniors in our sample (54% of respondents live in households with at least one senior), since seniors are one of the groups given priority in applying for LIHEAP.

Respondents receiving utility or financial assistance



“Lot of times when I get a [utility] bill I feel a little anxious.”

7. National Energy and Utility Affordability Coalition, 2018

05

ENERGY EFFICIENCY CAN HELP ENERGY INSECURE HOUSEHOLDS

“[The energy efficiency of the home is] better. I don’t know what conserves the energy, but I know whatever they did in the basement I feel like is more secure ... because they tore down all that stuff that made it so dark in [the basement with the] sealed windows ... it was cold in here [before the upgrade].”

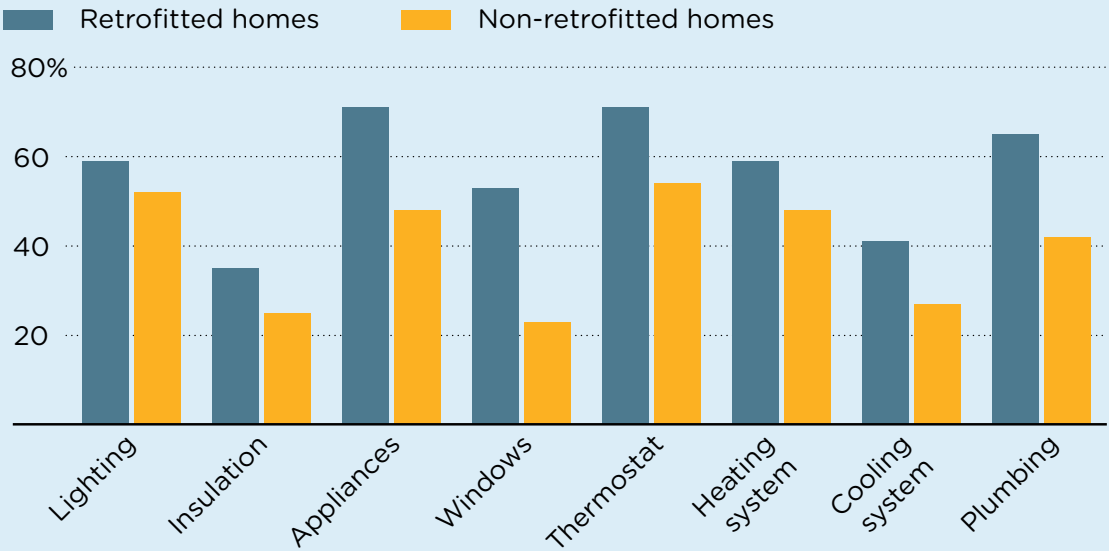
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ENERGY EFFICIENCY CAN HELP ENERGY INSECURE HOUSEHOLDS

Energy efficiency retrofits seem to help mitigate the impact of energy insecurity among our survey respondents, but more help is needed to ensure access to clean and efficient energy use. Homeowners living in retrofitted homes reported lower rates of draftiness and perceived more energy efficient home features, such as appliances and lightbulbs.

Respondents were asked to rate the energy efficiency of various home features, from 1 or very inefficient, to 5 or very efficient. On each item, respondents with retrofitted homes were more likely to rate their homes as efficient or very efficient compared to respondents living in non-retrofitted homes.

Percentage of home features rated efficient or very efficient by respondents



05

ENERGY EFFICIENCY CAN HELP ENERGY INSECURE HOUSEHOLDS

Average bills were different for homes that had been retrofitted versus homes that were not, with retrofitted homes having lower gas and electric bills in the summer, and higher gas and electric bills in the winter. One confounding factor that could explain this difference is square footage: among the 23 homes for which we have data on square footage, total square footage is higher for retrofitted homes (mean=2,955 sq. ft., n=9 homes) versus non-retrofitted homes (mean=2,395 sq. ft., n=14 homes).

Another possibility could be that owners of retrofitted homes are better able to achieve comfortable temperatures during the winter and are willing to spend a little more to do so, whereas owners of non-retrofitted homes are simply not able to achieve comfortable temperatures and therefore don't perceive any benefits from higher energy usage in the winter. More investigation is needed to understand these differences and explore these possibilities.

| | Typical summer bill | | Typical winter bill | | Typical monthly bill | |
|-------------|---------------------|-----------------------|---------------------|-----------------------|----------------------|-----------------------|
| | Retrofitted homes | Non-retrofitted homes | Retrofitted homes | Non-retrofitted homes | Retrofitted homes | Non-retrofitted homes |
| Electricity | \$120 | \$155 | \$168 | \$127 | | |
| Gas | \$69 | \$113 | \$283 | \$268 | | |
| Water | | | | | \$87 | \$101 |

“[After the Micro-Market Recovery Program,] our gas bill was ... lower enough that I could see the difference”

Research background and design

We are deeply indebted to Dr. Diana Hernández for the conceptual framework for this study. Her research formed the motivation for examining energy insecurity in Chicago. She has developed a three-dimension framework for energy insecurity (physical, behavioral, and economic) around which we planned our questions and analysis. Dr. Hernández served as an advisor for this project and her survey tool was adapted for the Chicago context.

This study used a multimethod analysis to capture the breadth and depth of energy insecurity experiences. We combined a survey and quantitative analysis with qualitative interviews to provide a rich and detailed understanding of how people feel about their energy experiences and how energy interacts with other dimensions of poverty.

The study targeted Chicago homeowners who applied to participate in the Micro-Market Recovery Program, or MMRP. The City of Chicago's goals for MMRP were to stabilize homeowners in distressed communities by providing down payment assistance for home purchases and forgivable loans for home upgrades. Participants could receive home repairs including porch and roof repair, safety improvements, and energy efficiency retrofits. Many applicants to the program were not able to complete a retrofit for reasons including lack of income documentation, existing fines owed to the City, attrition, and many others. Since there is no systematic

reason why some applicants did not complete a retrofit, this enables a quasi-experimental research design that can help us understand energy insecurity in different sub-populations.

Survey Methodology

We sent a detailed survey to 391 Chicago homeowners who applied to MMRP during the 2016-2018 program years. The population includes 54 homeowners (14%) who completed a home upgrade through MMRP. Survey responses were anonymous and linked with program data using a unique code provided to each respondent. We contacted MMRP applicants via four postcard waves and two email waves, and we followed up by phone with a random sample of 95 homeowners. Respondents received a \$50 incentive for completing the survey, with the choice of receiving their incentive by check or Tango e-gift cards.⁸

The survey was open for a little less than two months, during April 5 to May 24, 2019. In total, 65 homeowners completed the survey, including 17 respondents (26%) who completed a home upgrade through MMRP. This represents a 17% response rate among the full population, with a higher response rate for owners of retrofitted homes (31%) compared to non-retrofitted homes (14%). Survey respondents had the opportunity to take the survey in English or Spanish, although only one respondent completed the

8. Tango provides instant electronic gift cards that can be used at a variety of major retailers, including Amazon.com, iTunes, Target, and more. www.tangocard.com

Research background and design

survey in Spanish. Thirty respondents (46%) completed the survey by phone, while 35 respondents (54%) completed the survey online.

Respondent Demographics

Nearly half of respondents (48%) report household income below 150% of the federal poverty level (\$24,690 for a two-person household), while 81% of respondents have income below 80% of the area median income for Chicago (\$57,050 for a two-person household). The average age of the survey-taker was 57 with 28% of households reporting a child in the home and 57% reporting a senior in the home. The average household size was 2.4, with a range from 1 to 7 people.

Respondents reported health conditions, including high blood pressure (46%), obesity (32%), diabetes (16%), asthma (14%), cancer (10%), and heart disease (8%). Reported sleep quality was two (“fairly good”) on a four-point scale, with 22% rating their sleep quality “fairly bad” or “very bad.”

The responding population was 77% African American, 14% Hispanic or Latinx, and 5% white. About 72% of respondents were female while 26% were male (one respondent, or 2%, did not report gender).

Qualitative Interview Methodology

We conducted semi-structured qualitative interviews with eight survey respondents who expressed interest in a follow-up interview. Compensation for the qualitative interviews was \$100. We selected interviewees across a variety of neighborhoods and interaction with the upgrade program. We over-sampled participants who had completed MMRP to understand any changes they experienced as a result of the program. Our interviews covered general background about their homes and families, home comfort, stress and anxiety related to utility bills, and any coping mechanisms they employed.

Acknowledgements

This study was co-authored by Margaret Garascia, Anna McCreery, and Anne Evens, with the advice and support of Dr. Diana Hernández. This research would not be possible without the families who took the time to respond to our survey or sit down with us to discuss their challenges with energy insecurity. Thank you.

Appendix

MMRP 2017-18 Qualification Map



Survey Postcards

**NEW SURVEY DEADLINE:
Wednesday, May 1st**

**NUEVO PLAZO DE ENCUESTA:
miércoles, 1 de mayo**

**Hurry, <First Name>,
Earn \$50 Today!**

**Apresurese, <First Name>,
igane \$50 hoy!**



ABOUT ELEVATE ENERGY

Elevate Energy is a mission-driven nonprofit organization. Our team builds strong connections in the places we work and provides high-quality programs, services, education, and outreach that contribute to healthy, thriving communities. We place a focus on reaching communities that have typically been underserved and collaborate with community partners to benefit everyone.

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