

Milwaukee: A Trailblazing City Mitigating Energy Burden *A Series Highlighting Most Improved Cities*

Low-income, Black, Hispanic, and Native American households all face dramatically higher energy burdens than the average household across the US.^{1,2} Because these communities simultaneously experience other systemic inequities correlated to energy burden and are also being hit the hardest during the COVID-19 pandemic, many sustainability organizations, policymakers, and utilities have an increased interest in understanding how to alleviate these communities' burdens.

This report highlights a success story of one particular city doing significant work to address their energy burdens by boosting energy efficiency funding and programs.

Based on our recent Greenlink Equity Map report, [A Nationwide Review of Energy Burden](#), the 50 most populated metropolitan areas all experienced a reduction in average energy burden between 2013 and 2018.³ Among those metro areas, the City of Milwaukee was one of the most improved in energy burden. By 2018, the city saw a 29.9% reduction in energy burden relative to their 2013 level.

As part of the energy burden analysis, we explored how the changing median household income and annual energy bills each impacted the overall decrease in energy burden. Between 2013 and 2018, the national median household income increased by 13.9% and national annual energy bills increased by 0.2%, relative to 2013 values. The median income for the city of Milwaukee followed this trend for energy burden, driven even more by a decline in average energy bills. This report investigates the city's specific trends and how they achieved the significant decrease in median energy burden.

City of Milwaukee energy official, Matthew Donath, was surprised by this significant decrease in energy burden. This stemmed from his work addressing a high concentration of the city's most burdened neighborhoods that have seen little improvement over time.⁴ As one of the [50 Leadership Cities](#) with free access to GEM, Donath now has neighborhood level data on energy burden and other related indicators across his city to closely analyze these trends.

“Having the ability to see census tracts to compare with our city was very useful and drove home the point for us. When you are presenting this data to other people, such as elected officials or people who don't have our background, having access to this type of data is really helpful to be able to present the case

¹ American Cities Climate Challenge GEM Energy Burden Reports. Greenlink Analytics. 2021. <https://www.equitymap.org/accc-gem-reports>

² Energy Burden Report: Low-Income, Black, Hispanic, and Native American Households Face High Energy Burdens. ACEEE. <https://www.aceee.org/energy-burden>.

³ Energy burden is the percentage of a household's annual income spent on utility bills, and is an important measure and indicator we can look at in a city to analyze economic equity.

⁴ While the average conditions may be improving, we want to acknowledge that such a data point on its own will not provide enough insight on energy equity or reflect the lived experience of impacted communities to justify definitive statements and could be misleading if the benefits are not primarily accruing to overburdened households and communities. The median burden does not reflect the discrepancy between the absolute highest and lowest income households, a critical datapoint for making more substantive claims about distributional equity outcomes. Fortunately, this kind of income and burden information is available within the GEM platform.

in a clear and understandable way.”

- Matthew Donath, Sustainability Program Coordinator at the City of Milwaukee

Findings from this report include:

- Of the 50 metro areas surveyed in our [September GEM report](#), Milwaukee experienced one of the largest total reductions in average energy burden from 2013– 2018.
- Median income for Milwaukee increased by 10.5% between 2013 and 2018, while the national median income increased by 13.9% during the same time period.
- Average energy bills for the city decreased by 14% from 2013 to 2018, while the national average energy bill increased by 0.2%.
- Energy burden for Milwaukee decreased by 29.9% between 2013 and 2018, while the national average energy burden decreased by 10.4%.
- The Greenlink Equity Map (GEM) was used to gain insight on energy burden changes from 2013 to 2018 at the census tract level.
- City of Milwaukee energy officials caution that the improvements in energy burden must be contextualized as part of a nuanced understanding of the city’s broader energy equity situation.

As clean energy, equity, and policy researchers, our work has been at the forefront of investigating the nation’s complex energy burden landscape and how it affects communities from the national level down to the census tract using our [Greenlink Equity Map](#) (GEM).

GEM is an equity mapping tool enabling users to understand how energy burden relates to a series of indicators, including race, health insurance stress, internet access, and more. Since its launch in 2020, we have been using GEM to uncover a variety of energy equity insights across the United States and have published our findings in [regular GEM reports](#).

Economic growth and trends in Milwaukee: median income, average energy bill, and energy burden

Milwaukee saw an increase of 10.5% in household income from 2013 to 2018 (from \$49,000 to \$55,000), although income increased in fits and starts; the city’s median income actually decreased between 2014–2015, then rebounded. Over the 2013–2018 period, city residents experienced a 13.9% decrease in annual energy bills (from \$2,870 to \$2,470), but again this was not a linear decrease. These trends combined to show a decrease in city energy burden from 7.7% in 2013 to 5.4% in 2018.

Changes in energy burden in Milwaukee’s Neighborhoods

From 2013 to 2018, while the number of highly burdened census tracts decreased overall, several tracts actually experienced an increase in energy burden over the time period. In this section, we explore the disparate changes in burden across the city.

Over the 2013–2018 period, Milwaukee saw a significant change in energy burden in its

downtown area. Of the 296 census tracts in Milwaukee County, 40% of them experienced a decrease in energy burden. There were still several tracts that underwent an increase in energy burden during this time period as well, either due to increasingly expensive energy bills or a reduction in household income. More specifically, 16 (23%) of the 70 census tracts that increased in energy burden between 2013 - 2018 were located in primarily Black or Hispanic neighborhoods. More than 50% of these residents identify as racial minorities.

Average Energy Burden for 2013 and 2018 by Predominant Race

Source: Greenlink Equity Map (GEM). Greenlink Analytics (GLA), Inc.



Predominant Race	Energy Burden, 2013	Income, 2013	Annual Energy Bill, 2013	Energy Burden, 2018	Income, 2018	Annual Energy Bill, 2018
Black or African American	13%	\$30,086	\$3,512	8%	\$34,028	\$2,597
Hispanic or Latino	12%	\$27,858	\$3,053	9%	\$35,416	\$2,814
White	5%	\$58,549	\$2,635	4%	\$64,353	\$2,407

Table 1. Average energy burden, median income, and average annual energy bills for 2013 and 2018 by predominant race across Milwaukee’s census tracts

As we can see from Table 1, the average energy burden has decreased significantly between 2013–2018, but it is important to note that the energy burden is still significantly higher for primarily Black and Hispanic neighborhoods (8–9%) compared to White neighborhoods (4%). We can also see that while income levels for Black and Hispanic neighborhoods did increase from 2013 to 2018, they are still significantly lower than White neighborhoods. These minority households are also paying higher energy bills on average than their white counterparts, regardless of income levels. Since an energy burden of 6% or more is considered high, while a burden of 10% or more is considered severe⁵, we can see that racial minorities are still bearing a substantially greater burden than their White counterparts.

The average energy burden in primarily Black and Hispanic neighborhoods that experienced an increase was 11% and 12%, respectively, while the census tracts that were primarily White and that increased in energy burden had a significantly lower average at 5%.

The City perspective on changing energy burden

Although GEM can be used to study energy burden trends from the census tract to the national level, it can be difficult to interpret trends over time or in specific communities. To better understand the metro-level changes in energy bills, household income, and energy burden observed in our [previous report](#), we interviewed an energy representative at the City of Milwaukee. We were interested in getting his perspective and insight on how the city of Milwaukee improved its energy burden over time.

Matthew Donath, the Sustainability Program Coordinator at the City of Milwaukee’s Environmental Collaboration Office (ECO), spoke with us about the city’s energy burden

⁵ Dreihobl, A., & Ross, L. (2016). Lifting the High Energy Burden in America's Largest Cities: How Energy Efficiency Can Improve Low-Income and Underserved Communities. Washington, DC: American Council for an Energy Efficient Economy. www.aceee.org/research-report/u1602.

improvement. His previous work with the Urban Sustainability Directors Network (USDN) echoed the trends we observed using GEM—that overall energy bills decreased and median household income in the city of Milwaukee increased between 2013 and 2018. From his perspective, this was primarily driven by new construction, an increase in people moving closer to the city, and younger families upgrading their homes. ECO also launched energy efficiency (EE) programs in 2012 that provide mechanisms for mid- and mid-low income families to finance EE updates through a local credit union. These initiatives were funded by the Obama Administration’s American Recovery and Reinvestment Act of 2009, which allowed ECO to implement weatherization and efficiency upgrades in over a thousand city of Milwaukee homes. In more recent years, ECO has been involved in various collaborations to allocate resources and funding to the appropriate neighborhoods across Milwaukee, including the programs and funding highlighted below:

- American Rescue Plan Act of 2021: The City of Milwaukee received approximately \$394 million to prioritize residents and families heavily impacted by the pandemic; the funds were used to provide stable and affordable housing, public health, and community resiliency.⁶ The ECO intends to use funds provided by this recently passed American Rescue Plan to assist Milwaukee’s low-income census tracts.
- Milwaukee Climate and Equity Plan: Since 2019, the Milwaukee City-County Task Force on Climate and Economic Equity has been developing strategies on how to address these challenges facing their community. This past summer, the Milwaukee ECO set the Milwaukee Climate and Equity Plan into motion. This plan will incorporate community input to propose effective city and county actions.⁷ The goal of this plan is to reduce community-wide net greenhouse gas emissions by at least 45% by the year 2030 and achieve net-zero greenhouse gas emissions by 2050. Their equity goal is to reduce racial and income inequality by assuring that greenhouse gas reduction investments and policies will create the maximum number of permanent living wage green jobs for people who live in the most impoverished Milwaukee neighborhoods with limited economic opportunity.⁸

Importantly, Donath noted that Milwaukee’s overall reduced energy burden was not equally felt by communities of color. Understanding these inequalities in the city’s energy landscape is key for energy leaders to keep in mind when listening to community input and constructing new policy. He credited the city’s understanding of energy burden tools available through the Department of Energy, as well as the collaboration with our team through the Community of Practice group, which is accessible to GEM members:

“Having the ability to see census tracts to compare with our city was very useful and drove home the point for us. When you are presenting this data to other people, such as elected officials or people who don't have our background, having access to this type of data is really helpful to be able to present the case in a clear and understandable way.”

⁶ American Rescue Plan. City of Milwaukee Department of Administration. <https://city.milwaukee.gov/ARPA>.

⁷ Bence, S. (2021). Milwaukee City-County Task Force Asks Community To Help Push For Climate & Equity Action. WUWM 89.7: Milwaukee’s npr. <https://www.wuwm.com/2021-06-23/milwaukee-city-county-task-force-asks-community-to-help-push-for-climate-equity-action>.

⁸ Milwaukee’s Climate and Equity Plan. Environment Collaboration Office - City of Milwaukee. <https://city.milwaukee.gov/climate/Climate-Plan>.

- Matthew Donath, Sustainability Program Coordinator at the City of Milwaukee

About this Report and GEM

To summarize, the findings from this report include:

- Of the 50 metro areas surveyed in our [September GEM report](#), Milwaukee experienced one of the largest total reductions in average energy burden from 2013 to 2018.
- Median income for Milwaukee—as well as the nation overall—increased between 2013 and 2018.
- Average energy bills for Milwaukee decreased during this time period, while the national average energy bill slightly increased.
- The city’s energy burden decreased significantly between 2013 and 2018.
- The Greenlink Equity Map (GEM) visualization provided a better understanding of Milwaukee’s changing energy burden by census tract.
- A City of Milwaukee energy official highlighted that the improvements in energy burden must be contextualized as part of a nuanced understanding of the city’s broader energy equity situation.

As we can learn from Milwaukee’s energy-efficient initiatives, ensuring equal access to the benefits that these initiatives is a challenge but crucial. Engaging in strategic project planning, and including low-income residents as key stakeholders, is fundamental to give them space for sharing their lived experiences and developing better long-term outcomes. Best practices for accomplishing joint meaning-making between community and government are available in the GEM Process Guide.⁹

The data found in this report may be most valuable to understand how one region has reduced its energy burden over time. This information is also useful evidence in the creation of the appropriate policies and programs needed to dismantle energy injustices. The same analysis is possible for GEM subscribers!

The Greenlink Equity Map (GEM) platform was launched in October 2020 and is used by nearly 400 city, community, and non-profit leaders. The purpose of GEM is to guide individuals and organizations toward understanding how equity-related metrics are spread across communities in order to help them make informed, data driven decisions. The GEM platform offers detailed data insights into how different communities within a city may be more or less stressed than others along a variety of health, environmental, and demographic metrics. In order to get beyond anecdotal evidence, and create well targeted interventions, the GEM database can help illuminate the extent of these inequities and where they exist.

The creation of this tool and these reports would not have been possible without the support of our generous funders, the Kresge Foundation, Bloomberg Philanthropies, and the Energy Foundation. These reports serve to highlight different equity and energy issues found in cities across the United States, as well as to highlight cities where improvements have been made!

⁹ González, R., & Toloui, M. (2021). Process Guide for City-Community Collaboration. Greenlink Analytics. <https://www.equitymap.org/process-guide>.

With our GEM data, users can better understand how to conduct their own research on the platform, allowing for city and community energy and equity advancements. Addressing some of our nation's largest disparities is no easy feat, but with the correct data and information available to city staff, policymakers, and decision makers across the county, we can work towards a cleaner, healthier, and more equitable future. For more information on how to access the Greenlink Equity Map, go [here](#).

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