



ENERGY BURDEN IMPACTS: FLORIDA IN FOCUS FOR SIERRA CLUB - FLORIDA CHAPTER

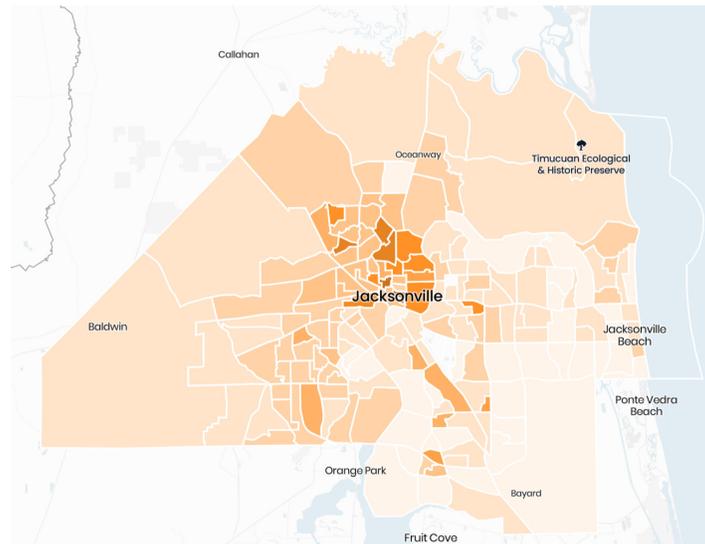
Impacts of Energy Burden for Jacksonville

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Prepared by Greenlink Analytics, Inc.



Energy Burden in Jacksonville at a Glance

GEM Map of Jacksonville



Jacksonville (Duval County)

On average, households nationally pay about 4.1% of their income on energy (gas and electricity) bills. As of 2019, Jacksonville’s average energy burden is 4.3% in 2019, .2% higher than the national average. However, the energy burden is not distributed evenly across neighborhoods. When energy burden is mapped across the city, data shows that it disproportionately impacts residents in the Northern and Central portions of the city. For 2019, the 5% least burdened tracts in the city have an average energy burden of 1.7%, below the national average, whereas the 5% most burdened tracts have an average energy burden of 13%, 3.2x higher than the national average.

The table below shows how Jacksonville compares on energy burden and how it’s changed over time.

Table 1. Median Energy Burdens Over Time

	2013 Overall	2019 Overall	Change
Jacksonville (Duval)	5.6%	4.3%	-1.3%
Florida	4.5%	3.8%	-0.7%
Florida Cities	4.8%	3.8%	-1.0%
National ¹	4.8%	4.1%	-0.7%

Jacksonville's Energy Burden: Change Over Time and Neighborhood Disparities

In 2013, Jacksonville’s median energy burden of 5.6% was above the national average and nearing the unaffordable energy burden threshold of 6% (Table 1). It was, however, above the Florida median of 4.5%. Energy burden decreased by 1.3% by 2019 but remained above the national average. This improvement was driven primarily by income and energy bills – as incomes increased, energy costs also increased but at a slower rate than incomes grew. The data shows wide disparities between the top 5% most burdened and 5% least burdened census tracts in the city². The 5% least energy burdened tracts had a median burden of 2.1% in 2013 and 1.7% in 2019, below the national average in both years. By comparison, the 5% most burdened tracts in the city had an energy burden of 17.7% in 2013 and 13% in 2019, indicating continuing levels of severe energy burdens in these neighborhoods across time.

Table 2, below, shows how the number of households living with the highest energy burdens changed between 2013 and 2019. Jacksonville saw its total number of households increase from 329020 in 2013 to 352295 in 2019.

1. National data from the US Energy Information Administration (Forms 861 and 176) and the US Census.
2. Most and least burdened tracts are defined by the household-weighted average census tract energy burden from 2013–2019 and represent the top and bottom quintiles. National data from the US Energy Information Administration (Forms 861 and 176) and the US Census.

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Table 2. Number of Households in High and Severe Energy Burden (Jacksonville)

Total HH 2013: 329020

Total HH 2019: 352295

	High Energy Burden (>6%)	Severe Energy Burden (>10%)
2013	135533	80963
2019	111480	60449

Intersectional Issues: Equity Indicators Correlated with Jacksonville's Energy Burden

Energy burden in Jacksonville is connected to a cluster of health, housing, and racial inequities. Across these years of data, Jacksonville's energy burdens are strongly correlated with income stress, lack of healthcare access, asthma rates, diabetes rates, stroke rates, chronic obstructive pulmonary disease, and the Black/African American population. It shows moderate correlations with other chronic health issues such as chronic heart disease and mental health. Given these relationships, there may be opportunities to improve outcomes by increasing efforts that emphasize energy, health, and race. Identifying these relationships may open doors for interdisciplinary collaboration outside City Hall, as well as interdepartmental collaboration within City Hall, ultimately advancing strong equity improvements at large.

Centering Energy Justice

Viewing energy burden as a component of larger structural injustice helps explain why unequal and disproportionate rates of energy burden can be found in certain geographic areas and among certain racial groups throughout Jacksonville. In 2019, the census tracts with the highest energy burdens (top 5%) shouldered an average energy burden of 13%, whereas the census tracts with the lowest energy burdens (bottom 5%) had an average energy burden of less than 2%. By comparison, 100% of the neighborhoods experiencing the highest energy burden (top 5%) were predominantly inhabited by Black and/or African Americans, whereas 89% of the neighborhoods experiencing the lowest energy burden (bottom 5%) were predominantly inhabited by White households. This racial disparity, however, does not indicate that the significance of race, as a categorization of complexion, causes higher energy burdens. Rather, it is reflective of a history of social practices, disenfranchisement, and disinvestment that continue to disproportionately impact non-white communities today. Centering energy justice is imperative to understanding that energy burden is yet another byproduct of systemic injustices and should not be treated as an isolated phenomenon.

Summary

- Jacksonville experiences energy burdens as high as 13.1%, which is more than three times higher than the national average.
- Since 2013, energy burden has decreased by 1.3% across the city and 4.7% across the most burdened communities. The number of households with unaffordable energy costs has fallen by 45,000, although 172,000 continue to face high energy burdens. Over this time period, a 7.6x disparity exists in Jacksonville's average energy burdens between the bottom 5% least burdened and top 5% most burdened communities, which highlights the need for additional resources to address energy burden in the most burdened neighborhoods.
- Energy burden in Jacksonville is connected to other inequities: Income stress, lack of healthcare access, and chronic health issues such as asthma rates, diabetes rates, stroke rates, and chronic obstructive pulmonary disease show strong positive correlations with energy burden ($R > .7$). Other moderately positive correlated inequities ($R > .5$) include chronic heart disease and poor mental health.
- Census tracts within the top 5% had an average energy burden of 13%, whereas the census tracts within bottom 5% had an average energy burden of 1.7%.
- 100% of the neighborhoods experiencing the highest energy burden (top 5%) were predominantly inhabited by Black and/or African Americans, whereas 89% of the neighborhoods experiencing the lowest energy burden (bottom 5%) were predominantly inhabited by White households.

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Footnotes

There are several indicators that are strongly correlated with energy burden in Jacksonville. These are related to income and a slew of healthcare related issues along with the Black population. Energy burden has a strong relationship with majority (>50%) black neighborhoods. Moderate correlations include CHD and mental health ($R > .5$) In fact, the White population has a negative correlation with energy burden meaning that it is actually less likely to be seen in predominantly White census tract.





Sharanya Madhavan

DATA SCIENTIST

Sharanya is a Data Scientist at Greenlink Analytics. She applies advanced geospatial data science techniques to acquire and generate new data sets for the Greenlink Equity Map (GEM). She also performs statistical analysis and develops other software solutions to further study the intersection of utility burdens and racial and social equity. Sharanya received her Bachelor's in Industrial Engineering from Purdue University and Master's in Environmental Conservation with a concentration in Environmental Observation and Informatics from the University of Wisconsin-Madison. She is an advocate for equitable food access and enjoys volunteering within the sustainable farming community in her free time.



Angelica Chavez Duckworth

GEM STRATEGIC DEVELOPMENT MANAGER

Jellie is the GEM Strategic Development Manager at Greenlink Analytics. She helps guide the development of the Greenlink Equity Map (GEM) to improve equitable processes and programming across the U.S. Jellie is a trilingual, community-centered climate justice professional focused on addressing the climate crisis at the intersections of health and cultural equity.

Jellie holds a Bachelor's Degree in Sociology with an emphasis in Cultural Anthropology from the University of Missouri - Kansas City.



Matt Cox, PhD

CEO & EXECUTIVE DIRECTOR

Matt Cox, PhD, is the CEO and Executive Director of Greenlink Analytics, a clean energy research non-profit based in Atlanta, GA. In this role, Matt provides domain expertise for Greenlink's energy and resource analysis software tools and serves as an expert on energy efficiency strategies, renewable energy deployment, and system operations in the electric power sector.

He is the author of over 100 scientific publications in energy policy, renewable energy, energy efficiency, economic development, and job creation, the social and environmental impacts of energy use, and water policy.



Michael Gilley

PROGRAM MANAGER

Michael is the Program Manager at Greenlink Analytics. Michael assists in optimizing workflow efficiencies, project management, and scalability.

Prior to joining Greenlink, Michael was a Sr. Manager, Partner Success and a Sr. Editor, at FloSports. During his time at FloSports, Michael led the successful launch of 2 channels, FloMarching and FloBowling, overseeing growth from their infancy to profitability. He brings a wide array of experience to Greenlink including graphic design, user design, department management, and production management.