

THE PERFECT STORM OF EXTRACTION, POVERTY, AND CLIMATE CHANGE:

A Framework for Assessing Vulnerability, Resilience, Adaptation, and a Just Transition in Frontline Communities



KEY REPORT FINDINGS

Black, Indigenous, and People of Color (BIPOC) and frontline communities bear the disproportionate burden of environmental and climate impacts. We know the communities that are at the greatest risk. We can identify factors that put them at risk. We are less successful in communicating causal relationships, proposing systemic, upstream policy solutions that act upon these causal relationships, and identifying ways to measure whether or not policy solutions result in improved outcomes. Using a case study approach that examines six communities, the Prioritizing Frontline Communities Framework assesses the “pre-existing” economic, health, and infrastructure conditions that put these communities at greater risk. The effectiveness of social and climate-related policymaking can be assessed based on the degree to which they result in improved outcomes on key indicators and thereby increase the capacity of these communities to cope with, prepare for, and respond to climate change and participate equitably in the transition to a clean energy economy.



About Just Solutions

Just Solutions

Just Solutions is a BIPOC-led organization working to broaden and deepen the understanding of equitable and effective policies and programs to support the priorities of environmental justice organizations to define, innovate, replicate, and scale their solutions to the climate crisis. We do this work by: identifying and coalescing leading community-created policy solutions; conducting requested, relevant, comprehensive, and accessible policy analysis and research; organizing peer learning, foundational educational programming, space for states to share and strategize; and providing financial support for expertise, ideation and participation.

Acknowledgments

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We would like to thank the following community experts who made time to talk with us for this report. Their insights enriched our findings and deepened our analysis.

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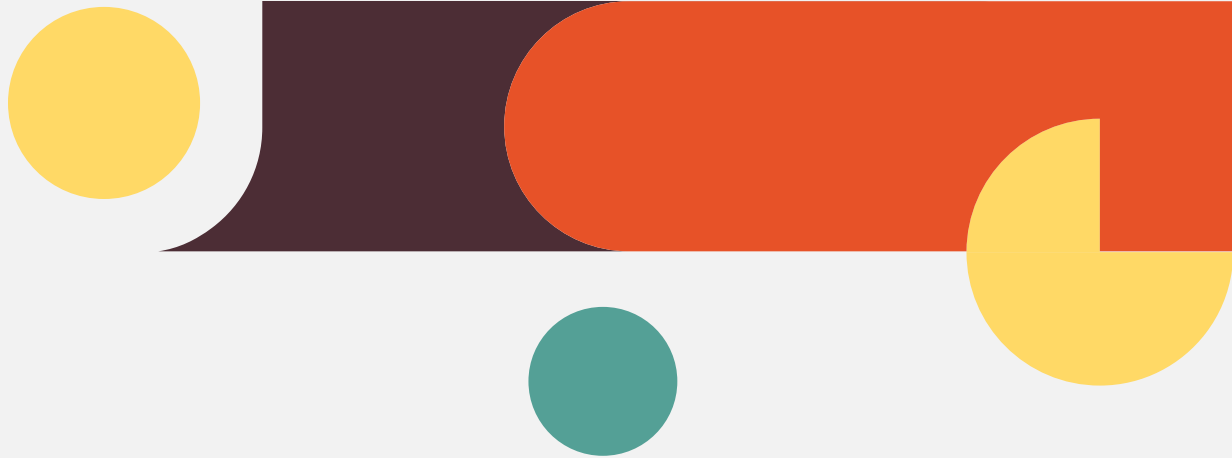




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Executive Summary

Introduction

Black, Indigenous, and People of Color (BIPOC) and frontline communities bear the disproportionate burden of environmental and climate impacts. We know the communities that are at the greatest risk. We can identify factors that put them at risk. We are less successful in communicating causal relationships, proposing systemic, upstream policy solutions that act upon these causal relationships, and identifying ways to measure whether or not policy solutions result in improved outcomes.

Through a case study approach, this paper introduces a **Prioritizing Frontline Communities Framework**, which will be expanded upon over time, for considering and measuring the adaptive capacity and resilience of frontline communities as they confront climate change. It examines the “pre-existing” conditions in six frontline communities that are among the most vulnerable to and affected by climate change and considers the effects of these conditions on the local capacity to cope with, prepare for, and respond to ongoing climate-related challenges. The six communities are **Glacier County, Montana; Holmes County, Mississippi; Hidalgo County, Texas; McDowell County, West Virginia; East End, Bridgeport, Connecticut; and East Las Vegas, Nevada.**

Key Definitions

For the purposes of this study, the following terms mean:

Frontline Communities: Black, Indigenous, and People of Color, low- and middle-income (up to 200% of the Federal Poverty Level), and other disproportionately impacted communities who are experiencing climate change first and worst.

Coping: Having sufficient financial resources to pay for current costs associated with climate change, including rising energy costs.

Preparing: The capacity to invest in or adopt greenhouse gas reduction measures, including purchasing electric vehicles or energy-efficient appliances, investment in weatherization, etc., and to participate in a clean energy economy.

Responding: The community capacity to recover from climate events and disasters.





Key Findings

The study concludes that:

- These frontline communities are where they are today because of public policy choices made and actions taken in the past.
- Based on the indicators examined, none of these communities are adequately prepared to meet their day-to-day needs as they contend with climate change or to respond to a natural disaster, public health emergency, or economic crisis.
- Despite the difficult conditions they face, they all have community strengths, demonstrated adaptive capacity and resilience, and an innovative spirit when faced with adversity. However, in the absence of effective policy change to improve outcomes, increase resources, and prioritize their needs, community assets will be further tested by climate change, conditions will likely worsen, and these communities will risk being left out of a just transition.
- There are policies that could be adopted to improve community conditions, increase adaptive capacity and resilience, and ensure a just transition.
- We will know whether or not public policies are working to bring about climate justice and a just transition based on the direction of key indicators in frontline communities.

Data Domains and Indicators

The “pre-existing conditions” examined in this study are organized into three domains. These are Economic Conditions, Health Conditions, and Infrastructure Conditions. Indicators associated with each domain have been chosen based on their particular relevance to the ability to cope with, prepare for, and respond to climate change. Together, they indicate vulnerability across all domains. The ways in which indicators in these domains intersect suggest a perilous future for frontline communities in the absence of policies that result in measurable improvements in outcomes.

Across these frontline communities:

- High poverty levels are associated with a history of exploitation and divestment, insufficient income, lack of jobs and economic development, and exorbitant levels of household debt, often exacerbated by predatory practices. The lack of economic resources makes it exceedingly challenging for community members to pay for the rising costs of heating and cooling their homes in response to climate change and to find safety in climate disasters.
- Combined with little access to credit and insurance coverage, these communities face significant challenges in equitably participating in the transition to a clean energy economy, both in terms of household greenhouse gas reduction efforts and in securing green jobs, and in recouping losses after climate disasters. These conditions can lead to spiraling economic decline.

- Poor economic conditions exacerbate already poor health outcomes in these communities. Health conditions are likely to deteriorate further with advancing climate change.
- Inadequate and neglected infrastructure affects current health conditions, household expenses, and economic development opportunities, as well as the capacity to respond to climate disasters.

A Different Approach

Research examining the relationships between these domains – Economic Conditions, Health Conditions, and Infrastructure Conditions – and vulnerability to climate change is still emerging, but such studies are not new. Discussions related to climate risk frequently consider socioeconomic indicators, such as poverty level, education level, or disability, and health. Often, they include race. Researchers frequently acknowledge that socioeconomic and health conditions make communities more vulnerable to climate change, particularly climate-related disasters.

This study takes a different approach:

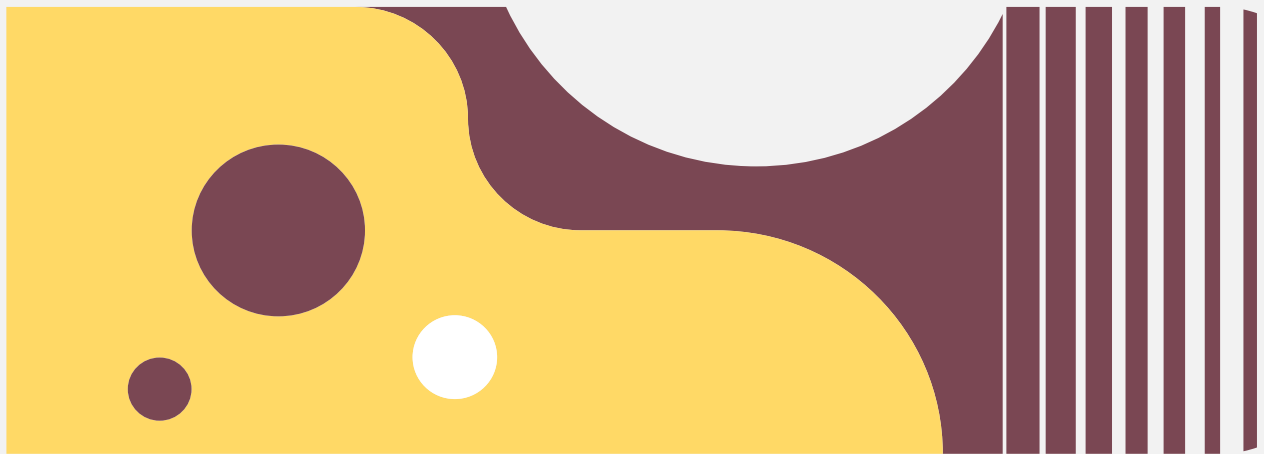
- It considers the continuum of responses and spans community efforts to contend with climate change. It goes beyond the ability of communities to recover in the event of a climate-related disaster. It takes a step back to consider the current-day capacity to respond to climate change. This includes the capacity to cope – for example, the presence or absence of resources available to pay for the increased heating and cooling costs associated with climate change. It also includes the degree to which communities are prepared and positioned to participate in the transition to a clean energy economy equitably.
- It seeks not only to identify those factors that indicate vulnerability but also to establish a causal relationship – these factors put these communities at greater risk.
- In exploring this causal relationship, it argues that the “pre-existing conditions” experienced by these communities are the direct consequence of enacted policies that have deprived these communities of resources and assets, environmentally degraded or undervalued their lands, or facilitated systemic racism. As a result, they face greater risk from climate change than higher-income, more privileged communities. Long histories of economic, political, and social exploitation have facilitated existing conditions.
- The incorporation of community perspectives and solutions on these topics throughout the paper not only grounds and validates the data collected but also recognizes the resilience and capacity of people and communities to determine and create effective and viable solutions to the climate crisis.





Conclusion

Frontline communities are experiencing greater effects of climate change in terms of impact and frequency, with significant impacts on community life. Given the exposure of these communities to risk of all kinds, these impacts are likely to increase in the future without effective policy solutions and implementation of these solutions. Nearly a third of the U.S. population – over 92 million people – lives in a low- or moderate-income community. To disregard so many frontline communities not only puts residents at considerable risk. It also threatens our ability to meet climate goals and perpetuates the wrongs that have put these communities in jeopardy. Prioritizing these communities, preserving the community assets that currently exist, building upon long histories of resilience, and enacting policies that demonstrably improve underlying conditions can ensure that communities like these thrive in a just transition.



Introduction

Black, Indigenous, and People of Color (BIPOC) and frontline communities bear the disproportionate burden of environmental and climate impacts. We know the communities that are at the greatest risk. We can identify factors that put them at risk. We are less successful in communicating causal relationships, proposing systemic, upstream policy solutions that act upon these causal relationships, and identifying ways to measure whether or not policy solutions result in improved outcomes.

Through a case study approach, this paper introduces a **Prioritizing Frontline Communities Framework**, which will be expanded upon over time, for considering and measuring the adaptive capacity and resilience of frontline communities as they confront climate change. It examines the “pre-existing” conditions in six frontline communities that are among the most vulnerable to and affected by climate change and considers the effects of these conditions on the local capacity to cope with, prepare for, and respond to ongoing climate-related challenges. The six communities are **Glacier County, Montana; Holmes County, Mississippi; Hidalgo County, Texas; McDowell County, West Virginia; East End, Bridgeport, Connecticut; and East Las Vegas, Nevada.**

To fully understand the context in which these “pre-existing conditions” came to be, the study begins with a brief look at the historical factors and policies that contributed to current conditions in these communities and existing climate threats. It then presents data and establishes a baseline related to what we propose are some of the causal factors that either enhance or limit adaptive capacity and resilience and determine whether or not communities like these can participate equitably in the transition to a clean energy economy. Going forward, the degree to which public policy results in measurable improvements related to these factors will be indicative of the degree to which climate justice and a just transition can be realized in frontline communities.

These are communities that are resilient by nature. The very experience of living in areas with high poverty rates requires resilience on a daily basis. As the brief histories of these communities make clear, adversity is not new to their members – nor are innovation and adaptation. Community members are finding ways to improve local conditions despite, in some cases, institutional neglect and opposition.

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Methodology

The Domains

The “pre-existing conditions” examined in this study are organized into three domains:

- Economic Conditions
- Health Conditions
- Infrastructure Conditions

Economic conditions are in many ways determinative of conditions in the other domains. For example, poor economic conditions are known to result in the degradation of community health. However, these domains also interact with one another. The poor overall health of a community can affect the vitality of the local economy. The presence or absence of infrastructure investments can make or break local job opportunities. Conversely, a weak local economy may make it less likely that infrastructure investments are ultimately made.

Taken together, these domains can tell us a great deal about the capacity of frontline communities to cope with, prepare for, and respond to climate change and participate equitably in the transition to a clean energy economy.

The Six Frontline Communities

The communities profiled were selected for their geographic diversity. They are a mix of rural and urban areas spread out across various regions of the country. Most of them are counties. However, looking at conditions at the county level does not always tell the full story, particularly in urban areas. Rising inequality results in pockets of wealth and poverty within the same county. Therefore, two zip codes in urban areas were selected. As a counterpoint to these counties, Marin County, California, which lies just north of San Francisco, is highlighted. Marin County is one of the wealthiest counties in the country¹.

In addition to geographic diversity, the communities profiled were selected on the basis of several characteristics they share:

- **They are very low-income, with high levels of poverty.** In each of these communities, 25% or more of their population lived in poverty in 2020, as defined by the Federal Poverty Guidelines.² The conditions in which these communities live are among the most challenging in the country. They were selected based on the premise that improved outcomes in these communities will reflect positive policy change benefiting frontline communities generally.

¹ In most cases, data are presented in alignment with the profiled community's boundaries - either at the county or the zip code level. Data that are not available at the zip code level are presented at the county level. Because East End, Bridgeport, Connecticut and East Las Vegas, Nevada are both located in wealthier areas, this means that strengths in the data are likely overstated and weaknesses are understated. In cases where local data are not available, more general data drawn from state or national sources are presented. These areas present opportunities for future work, either to refine the indicator relied upon in this study or to work to develop consistent data at lower levels of aggregation.



- **They all have majority Black, Indigenous, and People of Color (BIPOC) populations,** except McDowell County, West Virginia.
- **They all have significant histories of resource extraction, labor exploitation, and/or financial speculation.** As described below, their current conditions are the result of past social, political, and economic policies and exploitative practices that have left these communities behind.
- Despite these histories, these **communities have demonstrated resolve, resilience, and innovation,** despite continuing trends of neglect at its best and oppression at its worst.

Although these communities are among the most vulnerable to climate change, local conditions are in many ways representative of the challenges many frontline communities face. Communities like these are found in all regions of the country, but are most visible in the South, the Southwest, and Appalachia (Figure 1). Although majority white communities are included among the communities most vulnerable to climate change, most of these areas are either majority BIPOC or have large BIPOC populations. These communities are now regularly experiencing the effects of climate change, including increasing energy costs, poor air quality, and devastation from climate events such as floods, hurricanes, tornadoes, fire, drought, and, most recently, severe winter weather. Taken together, they exhibit the effects of underinvestment and disinvestment, systemic racism, and generational poverty and the particular risks of a changing climate to frontline communities.

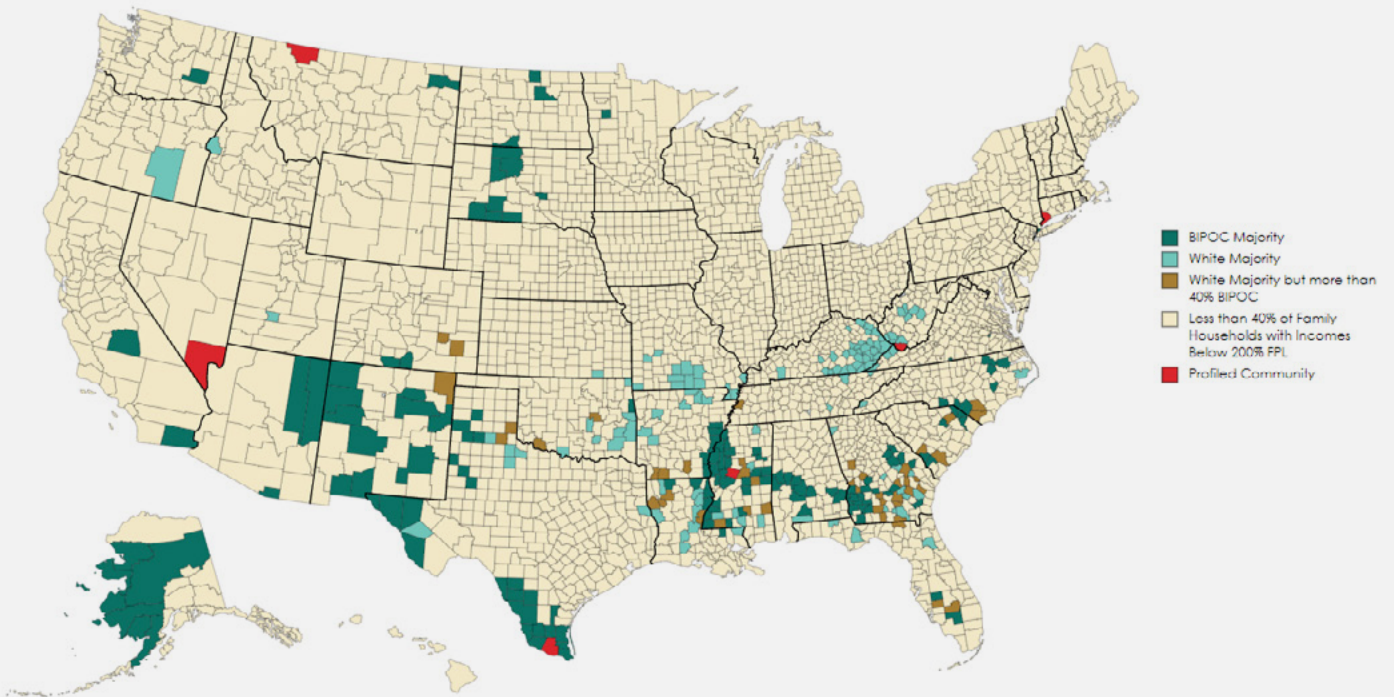
The voices of community members and representatives are highlighted throughout the report. Interviews were conducted with representatives of each of the communities profiled.³ In some cases, residents spoke about the assets, challenges, and innovative practices in their communities. In others, those who worked closely in the profiled communities shared their understanding of local conditions. Those interviewed present compelling evidence of the real-life conditions, community strengths and resilience, and what will be needed to improve community outcomes to a degree where their safety in facing climate change can be improved and where they have the capacity to participate equitably in a clean energy future.

² U.S. Census Bureau, "Percentage of People in Poverty by County: 2015-2019." Four of these communities are also characterized as "persistent poverty counties" by the U.S. Department of Agriculture, defined as counties with a poverty rate of 20% or higher for the period between 1990 and 2010. (U.S. Department of Agriculture, "Persistent Poverty Counties, 2015.") Throughout this study, data are presented for 2020 whenever possible to align with the selection of 2020 poverty rate data.

³ A full list of participating organizations can be found in the Acknowledgments.

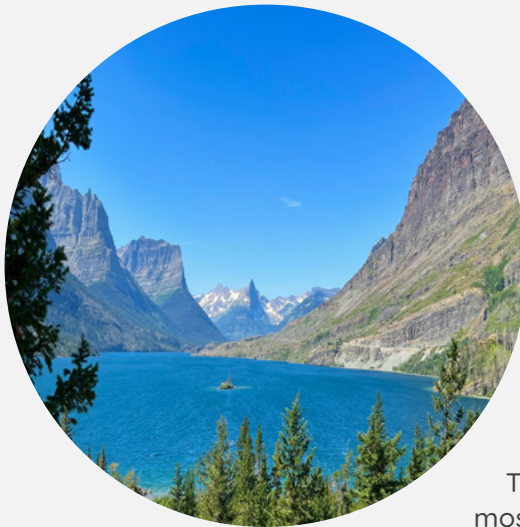


Figure 1: U.S. Counties Where the Percentage of Family Households with Incomes Below 200% of the Federal Poverty Level Exceeds 40%⁴



⁴ Prepared by Just Solutions, based on U.S. Census Bureau, American Community Survey, Table B17026, "Ratio of Income to Poverty Level of Families in the Past 12 Months," 2021 ACS 5-Year Estimates, and U.S. Census Bureau Quick Facts.

A Brief History of the Frontline Communities



Glacier County, Montana

Glacier County, a rural county located in the northwestern part of the state, is home to Glacier National Park and the Blackfeet Nation. Approximately 67% of residents are Indigenous. Blackfeet Nation covers about 80% of Glacier County.

The lands of the Blackfeet people once included most of the current state of Montana. The 1855 Blackfeet Treaty limited their lands to most of eastern Montana. Over time, the size of the Blackfeet Territory shrank further to now include a portion of Glacier County. The combination of territorial losses that upended the traditional economy, disease brought by colonizers, and the decline in the bison population impoverished the Blackfeet people. Through a variety of policies and incentives, non-Indigenous people increasingly settled in Blackfeet territory. Today, a significant portion of Blackfeet lands are owned by non-Indigenous people.

Over many decades, various financial interests have claimed a stake in the territorial lands of the Blackfeet people. The Great Northern Railroad cut through the area in the late 1880s. For a short time, copper mining, which became a leading industry in Montana, attracted interest. Farming and ranching have become established parts of the local economy. Beginning in the early 1900s, oil production came to the area. By the 1930s, Glacier County was Montana's leading oil field.⁵

In recent years, the county has experienced drought conditions, flooding, higher winds, and increased wildfire risk. In 2019, extensive flooding led to a declaration of a flooding disaster on the lands of the Blackfeet Nation. Drought conditions are threatening fish habitats as lakes and ponds dry up, elk and deer are becoming more disease prone, and local plant life is changing. Limited water availability is also affecting the growing season in Glacier County. While Glacier County and central Montana are windy places, the annual number of days of high wind has increased in recent years.⁶

⁵ Justin B. Lee, "Fractionated heirship: A Blackfeet case study," 2002; "Glacier County History"; University of Montana, "The Blackfeet Nation Has Long, Epic History."

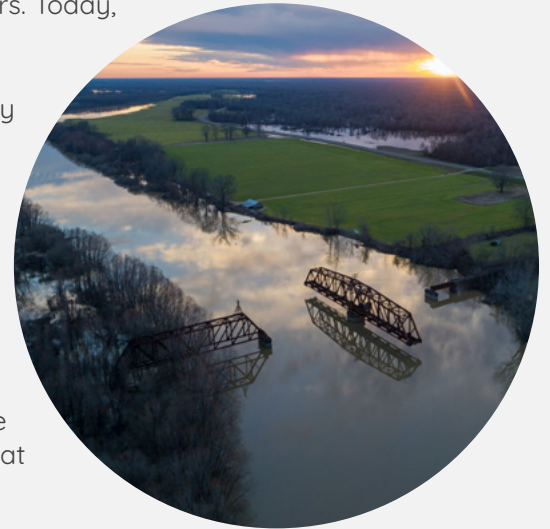
⁶ Blackfeet Nation, "Blackfeet Climate Change Adaptation Plan," April 2018; Risk Factor; KRTV, "Blackfeet Nation declares flooding disaster on reservation," May 26, 2019; KRTV, "Are wind speeds increasing across central Montana?," February 10, 2022.



Holmes County, Mississippi

Located north of Jackson, Holmes County is a rural county bordered by the Yazoo and Big Black Rivers. Today, the population is about 84% Black.

In the antebellum South, Holmes County was a leading cotton-producing county, with an economy built upon slave labor. At the time, the riverbanks were prime agricultural lands, with rich soil and easy transportation for commodities. The Black population of Holmes County grew rapidly in the mid-1800s as the cotton economy boomed. In 1860, the Black population of Holmes County was twice the size of the white population. The total population at that time was twice as large as it is today.



After the Civil War, formerly enslaved people took up farming in the “bottom lands” behind the riverfront plantations. For a time, they were able to buy their lands, but with the adoption of “Black codes” that imposed social and economic controls on the Black population and disenfranchisement that came with the end of Reconstruction, Black landowners lost access to credit, were forced to sell their lands, and increasingly turned to sharecropping.

New Deal programs returned some degree of prosperity to Holmes County’s Black population. Some were able to gain access to resources to become landowners and continue to farm. By 1960, Black farmers owned about half of the land in Holmes County.

The post-World War II era, however, has been a period of continual population loss. The “Great Migration” drew Black families to manufacturing jobs in the North. White flight from local public schools following the Brown vs. Board of Education decision in 1954 – and the funding losses that accompanied that – decimated public schools throughout the South. Agribusiness increasingly took the place of independent farms. By 1980, agricultural employment comprised less than 8% of the local economy. Some manufacturing jobs in furniture and apparel have come to Holmes County, and in recent years, the oil and gas industry has established a foothold in the region.⁷

The effects of hurricanes and tornadoes are significant threats in Holmes County. While Holmes County is inland from the Gulf of Mexico, it is frequently in the path of hurricanes and tropical storms that make landfall along the Gulf Coast, leading to repeated flooding events in recent years. Tornadoes, including 27 that swept through the state in 2022, have resulted in power outages and boil water notices from damaged infrastructure.⁸

⁷ Mississippi Encyclopedia, “Holmes County”; Mississippi State University Extension, “County Economic Profile: Holmes County, MS.”

⁸ The Weather Channel, “Cleanup Begins After Tornado Outbreak Across the South,” March 23, 2022; Clarion Ledger, “Mississippi mostly spared as storms move through South, spawning tornadoes in New Orleans,” March 23, 2022; American Communities Project, “Mapping Climate Risks by County and Community,” February 17, 2021; WLBT, “Holmes County residents face flash flooding, some forced from their homes,” June 10, 2021; Mississippi Today, “Flooding in Mississippi: The only thing that we are looking forward to is just survival,” July 17, 2019; Mississippi Today, “Living Day to Day: Surrounded by water and ignored by powerful officials, Tchula and its people fight for survival,” May 15, 2019; Mississippi Today, “Living Day to Day: Surrounded by water and ignored by powerful officials, Tchula and its people fight for survival,” May 15, 2019; “Power outages climb as storm rips across Central Mississippi,” March 22, 2022; “7 tornadoes confirmed in Mississippi after Tuesday storms,” March 23, 2022; “Town of Goodman under boil water notice; MEMA opens shelter in Tchula,” March 24, 2022.

Hidalgo County, Texas

Home to the city of McAllen, Hidalgo County lies in the Rio Grande River Valley. It is one of the fastest-growing cities in the country.

For much of its early history, the story of Hidalgo County was one of political unrest, corruption, and machine party politics. In the early 20th century, the building of railroads and promotion by local land developers prompted white settlers to move to the area. Hidalgo County's agricultural sector boomed, with a reliance on cotton, sugarcane, citrus, and corn. In the 1930s, the first oil wells were drilled. Oil and gas became a prominent part of the local economy.



With a growing economy and increased white settlement in the area, Hidalgo County became quite segregated, beginning in the 1920s. Latino residents faced disenfranchisement and intimidation. With residential segregation came school segregation. Local schools with large Latino student populations were under-funded with less qualified teachers and fewer resources.

In the latter part of the 20th century, Hidalgo County became a growing industrial center. Leading industries included agribusiness, oil and gas, and food processing. The Latino population continued to grow, including migrant farmworkers. Today, more than 90% of residents are Latino, and the community has a large immigrant population.⁹

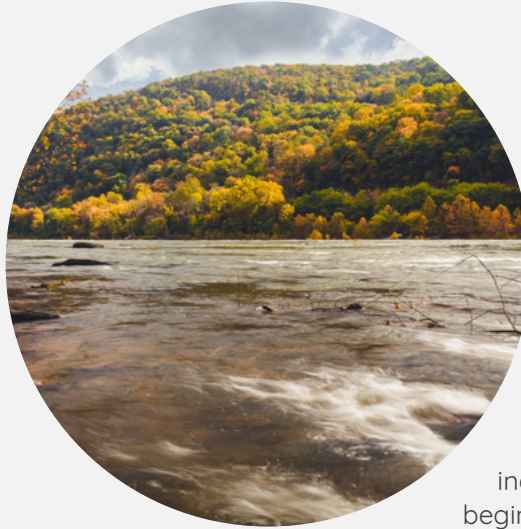
Six times in the last six years, Hidalgo County has been declared a federal disaster area eligible for Federal Emergency Management Agency (FEMA) funding due to flooding. Hidalgo County received 34 inches of rain in two days in 2018. At that time, the area was declared ineligible for FEMA assistance "due to a reinterpretation of their rules." Children have been displaced from their local schools, and residents have been forced to evacuate. In just the last year, local officials have declared both a drought and a wildfire state of disaster. Farmers in Hidalgo County see agricultural impacts of heat and drought on their crops and harvest, worsening already precarious economic conditions in their community. Hidalgo County also contends with high tornado and hurricane risk.¹⁰



⁹ Texas State Historical Association, "Hidalgo County."

¹⁰ Rio Grande Guardian, "Fuentes: We need \$325 million from Congress for Raymondville Drain project," June 19, 2022; KRGV.com, "Hidalgo County declares local state of disaster due to wildfires," April 25, 2022; KRGV.com, "Citing 'exceptional' drought conditions, Hidalgo County judge signs disaster declaration," August 11, 2022; Inside Climate News, "Drifting Toward Disaster: the (Second) Rio Grande," September 5, 2022; ValleyCentral.com, "Hidalgo County experienced near hurricane-force winds during May 12 storm," May 13, 2021; KRGV.com, "Tornado warning issued for parts of Hidalgo County, Cameron County," September 5, 2020.





McDowell County, West Virginia

McDowell County is an old coal mining town located in rural southwestern West Virginia. It is almost 90% white, but it has one of the largest Black communities in the state. Keystone, located in McDowell County, is one of the few majority Black towns in the state.

At one time, McDowell County was the world's largest coal producer. The coal industry began a period of explosive growth beginning in the 1880s, bringing with it population growth and infrastructure development as the railroads laid tracks to transport the coal. The coal boom also sparked investment and land purchases by out-of-state financial interests. Mining towns came to rely on the mine owners for much of the local infrastructure, including sewage and water.

By 1920, the population had grown to 68,000 residents. The population peaked around 1950 at about 100,000. Black workers and European immigrants found jobs in the coal mines, making McDowell County one of the most diverse populations in West Virginia.

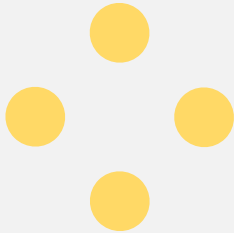
By 1960, the population had shrunk by 28%, largely due to increasing mechanization in the coal industry. The decline of the U.S. steel industry further reduced the demand for coal, leading to more layoffs. As jobs disappeared, much of the infrastructure that local residents had relied upon became degraded and was abandoned. On top of the economic decline, the county also experienced devastating floods in the early 2000s that led many to move out of the area.

The McDowell County Commission points to recent job growth that has come from the opening of a minimum- to medium-security correctional facility in 2005, a new Walmart store, and the construction of a new federal prison sited in the county.¹¹

McDowell County is at high risk of flooding. Rain events are intensifying. When it rains, residents not only contend with rising stream levels but also landslides. Logging and mining practices that leave hillsides bare means that residents can become caught between rising water levels and slumping hillsides.¹²

¹¹ McDowell County Commission, "History"; McDowell County Commission, "McDowell County Comprehensive Plan."

¹² Climate Mapping for Resilience and Adaptation; McDowell County Comprehensive Plan, 2021.



East End, Bridgeport, Connecticut

The East End lies along Long Island Sound north of New York City. Today, the East End has large Latino and Black communities, together comprising over 95% of the population. While Bridgeport has one of the highest poverty levels in the country, Fairfield County, where Bridgeport is located, is one of the country's wealthiest counties.



Bridgeport has a long history as an industrial and manufacturing center. It has been the site of major sewing machine factories, a munitions factory in World War I, the Winchester rifle manufacturers, and numerous other light and heavy industries. According to one history of the city, in the mid-1800s, the East End was estimated to have about a quarter of the city's population and the vast majority of its manufacturing activity.

The neighborhood was largely the creation of P.T. Barnum (of the Barnum & Bailey Circus fame) who served for a time as mayor of Bridgeport. With another investor, he planned and financed the initial settlement of the East End. Anchor manufacturing ventures were recruited to the neighborhood soon after its creation. The stately homes of the town's industrialists were surrounded by tenements, row houses, and other worker housing.

In the post-World War II era, the collapse of manufacturing and suburbanization, driven in part by the G.I. Bill, which provided mortgage assistance to white veterans but denied benefits to Black veterans, led to the decline of the East End neighborhood. Homes of the former industrialists were divided up into rental properties. Redlining practices were a notable feature of post-World War II Bridgeport. While white residents moved out of the city to the suburbs, People of Color increasingly lived as renters in the East End and other segregated parts of the city. In recent years, the Latino population of Bridgeport has grown rapidly.¹³

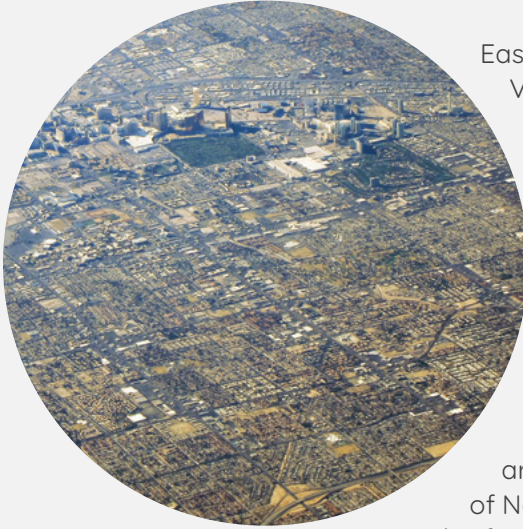
The East End is contending with the threat of sea level rise, which has risen about 5 inches since 1964. The rise in sea levels is resulting in increasing levels of beach loss, erosion, and saltwater exposure to buildings and infrastructure. Beach loss puts the area at greater risk that storm surges from hurricanes could push deeper into the community and affect broader segments of the population.

Along with sea level rise, the East End has been in the path of several hurricanes, tropical storms, "bomb cyclones," and "rain bombs" in recent years. As recently as the summer of 2022, Connecticut was hit by the same flash flooding that inundated Rhode Island. The East End is rated at high risk from hurricanes and tornadoes. Fairfield County, where the East End is located, has experienced nearly as many tornadoes in the past 20 years as had been seen in the previous 50 years. At the same time, drought conditions are reaching into the northern tier of the country. In 2022, Governor Ned Lamont announced that drought conditions were affecting Connecticut.¹⁴

¹³ Bridgeport Library, "Unhidden Public Policies: Could Historic Redlining be the Reason Bridgeport's Neighborhoods Remain Racially Divided?"; New England Historical Society, "Not Just From the South; The Great Black Migration to New England," Living Places, "East Bridgeport Historical District."



East Las Vegas, Las Vegas, Nevada



East Las Vegas includes the casino district of Downtown Las Vegas. Las Vegas is one of the fastest-growing cities in the U.S. The East Las Vegas neighborhood is nearly 60% Latino. The community has large concentrations of residents of Mexican, Salvadoran, and Cuban heritage.

Unlike the other communities profiled, the city of Las Vegas is largely a product of the 20th century. Like several other communities, the arrival of a railroad served as the impetus for expanded settlement. With the jobs created by the construction of Hoover Dam during the Great Depression, more settlers were drawn to the area. At the same time, gambling was legalized in the state of Nevada, giving rise to the casino and hospitality industries.

The foundations of the Southern Nevada economy have been tourism, real estate, and gambling. The “boom” cycle fueled growth – and real estate prices – in the area through much of the 20th century until the economic collapse of 2007-2008.

The neighborhood of East Las Vegas has had a large Latino population from the earliest days of settlement. The Latino population began to grow following the Mexican American War in the 1840s, with workers drawn to the ranching and mining industries. Since that time, immigrants have been drawn to the area by what are described as “push” and “pull” factors. Political unrest in Mexico and Central America have served as “push” factors. An oil crisis in the 1980s and the effects of the North American Free Trade Agreement (NAFTA) with Canada and the U.S. led immigrants to seek new opportunities in the U.S.

“Pull” factors have largely consisted of job opportunities and networks of family and friends. The labor force serving as the foundation of Las Vegas’s dominant hospitality and casino industry is estimated to be about 90% Latino. Service-related jobs have also increased with economic growth and suburbanization, with employment in the construction, household, and landscaping service sectors.

[14SeaLevelRise.org](#), “Connecticut’s Sea Level Is Rising”; [Fox61](#), “Flash flooding from heavy downpours possible as storms roll through Connecticut,” September 5, 2022; [The Providence Journal](#), “Major flooding closes streets and collapses building in Providence: Governor warns drivers to stay off roads,” September 5, 2022; [Connecticut Sea Grant and UConn Extension](#), “Climate Change and Connecticut: What is happening and what does it mean for us?”; [National Weather Service](#), “Southern Connecticut Tornado Statistics”; “Governor Lamont Declares All Eight Counties Moved to Stage Two Drought Conditions As Precipitation is Currently Below Normal,” July 19, 2022; [Connecticut Sea Grant and UConn Extension](#), “Climate Change and Connecticut: What is happening and what does it mean for us?”

Community resources and cultural ties that have long been established in the neighborhood serve as another significant “pull” factor. The predominantly Spanish-speaking neighborhood is home to its residents. New arrivals to the area are drawn to the familiarity of the neighborhood’s language, social connections, resources, and businesses.¹⁵

Heat, drought, and the effects of wildfires on air quality are challenges affecting East Las Vegas. The neighborhood reportedly has the worst air quality in Las Vegas, the result of a lack of trees and greenery and high levels of vehicle emissions. Asthma rates among adults are nearly double that of the surrounding area.¹⁶ Smoke from wildfires in California worsens East Las Vegas’s already poor air quality. The neighborhood has also experienced severe flooding in recent years. Monsoonal rains in 2022 left some residents without power for a week and some homes uninhabitable.¹⁷

¹⁵ Nathalie Martinez, “The ‘East Side’ of Las Vegas: A Latinx Historical Framework,” *Spectra Undergraduate Research Journal*, 1:2 (2021).

¹⁶ *Las Vegas Review Journal*, “This Vegas neighborhood is known for poor air quality. New sensors may help,” August 4, 2022; *The Nevada Independent*, “New pollution-tracking grant could pave way for cleaner air in East Las Vegas,” July 28, 2022; *Nevada Public Radio*, “EPA grant could help clean up polluted air in east Las Vegas,” August 15, 2022.

¹⁷ *Fox5 Vegas*, “Some residents at apartment complex in east Las Vegas still displaced after last week’s storm,” August 5, 2022; *Fox5 Vegas*, “East Las Vegas apartment building deemed unlivable after serious water damage,” August 15, 2022.





The Domains

With the history and current climate conditions of these communities in mind, the sections that follow turn to the data. Data relating to the three domains – Economic Conditions, Health Conditions, and Infrastructure Conditions – are presented for each of the profiled communities. The data represent a snapshot of current conditions rather than a comprehensive assessment.

Indicators associated with each domain were chosen based on their particular relevance to the ability to cope with, prepare for, and respond to climate change. Together, they indicate vulnerability across all domains, as described below. The ways in which indicators in these domains intersect suggests a perilous future for frontline communities in the absence of policies that result in measurable improvements in outcomes.

- High poverty levels are associated with a history of exploitation and divestment, insufficient income, lack of jobs and economic development, and exorbitant levels of household debt, often exacerbated by predatory practices. The lack of economic resources makes it exceedingly challenging for community members to pay for the rising costs of heating and cooling their homes in response to climate change and to find safety in climate disasters.
- Combined with little access to credit and insurance coverage, these communities face significant challenges in equitably participating in the transition to a clean energy economy, both in terms of household greenhouse gas reduction efforts and in securing green jobs, and in recouping losses after climate disasters. These conditions can lead to spiraling economic decline.
- Poor economic conditions exacerbate already poor health outcomes in these communities. Health conditions are likely to deteriorate further with advancing climate change.
- Inadequate and neglected infrastructure affects current health conditions, household expenses, and economic development opportunities, as well as the capacity to respond to climate disasters.

Each domain includes an introduction to the domain, a list of indicators examined, and an examination of Community Responses to issues related to the domain, as well as a summation of the implications of the indicators. Lastly, we provide examples of policy solutions that might address community needs.

Economic Conditions

The Economic Conditions indicators examined below include:

1. Rising poverty and insufficient income
2. Rates of home ownership and renters
3. High housing and energy cost burdens
4. Limited jobs, education, and language access
5. Access barriers to transportation
6. Too little credit and too much debt
7. Access barriers to insurance coverage

As described above, economic conditions are to a significant degree foundational to strength in the other domains. An estimated 50% of county-level differences in health outcomes can be explained by the “social determinants of health” in communities.¹⁸ As we have seen in reviewing the histories of the profiled communities, the levels and types of public and private investment in local infrastructure over time have affected economic vitality, growth, and development. A community’s ability to recover from climate disasters and events is directly related to all of the above.

All communities will be challenged and face hardship as a result of climate change. But those communities that are economically healthy with monetary resources at their disposal are better positioned to cope with, prepare for, and respond to climate change and to fully participate in the transition to a clean energy future. Communities without such resources, such as those profiled here, face multiple, compounding challenges and are often overlooked in discussions about clean energy economic development. Future policymaking must result in measurable change in the indicators presented below in order to ensure a just transition.

Economic Indicators

1. Rising Poverty and Insufficient Income

In 2021, more than 92.5 million Americans, or 28.6% of Americans, had incomes below 200% of the Federal Poverty Level.¹⁹ The states with the highest rates of such households, approaching 40%, were concentrated in the South and Southwest. In 2020, over 37 million Americans, or 11.4% of the population, had household incomes below 100% of the Federal Poverty Level.²⁰ In 2019, there were over 200 counties in the U.S. where poverty was so entrenched that 25% of the county’s population or more lived in poverty.²¹ That is about 16% of all the counties (or county equivalents) in the U.S., with a total population of about 7.5 million people.

¹⁸ Office of Health Policy, U.S. Department of Health and Human Services, “Addressing Social Determinants of Health: Examples of Successful Evidence-Based Strategies and Current Federal Efforts,” April 1, 2022.

¹⁹ Kaiser Family Foundation, State Health Facts, “Distribution of the Total Population by Federal Poverty Level (above and below 200% FPL),” 2021.

²⁰ U.S. Census Bureau, “Income and Poverty in the United States: 2020.”

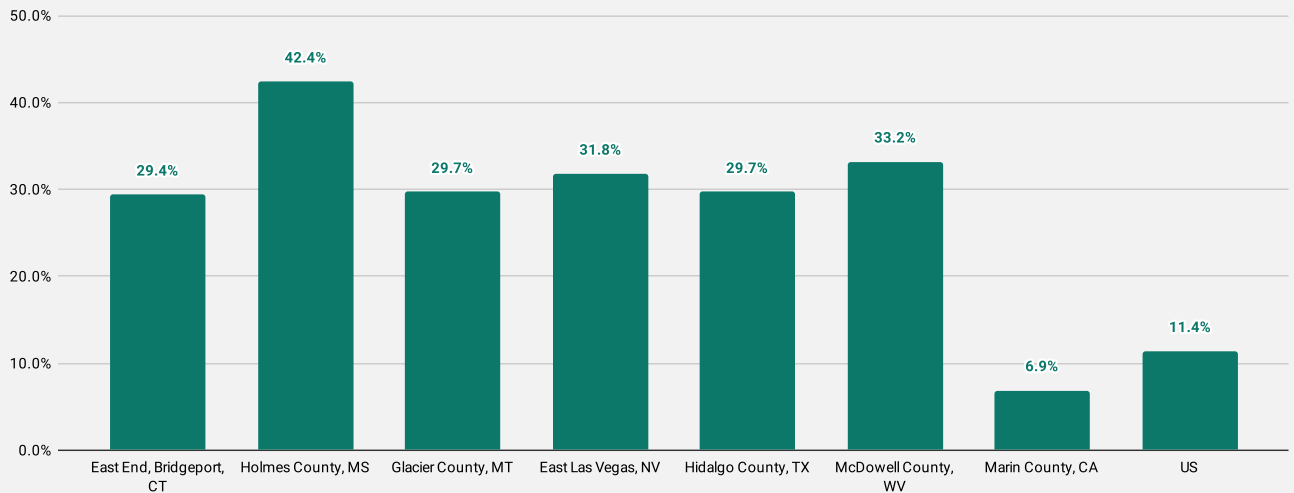
²¹ U.S. Census Bureau, “2014-2018 Poverty Rate in the United States by County.” This includes the “parishes” of Louisiana.

To put these rates in context, the Federal Poverty Level in 2020 for a family of four was a gross annual income of \$26,200. For a two-person household, it was \$17,240.²² It should be noted that the Federal Poverty Guidelines set national income thresholds that define the poverty level. They do not reflect cost of living, meaning that those living in communities with a high cost of living, such as California or New York, face even greater hardship. The Federal Poverty Guidelines are also woefully outdated as a measure of adequate income. The guidelines were developed in the early 1960s, calculated as three times a minimum food budget. As expenses such as health care, child care, and housing have increased at a rate far greater than the rate of inflation for food, the guidelines grossly understate adequate income levels.

"You already had folks living in poverty prior to COVID. And then that is compounded through all the economic barriers that COVID created, and now you have a deeper hole for folks to try to emerge out of."

Dr. Monette Ferguson, Alliance for Community Empowerment, Bridgeport, Connecticut

Figure 2: Poverty Rate, 2020²³



Making ends meet is a challenge for many in the profiled communities. Often, ends do not meet. Maybe family members go hungry one or more days a week. Prescriptions are not filled or needed medical care is postponed or skipped. The rent payment is late or utility bills go unpaid.

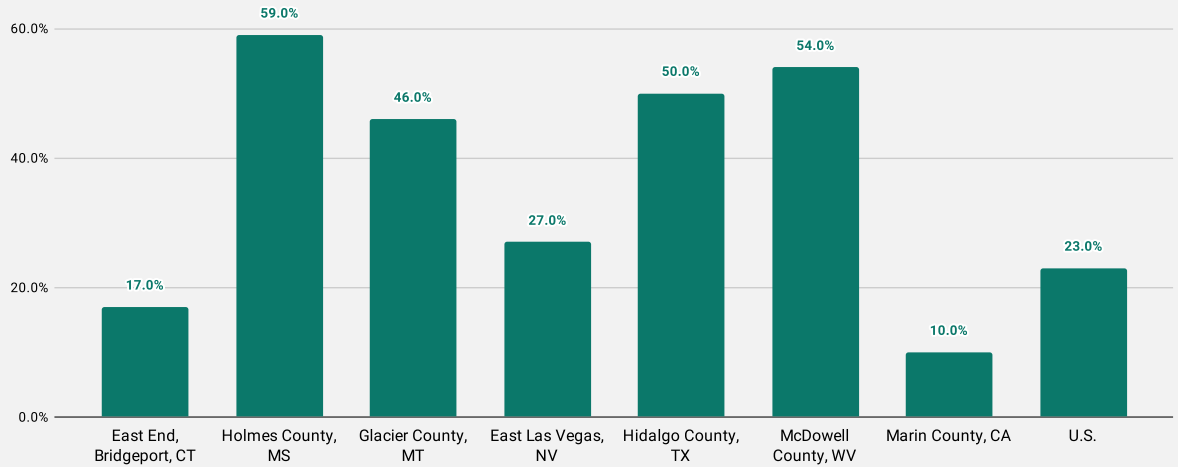
²² U.S. Department of Health and Human Services, [2020 Poverty Guidelines](#).

²³ 2016-2020 American Community Survey 5-Year Data Profile

²⁴ U.S. Census Bureau, American Community Survey, Table B17026, "Ratio of Income to Poverty Level of Families in the Past 12 Months." Data for East End, Bridgeport, CT and East Las Vegas, NV reflect rates for their respective counties, Fairfield County, CT and Clark County, NV. As these counties are characterized by significant levels of inequality, the rates of family households living with incomes below 200% of the Federal Poverty level in East End, Bridgeport and East Las Vegas are likely to be significantly higher than presented here.

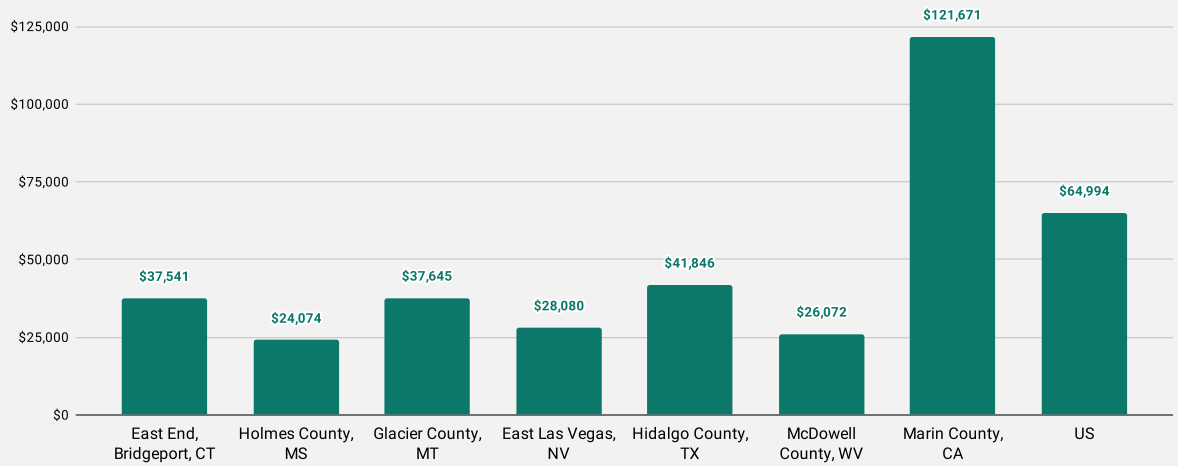


Figure 3: Percentage of Family Households with Incomes Below 200% of the Federal Poverty Level, 2021²⁴



Median household income is also significantly lower than the national median.²⁵

Figure 4: Median Household Income, 2020



Residents of the profiled communities are already living at a level far below what would be considered a “modest yet adequate standard of living,” as estimated by the Economic Policy Institute.²⁶ Paying for day-to-day expenses – housing, food, child care, transportation, health care, taxes, and other necessities – is already beyond reach.

²⁵ 2016-2020 American Community Survey 5-Year Data Profile. The “median” is the point at which half of the community has an income higher than the median, and the other half has a lower income than the median.

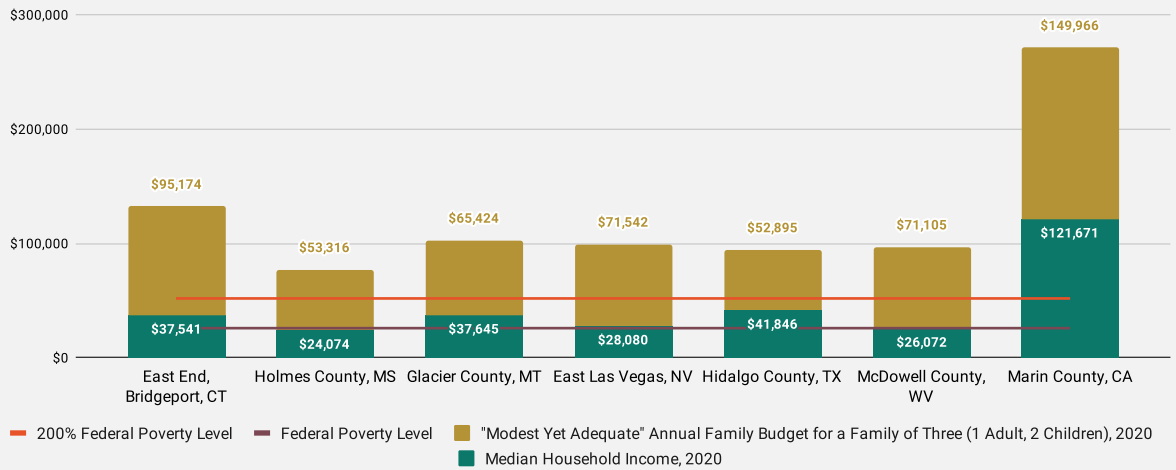
²⁶ Economic Policy Institute, Family Budget Calculator. East End, Bridgeport, CT and East Las Vegas, NV “modest but adequate” budget estimates reflect the Bridgeport and Las Vegas-Henderson-Paradise metropolitan areas. The difference between median household income and a “modest yet adequate” budget are likely understated in these communities. Median household size in these communities ranged from 2.24 to 3.49 in 2020. (2016-2020 American Community Survey 5-Year Data Profile) For this analysis of a “modest yet adequate standard of living”, a household size of three – one adult and two children – was, therefore, selected.



"After the pandemic, many families struggled. Many have no house, food, or health insurance, and lack healthcare access. So when they lose their job, or their car breaks down, then it just spirals downward for their families."

Jaime Longoria, Hidalgo County Community Service Agency

Figure 5: Median Income and Federal Poverty Level Compared to a "Modest Yet Adequate Income," 2020



All of these challenges are considerably greater for female-headed households. The percentage of female-headed households in these communities exceeds the national average.²⁷ Based on 2019 data, female-headed households with children were more than six times as likely to live in poverty as married couples with children (31% vs. 5%). About one-third of Latino and Black families headed by an unmarried mother lived in poverty, while 43% of Indigenous female-headed families lived in poverty. About 60% of poor children lived in a female-headed household.²⁸

Being a female head of household is not a risk factor in and of itself. However, in an environment where women continue to earn less than men doing comparable work, child care costs can present considerable barriers to employment, and women face other factors impeding their equitable opportunities to provide for their families, it has become one.



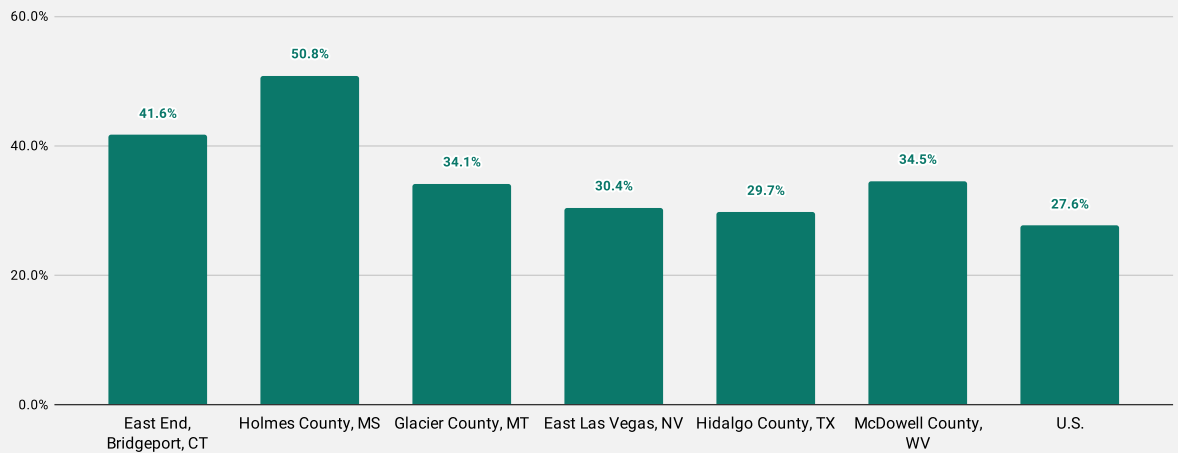
²⁷ 2016-2020 American Community Survey 5-Year Data Profile.

²⁸ National Women's Law Center, "National Snapshot: Poverty among Women & Families, 2020."

"I was talking to a young lady who is a single mom, and I asked her about her skills. She's a cosmetologist. And she says, 'I'm a single mom with a two-year-old. Everybody thinks it's as easy as putting my two-year-old in childcare, walking away and going to get a job, and getting out of poverty. It's not that easy. I struggled to find a safe place for my two-year-old, and I struggled to make sure that they're being cared for and make sure I have enough money to pay for childcare.'"

Jaime Longoria, Hidalgo County Community Service Agency

Figure 6: Percentage of Female-Headed Households, 2020



2. Rates of Renters and Home Ownership

In urban areas, residents of the profiled communities are more likely to be renters than homeowners. It is well-documented that renters are more likely to be BIPOC, to have lower incomes, and struggle to meet basic needs.²⁹ Even in the rural communities profiled, the percentage of households who are renters approximates or exceeds the national average.³⁰

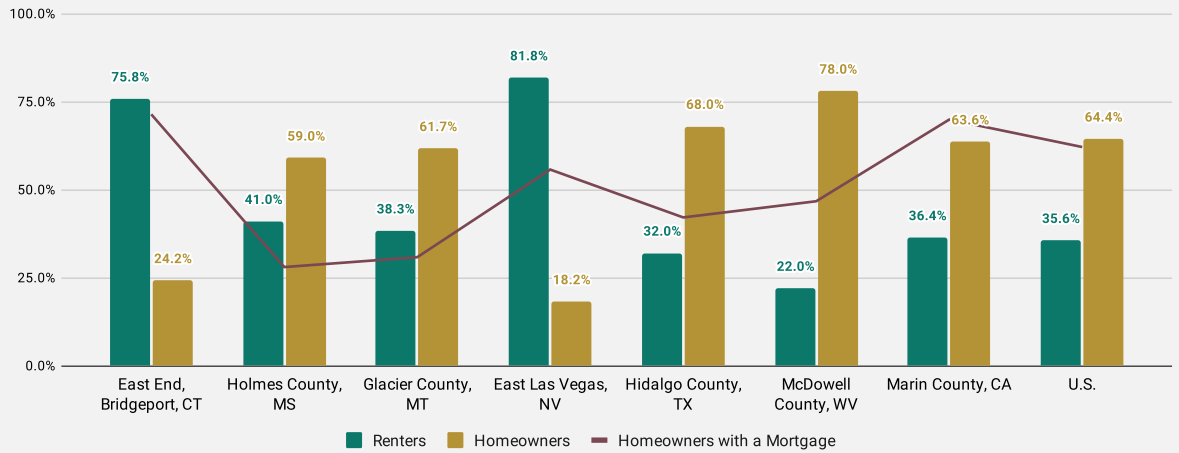
In the U.S., home ownership has served as a primary means of wealth building. Renter status is another instance of a characteristic that is not itself a risk factor, but in the current policy context, it has become one. Policy adaptations that put renters on a level playing field with homeowners would mitigate the current risk factors associated with renting.³¹

²⁹ Urban Institute, "Renters are more likely than homeowners to struggle with paying for basic needs," November 2018.; Joint Center for Housing Studies of Harvard University, "America's Rental Housing 2022."

³⁰ 2016-2020 American Community Survey 5-Year Data Profile.

³¹ For a discussion of some of the challenges renters face, see Just Solutions, "Energy Burden and the Clean Energy Transition: Challenges and just solutions from energy assistance practitioners and advocates from around the country," and Just Solutions, "Capture renters, single family homes, and mobile homes."

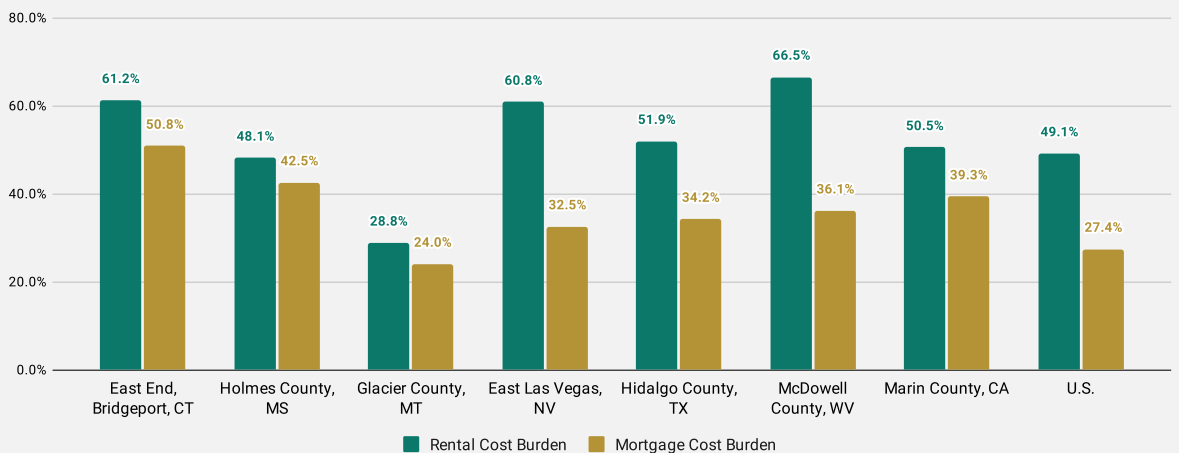
Figure 7: Percentages of Renters, Homeowners, and Homeowners with a Mortgage, 2020



3. High Housing and Energy Cost Burdens

A housing cost burden threshold of 30% of household income, including rent or mortgage payments and utilities, is considered affordable by policymakers. In most of these communities, more than half of all renters faced a housing cost burden greater than 30% of their income in 2020. The housing cost burden for homeowners with a mortgage ranged from about one-third to one-half.³² Even with higher rates of homeownership in rural areas, those who rent in rural areas tend to be highly cost burdened.³³

Figure 8: Percent of Households with a Housing Cost Burden Greater Than 30%, 2020



³² 2016-2020 American Community Survey 5-Year Data Profile.

³³ Joint Center for Housing Studies of Harvard University, "Are Renters and Homeowners in Rural Areas Cost-Burdened?", August 2016.

"Where there was once one family in one household, now there are two or three living in the same house. My neighbors have seen like a 20% increase in their rent or even 30%. And for someone that is making the minimum wage or barely making ends meet, that's a huge cost to them."

Cynthia Moore, Nevada Environmental Justice Coalition

As might be expected, these communities also already face greater than average energy burdens.³⁴ Policymakers consider an energy burden of up to 6% to be affordable.³⁵ The energy affordability gap is the difference between actual energy costs and energy costs that are considered affordable at the 6% threshold. While the average energy burden for these communities as a whole range between 4% and 9%, the affordability gap is considerably higher for those living in poverty or in "extreme poverty," which is defined as 50% of the Federal Poverty Level. Of course, as energy becomes less affordable, housing cost burdens increase. Similarly, as housing costs increase, the 6% affordability threshold becomes less affordable in the absence of increases in household income. Even in wealthy communities such as Marin County, those who are living in poverty have an energy affordability gap similar to these other communities.³⁶

It should be noted that low-income households have been shown to consume less energy than others. A study of energy expenditures in 2017 found that households with incomes below 150% of the Federal Poverty Level had energy expenditures that averaged about 15% less than that of all households.³⁷ Because of lower household income, however, they pay a larger percentage of their income – in other words, have a higher energy burden – for the energy they use. Energy assistance programs offer some help, but they often have eligibility requirements, such as being current on payments, which residents may or may not be able to meet.

One recent estimate indicates that 20 million Americans are behind on their utility payments, threatening a "tsunami of shutoffs." This is the result of rising energy prices combined with episodes of extreme heat or cold. According to the National Energy Assistance Directors' Association, winter home heating costs in 2022-23 were expected to increase more than 17% from the previous year, from \$1,025 to \$1,202.

(Bloomberg, "A 'Tsunami of Shutoffs': 20 Million US Homes Are Behind on Energy Bills," August 23, 2022; National Energy Assistance Directors' Association, "Home Heating Costs Reach Highest Level in More than 10 Years Families will Pay 17.2% More for Home Heating this Winter," September 12, 2022.)

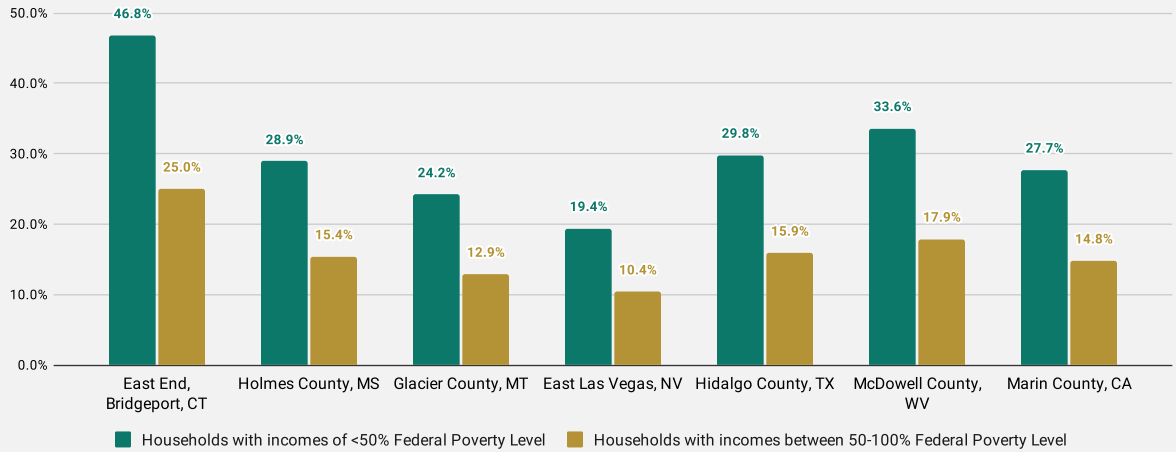
³⁴ Fisher, Sheehan & Colton, "Home Energy Affordability Gap."

³⁵ American Council for an Energy Efficient Economy (ACEEE), "How High are Household Energy Burdens," September 2020.

³⁶ The affordability gaps shown for East End, Bridgeport and East Las Vegas reflect the rates for their respective counties, Fairfield County, CT and Clark County, NV. As a result, the gaps in the profiled communities are likely to be greater than what is reflected here.

³⁷ U.S. Department of Health and Human Services, "Low Income Home Energy Data For Fiscal Year 2017."

Figure 9: Average Energy Burdens of Households with Incomes Below 50% of the Federal Poverty Level and Between 50% and 99% of the Federal Poverty Level, 2021



4. Limited Jobs, Education, and Language Access

Several of the profiled communities face significant economic challenges. Three of the four counties – Holmes County, McDowell County, and Glacier County – have seen negative growth in gross domestic product measures between 2020 and 2021. These same communities are characterized as “distressed” economically.³⁸ Unemployment rates are high.³⁹

It is important to note that unemployment rates only measure those seeking work and do not include “discouraged workers” who have stopped looking for a job, meaning the unemployment rate may not accurately capture the number of people out of work. It is hard enough in these communities to find any job, let alone opportunities to participate in the green economy. Throughout the country, the energy sector employs fewer women and BIPOC workers, and historically marginalized communities are less likely to benefit from employment in the green economy.⁴⁰

³⁸ Bureau of Economic Analysis, U.S. Department of Commerce, “Real GDP: Percent Change for Counties, 2020-2021”; Economic Innovation Group, “The Most Prosperous and Distressed States and Counties in the U.S.,” October 25, 2022.

³⁹ Federal Reserve Bank of St. Louis, “Unemployment Rate.” Unemployment rates for East End, Bridgeport, CT and East Las Vegas, NV reflect the rates for their respective Metropolitan Statistical Areas (MSAs) – Bridgeport-Stamford-Norwalk, CT MSA and Las Vegas-Henderson-Paradise, NV MSA. Given that there was a significantly higher proportion of East End, Bridgeport and East Las Vegas residents with a high school diploma or lower compared to Bridgeport, CT and Las Vegas, NV – 70.0% vs. 55.9% in the case of Bridgeport and 66.8% vs. 42.3% for Las Vegas – the unemployment rates for East End, Bridgeport and East Las Vegas were likely higher than these figures would indicate. (2016-2020 American Community Survey 5-Year Data Profile).

⁴⁰ Community Commons, “Green Jobs Contribute to a Well-Being Economy”; U.S. Department of Energy, “U.S. Energy and Employment Jobs Report,” 2022.

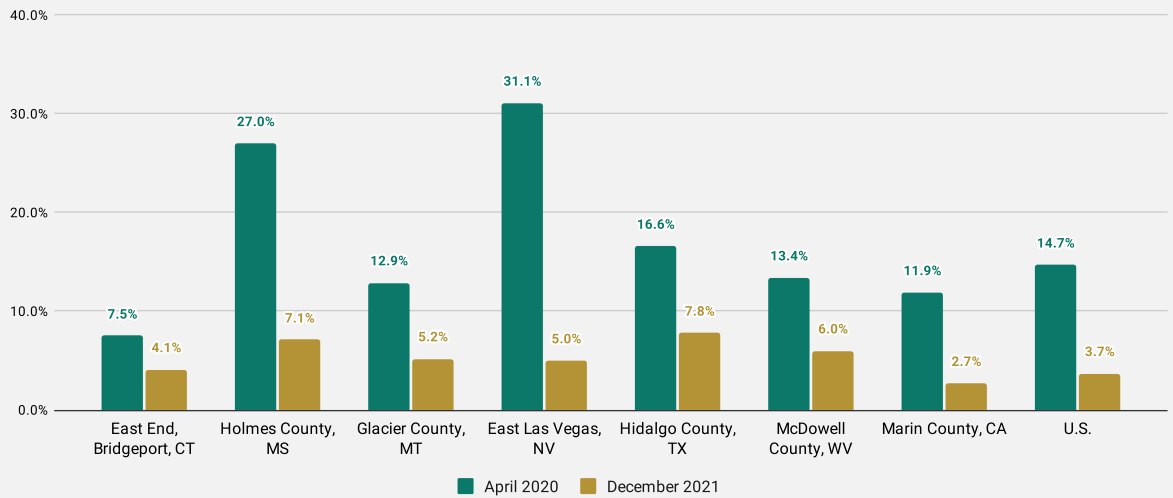


Low- and middle-income communities tend to be particularly vulnerable to economic downturns, including the 2008 housing crisis and more recently the COVID-19 pandemic and inflationary trends. In April 2020, for example, the U.S. unemployment rate for those ages 25 and older without a high school diploma reached a peak of 21.1%. This was somewhat higher than the rate for those with a high school diploma (17.6%). In comparison, the unemployment rate for those with a bachelor’s degree or higher peaked the same month at 8.4%.⁴¹

"When COVID hit, many people lost their jobs. Many people were not able to access any COVID assistance because a lot of them are undocumented. They didn't receive the stimulus and weren't able to claim unemployment."

Cinthia Moore, Nevada Environmental Justice Coalition

Figure 10: Unemployment Rates, 2020 and 2021

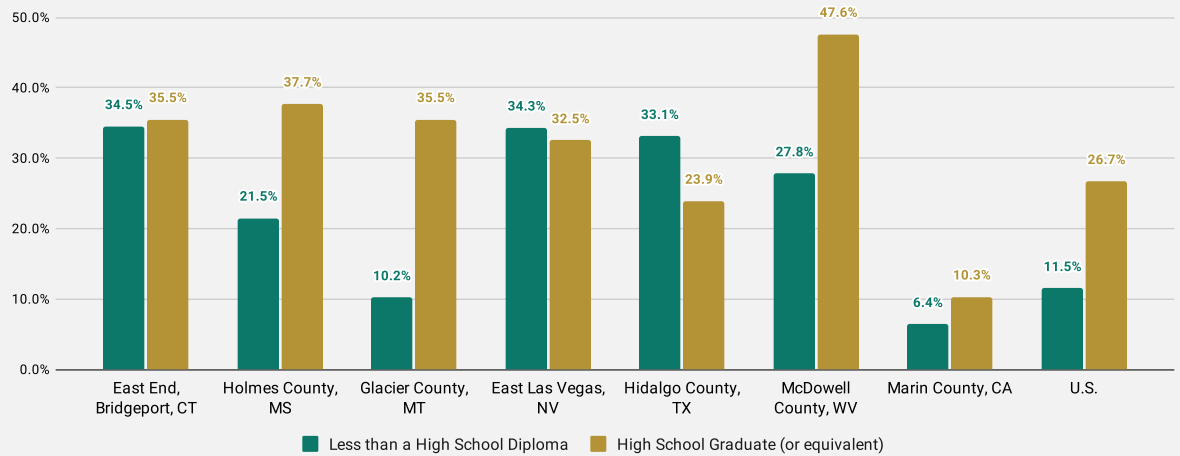


In several of these communities, residents are more likely to have limited English proficiency. A lack of language access programs and services can present an additional barrier to employment or training. In Hidalgo County, 31.5% of residents have limited English proficiency. In the urban neighborhoods of East Las Vegas and the East End of Bridgeport, the rates are 26.4% and 30.1% respectively. Between higher than average unemployment rates, lower levels of education⁴², and other systemic barriers, community members in the profiled communities are in a difficult position to escape poverty.

⁴¹ U.S. Bureau of Labor Statistics, "High school graduates with no college had unemployment rate of 4.5 percent in February 2022."

⁴² 2016-2020 American Community Survey 5-Year Data Profile.

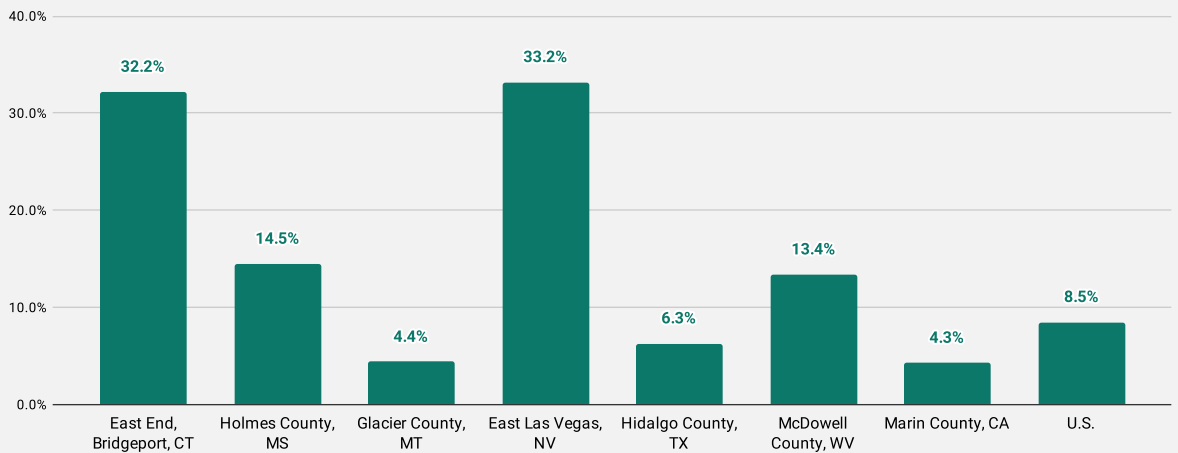
Figure 11: Percentage of Population with an Education Level of High School Level or Lower, 2020



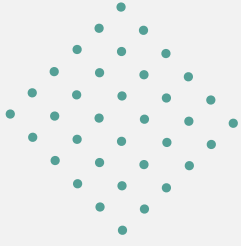
5. Access Barriers to Transportation

In the majority of these communities, the percentage of households that have no access to a personal vehicle exceeded the national average in 2020. This is particularly true in urban areas where about one-third of households did not own a car.⁴³

Figure 12: Percentage of Population without a Household Vehicle, 2020



Especially in rural areas, securing and maintaining employment can be challenging for those residents who do not own a car. Rural areas typically have little to no access to public transportation. Getting the educational, health care, supportive services, and even the groceries they need can be difficult.



"It's not to say that people who are lower income are not concerned about climate change, but frankly, at the end of the day, they're probably some of the most resilient, sustainable-behaving people because they have to be because of income. Like they're taking public transportation more often because they can't afford to have a car. They're walking places. A lot of climate change is happening because wealthier people are doing it, not because of what lower income people are doing."

Christina Smith, Groundwork Bridgeport

Transportation costs present another challenge. Transportation is typically the second largest household expenditure behind housing – approximately 16% of average annual household expenditures. According to the Bureau of Labor Statistics, transportation costs increased by 11% in 2021. Transportation costs have a more significant impact on households at the lower end of the income scale. In 2021, those earning \$24,127 or less per year reportedly spent an average of nearly 27% of their income on transportation. In comparison, those earning \$129,534 or more spent 10.4% of their income on transportation.⁴⁴

6. Too Little Credit and Too Much Debt

Paradoxically, residents in these communities have both too much debt and too little credit. Many households have zero or negative net worth,⁴⁵ are unbanked or underbanked,⁴⁶ or have debt delinquency issues that pose a challenge to accessing financing and wealth-building opportunities. In most of these communities, the percentage of households with zero or negative net worth exceeds the national average. It should be noted that falling behind on payments leads to a cycle of accumulating debt from interest payments combined with worsening credit scores, which further restricts credit access.⁴⁷

⁴⁴ U.S. Bureau of Labor Statistics, "Consumer Expenditures - 2021," September 8, 2022; Bureau of Transportation Statistics, U.S. Department of Transportation, "Household Spending on Transportation: Annual Household Spending."

⁴⁵ Prosperity Now Scorecard. Zero net worth and unbanked/underbanked data for East End, Bridgeport, CT and East Las Vegas, NV reflect data for the cities of Bridgeport, CT and Las Vegas, NV as data at the neighborhood level are unavailable. Net worth for the neighborhoods of East End, Bridgeport and East Las Vegas is, therefore, likely overstated, given significant differences in poverty rates at the neighborhood vs. city level – 29.4% vs. 23.2% in the case of the East End, Bridgeport neighborhood and the city of Bridgeport and 31.80% vs. 14.9% comparing East Las Vegas and the city of Las Vegas. (2016-2020 American Community Survey 5-Year Data Profile.)

⁴⁶ Prosperity Now Scorecard. "Unbanked" is defined by Prosperity Now as having neither a checking or savings account. "Underbanked" is defined as the "percentage of households that have a checking and/or a savings account and have used non-bank money orders, non-bank check-cashing services, non-bank remittances, payday loans, rent-to-own services, pawn shops or refund anticipation loans (RALs) in the past 12 months."

⁴⁷ Recent research on national credit scores shows that credit scores are lowest in the South. This is particularly associated with medical debt linked to poor regional health conditions. Poor health is known to be associated with poor economic conditions and other "social determinants of health." (Washington Post, "Why the South has such low credit scores," February 17, 2023.



"With electric cars, many of the incentives mean you have to buy a new car. If you're making \$30,000 a year, what are you going to do? Buy a Tesla? People are not buying new cars if they do not have the money. Pretend you're in that person's shoes and run the numbers, and then you'll see whether or not it's actually feasible. It has nothing to do with whether or not people support climate change. It has to do with can they afford it?"

Christina Smith, Groundwork Bridgeport

Figure 13: Percentage of Households with Zero or Negative Net Worth, 2018

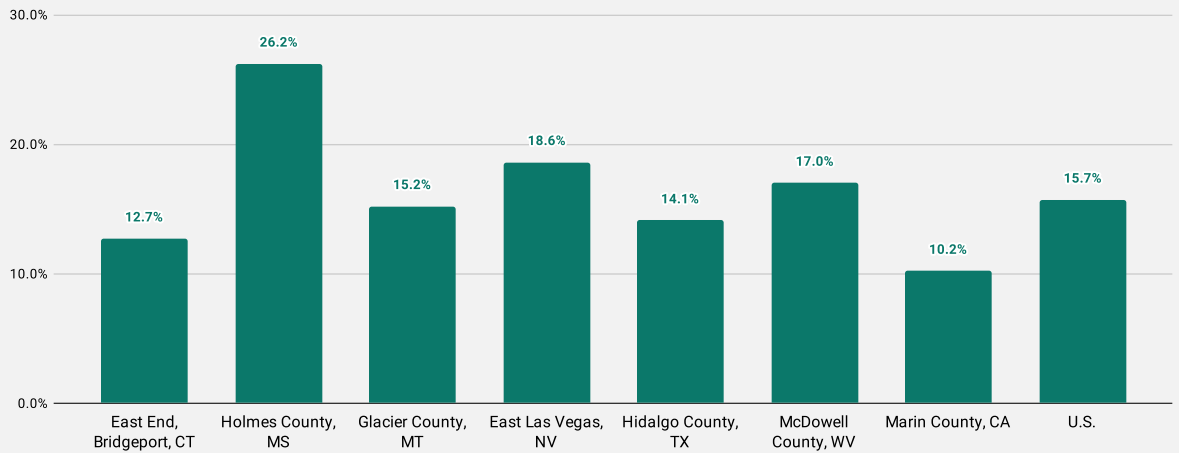
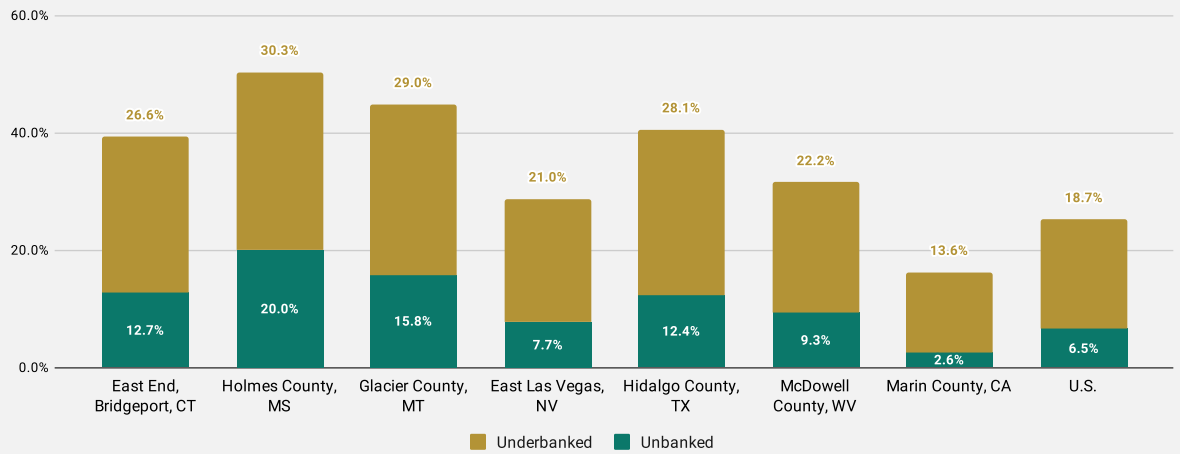


Figure 14: Percentage of Unbanked or Underbanked Households, 2018



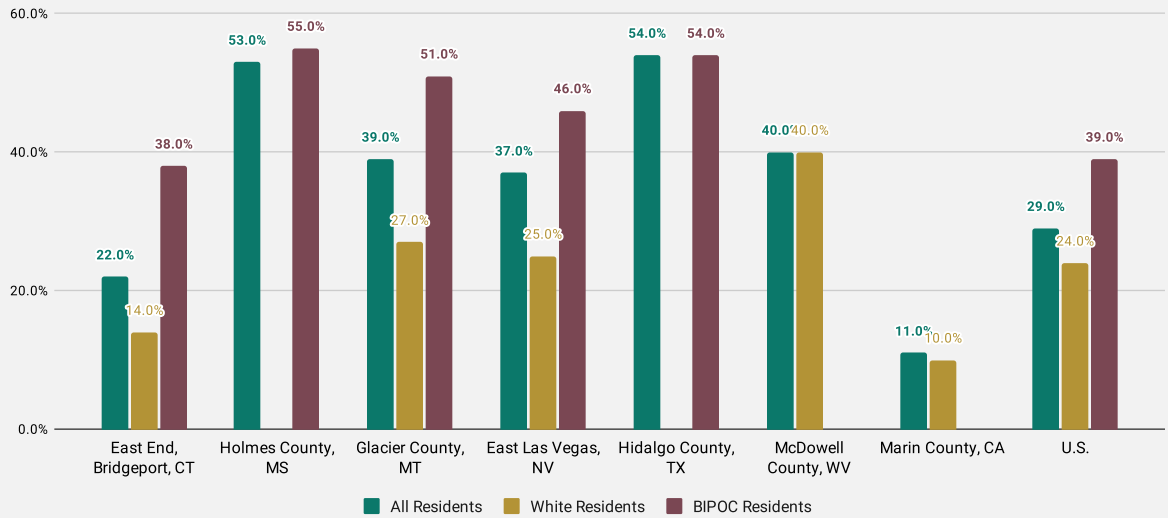
Debt delinquency is also higher in these communities, particularly among BIPOC residents.⁴⁸

"Holmes County is predominantly Black, but you still have a small percentage of the white population that still controls everything. So who was hit the most [in a disaster] was the small Black area. And those folks are less likely to have insurance and definitely don't have the savings and bank account to go in and fix things themselves."

Mac Epps, Mississippi M.O.V.E.

⁴⁸ Urban Institute, "Debt in America: An Interactive Map." As data are not available at the zip code level, debt delinquency data for East End, Bridgeport, CT and East Las Vegas, NV reflect data for the counties of Fairfield County, CT and Clark County, NV. Missing values reflect numbers of residents that are too small to report.

Figure 15: Percentage of BIPOC, White, and All Households with Debt Delinquency, 2018



7. Access to Insurance Coverage

Lack of access to or inadequate insurance poses another challenge to low- and moderate-income (LMI) households. An estimated 3.5 million homeowners in the U.S. do not have homeowners insurance. Although anyone with a mortgage will typically be required to have insurance, that is not always the case. Policies may be unavailable due to:

- The location of the home.
- The condition of the home.
- The homeowner’s poor credit history.⁴⁹

All these factors put homeowners in frontline communities at a disadvantage, resulting in less capacity to recover from climate-related disasters. This is especially the case during disasters that cause flooding and storm surges because most homeowners’ insurance policies do not cover flood damage. Nationally, only 1 in 10 homeowners have flood insurance⁵⁰, and that insurance usually covers direct flooding, not any damage from storm surge and backup. This is particularly problematic since the risk of losing affordable housing units to flooding is expected to triple by 2050.⁵¹

"We have areas that have been told that they will never flood that are starting to flood now. Everybody should look into getting flood insurance, but flood insurance is so high, and now they want you to pay it upfront. And if you don't have the money to fund that, you know, you're at a loss."

Catherine Robinson, One Voice Mississippi

⁴⁹ Realty Times, "3.5 Million Americans Don't Have Home Insurance," April 21, 2021.

⁵⁰ Urban Institute, "Too many homeowners lack flood insurance, but many buy it voluntarily," September 18, 2018.

⁵¹ Climate Central, Study: U.S. affordable housing exposed to coastal flood risk projected to triple by 2050," May 18, 2021. See also NPR, "The Federal Government Sells Flood-Prone Homes To Often Unsuspecting Buyers, NPR Finds," September 13, 2021.

“There are low rates of having flood insurance because there are many people that live in floodplains that may not be mapped by FEMA as a flood plain.”

Morgan King, West Virginia Rivers Coalition

Renters are much less likely to have insurance compared to homeowners. Less than half of renters nationally have renters’ insurance. According to one study, only about 25% of those renters with incomes less than \$30,000 have renters’ insurance.⁵²

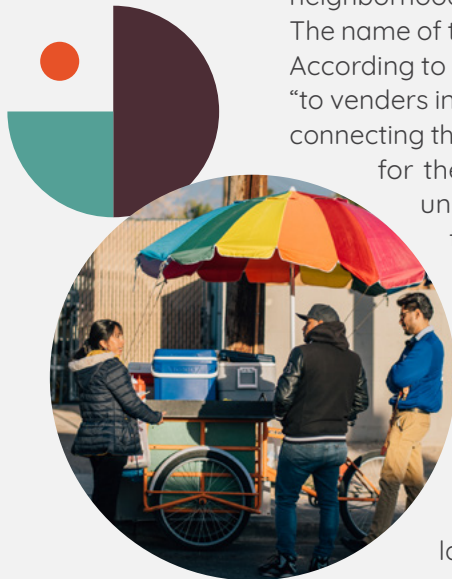
Across the U.S., homeowners typically allocate 1-5% of their annual income to homeowners insurance, depending on their state.⁵³ For low-income homeowners with the means to purchase homeowners insurance, it can be considerably more expensive. A recent study found that low-income homeowners pay an average of \$117 more per year for homeowners insurance compared to those with higher incomes. Among low-income neighborhoods, majority-Black neighborhoods have been found to pay \$1,457 more per year than their majority-white neighborhood counterparts.⁵⁴ There is also a common practice in most states of charging higher premiums based on credit scores.⁵⁵ As BIPOC populations have higher rates of debt delinquency, as shown in Figure 15 above, this practice also restricts their access to affordable homeowners insurance.

Community-Created Solutions to Economic Needs

Examining the economic data above presents a stark portrait of communities most at risk from climate change. In coping with, preparing for, and responding to climate change. However, these communities have strengths that must be leveraged through resource allocation and policy change. People help their neighbors and look out for one another to the best of their ability in communities that often lack internet access, vehicles, or phones, even as the challenges mount. Beyond that, they innovate, as described below.

1. East Las Vegas and East End, Bridgeport: Economic Development

The “Eros Project” in East Las Vegas is expanding business opportunities for the neighborhood’s street vendors, who comprise a significant portion of the local economy. The name of the project derives from the Spanish translation for vendors of various kinds. According to Jose Rivera of Make the Road Nevada, the project reaches out “to vendors in the valley learning about the effects they face environmentally, while also connecting them with available resources. We have been able to develop communication for their businesses and also connect street vendors with local banks, credit unions, and online banking apps, such as Zelle and Cash App, to improve their income and also to take care of the environment in which they are growing their businesses.”⁵⁶



To address some of the unemployment challenges in Bridgeport that were worsened by the COVID-19 pandemic, “we are piloting an early childhood employment program where we train community members in early childhood education,” says Dr. Monette Ferguson of the Alliance for Community Empowerment. “We pay them \$15 an hour while they’re training, and then we have the ability to hire them because we have a very large childcare system here.”

⁵² Insurance Newsnet, “Low Income Renters – The Most Under-Served Group In The Renters Insurance Market,” April 15, 2015.

⁵³ Bankrate, “Homeowners insurance rates by state for 2022,” May 27, 2022.

⁵⁴ PR Newswire, “Low-Income Homeowners Pay More for Insurance in 34 States,” May 5, 2021

⁵⁵ Bankrate, “Homeowners insurance for people with bad credit,” May 9, 2022; Bloomberg Law, “Credit-Based Insurance Premiums Raise Concerns about Racial Bias,” December 22, 2020.

⁵⁶ See also Las Vegas Review-Journal, “Las Vegas nonprofit’s latest project aims to help street vendors,” August 26, 2022 for more information about the Eros Project.



2. Hidalgo County: Leveraging Available Resources

Jaime Longoria of the Hidalgo County Community Service Agency describes how the agency has shifted its focus and leveraged resources to meet the needs of community members. “We are known for assisting families in paying their utility bills, but in the last few years, we have morphed into disaster planning and assistance. We noticed that people were really struggling to bounce back from things like house fires, floods, or hurricanes.” The agency has also identified creative fixes to resource problems. “The families with the lowest incomes are the ones that receive the least assistance or no assistance at all,” says Jaime. “We visited an 80-year-old veteran’s home. The shape of the home was not good enough for FEMA to fix. So FEMA just walked away and said we can’t put that back to where it was before. It was unsafe before. Luckily, we had money from a pilot program that Congress allocated through the Community Service Block Grant. It was a disaster funding pilot program to help families living below 200% of federal poverty, that FEMA couldn’t help. We were able to target 60 families across the county.”

3. East End, Bridgeport: Mutual Aid

The faith community has forged a response to climate events and extreme weather in recent years. “During Hurricane Sandy, the faith community opened up their space for folks who were in danger of flooding, especially in the South End and East End of Bridgeport because they were most in danger of being flooded out,” says Dr. Monette Ferguson of the Alliance for Community Engagement. “Faith-based communities have come together to create cooling and warming stations,” she reports, “for people to charge their phones, get water, and get information on homelessness and food insecurity.” Partnerships with local churches have become a way of bringing information and resources to community members in a way and an environment that they trust.



4. Holmes County: Cooperative Leadership Institute

One Voice leads an Electric Cooperative Leadership Institute with the Delta Electric Power Association to engage member-owners living in rural communities, including Holmes County, to become involved in the leadership of local electric coops. Although most of the residents in these areas are Black, representatives on electric cooperative leadership boards have tended to be majority white. The Leadership Institute seeks to educate and organize residents to generate local economic benefits, address high energy bills, and increase energy efficiency.

“Our goal is to make sure that we are creating the next generation of organizers that can advocate for policies and changes within their communities and go head-on with the Board of Directors and say these are the issues we are having, and this is what we feel needs to change,” says Catherine Robinson of One Voice.

Economic Conditions and Policy Solutions

Economic conditions affect all aspects of a community’s capacity to cope with, prepare for, and respond to climate change. The ability to pay for rising energy costs, equitably participate in the transition to a clean energy economy, and respond to and recover from climate-related events all depend on policy change to improve outcomes for the economic indicators we have examined.



Why It Matters

Strained household budgets and increased susceptibility to rising costs. Rising energy costs, combined with increased usage during extreme weather, means that less money is available for housing, prescriptions, food, transportation, education, and other expenses.

Greater exposure to utility shutoffs. Research shows that BIPOC communities are at higher risk of shutoffs. A January 2022 survey found that nearly a third of Latino households and one in five Black households had received a shutoff notice. The majority of these households subsequently had their power disconnected.⁵⁷

Barriers, including language access, decrease access to assistance. In the event of a shut-off, there may be local programs⁵⁸ that assist residents in need. However, residents need to know about them and have the ability to submit an application.

Whether the result of an inability to pay, rolling blackouts, or damaged lines from storms, LMI households face **increased risks from power outages**, such as spoiled food, risking **increased hunger or food insecurity**.

Greater likelihood of eviction, displacement, and/or homelessness resulting from economic pressures or climate disasters.⁵⁹

Limited ability to participate equitably in energy efficiency measures. Household debt levels and inadequate access to credit limit the ability of community members to invest in electric vehicles, rooftop or community solar installations, or energy-efficient appliances. Renters also face the “split incentive,”⁶⁰ in which the interests of renters who benefit from energy efficiency measures conflict with landlords who lack incentives to invest.

Limited ability to get to warming or cooling centers or other shelters in an emergency. According to a recent study, extreme heat in the summer of 2022 affected about one in every three Americans, prompting many to seek shelter elsewhere.⁶¹

What We Can Do

Enact wage equity, living wage, workforce development, and education and training policies that close the gap between wages and living expenses.

Expand and create tax credit and refund programs for LMI people.

Expand and adequately fund existing entitlement and public assistance programs.

Strengthen local partnerships to **expand outreach to community members** facing language barriers.

Implement policies such as categorical eligibility, automatic enrollment, and self-attestation for eligibility determination to increase utilization of assistance programs.

Prioritize economic development investments and clean energy jobs in these communities. The Inflation Reduction Act, for example, includes tax credit provisions that will help companies set up manufacturing in the U.S. for renewable energy products (solar panels to wind turbines). With protections to prevent pollution and to ensure local hiring and job quality, such companies could be located in LMI communities to displace fossil fuel and other toxic industries.

Implement moratorium policies to prevent utility shut-offs or collection agency actions.

Implement energy bill payment programs like the Percentage of Income Payment Plan (PIPP), which caps eligible participants’ utility payments at a predetermined percentage of household income.

Adopt building codes that require more energy-efficiency standards.

Require landlords to make energy efficiency upgrades and offer financial incentives and support, including in Housing Authority Contracts with landlords, rental assistance programs, and municipal affordability programs.⁶²

Protect a minimum amount of low-income household’s funds from wage garnishment and bank levies.

⁵⁷ Grist, “Unplugged: Why utilities are more likely to disconnect Black, Latino, and Indigenous households,” September 6, 2022.

⁵⁸ Disconnect policies by state can be found [here](#).

⁵⁹ In some cases, including in Section 8 housing units, failure to pay utilities could be grounds for eviction. (Code of Federal Regulations, Title 24, Subtitle B, Chapter IX, Part 982, Section 8 Tenant-Based Assistance - Housing Choice Voucher Program.)

⁶⁰ See American Council for an Energy-Efficient Economy, “Multifamily and Manufactured Housing Program,” February 2009; Just Solutions, “Energy & the Clean Energy Transition Burden,” March 2022 for further discussion of split incentives.

⁶¹ Grist, “Unplugged: Why utilities are more likely to disconnect Black, Latino, and Indigenous households,” September 6, 2022.

⁶² For more discussion of possible policy solutions, see Just Solutions, “Energy Burden and the Clean Energy Transition: Challenges and just solutions from energy assistance practitioners and advocates from around the country” and PSE Health Energy and Institute for Energy and Environmental Research, “Energy Affordability in Maryland: Integrating Public Health, Equity, and Climate,” February 2023.

Health Conditions

Given the economic conditions described above, poor health is not unexpectedly another pre-existing condition in these communities.⁶³ Research shows that the social determinants of health, which include economic stability and education access and quality,⁶⁴ are the principal drivers of health.

Health conditions are associated with climate change adaptation and resilience in a number of ways. Those areas with poor health have a greater reliance upon healthcare resources, which may or may not be available or affordable. Recent research indicates that those areas with poor health also tend to be areas where health insurance is more limited, resulting in higher rates of medical debt.⁶⁵ Medical debt, in turn, affects the ability to pay for other household expenses, as well as to cope with the increased costs associated with climate change and to prepare for climate change by having the resources available to participate equitably in greenhouse gas reduction efforts.

When climate-related disasters happen, community health is a key factor in survival and recovery. Those living with disabilities may not have the mobility needed to get out of harm's way. The stability of the grid, access to alternative sources of power, and availability of healthcare providers can make the difference between life and death.

The Health Conditions indicators examined below include:

1. Limited access to health care
2. Risk of preterm births
3. Higher rates of chronic health conditions

Health Indicators

1. Limited Access to Health Care

Holmes County, Glacier County, and McDowell County are all designated as primary care physician shortage areas for the entire county.⁶⁶ Health insurance rates tend to be lower in these communities as well. All but McDowell County have higher uninsured rates than the national average.⁶⁷

“When something as basic as getting sick and being able to go to the doctor is not covered, how can we be ready for something even more unexpected?”

Jose Rivera, Make the Road Nevada

“Right before COVID hit, they had shut down hospitals in small towns where you have to drive to another county to be able to get health care.”

Mac Epps, Mississippi M.O.V.E.

⁶³ Throughout this section, data provided for East End, Bridgeport and East Las Vegas represent values for their respective counties – Fairfield County, Connecticut and Clark County, Nevada. With the exception of life expectancy, the health data presented are not available at the zip code level. Data should, therefore, be assumed to be overstated for East End, Bridgeport and East Las Vegas, given what we know about the relationship between economic conditions and health outcomes.

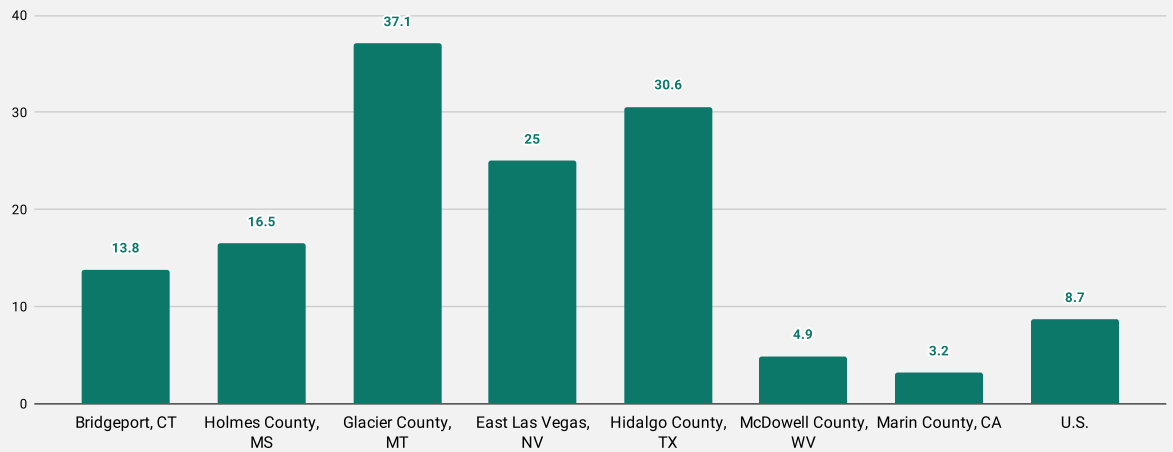
⁶⁴ U.S. Department of Health and Human Services, *Healthy People 2030*, “Social Determinants of Health.”

⁶⁵ Washington Post, “Why the South has such low credit scores,” February 17, 2023.

⁶⁶ Rural Health Information Hub, “Health Professional Shortage Areas: Primary Care, by County, 2022.”

⁶⁷ 2016-2020 American Community Survey 5-Year Data Profile. There may be several reasons for high uninsured rates. Areas with large immigrant populations tend to have higher uninsured rates, as immigrants are not eligible for Medicaid. Among the states profiled, Mississippi has not expanded Medicaid under the Affordable Care Act. In areas with high unemployment rates or a significant amount of low-wage work, one might expect lower rates of coverage because of a lack of employer-based health insurance coverage.

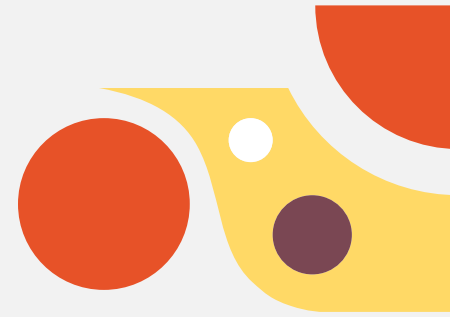
Figure 16: Percentage of Population without Health Insurance, 2020



Several of these communities are among the lowest ranked counties in the country for health conditions and outcomes. Holmes County, for example, is ranked lowest among Mississippi counties, a state with low health ratings overall. Similarly, McDowell County is ranked last in West Virginia for health outcomes and health factors. Glacier County ranks 45th of 56 counties in Montana. In contrast, Marin County leads California in having the highest health outcomes and health factors.⁶⁸

2. Risk of Preterm Births

Rates of preterm births, defined as before 37 weeks of pregnancy, can also have long-term health effects. Preterm babies are more likely to face challenges with lung function, with higher rates of conditions such as asthma.⁶⁹ To complicate matters further, extreme heat has been associated with an increased risk of preterm birth and low birth weight.⁷⁰ Nearly all of these communities have higher rates of preterm birth compared to the U.S. rate.

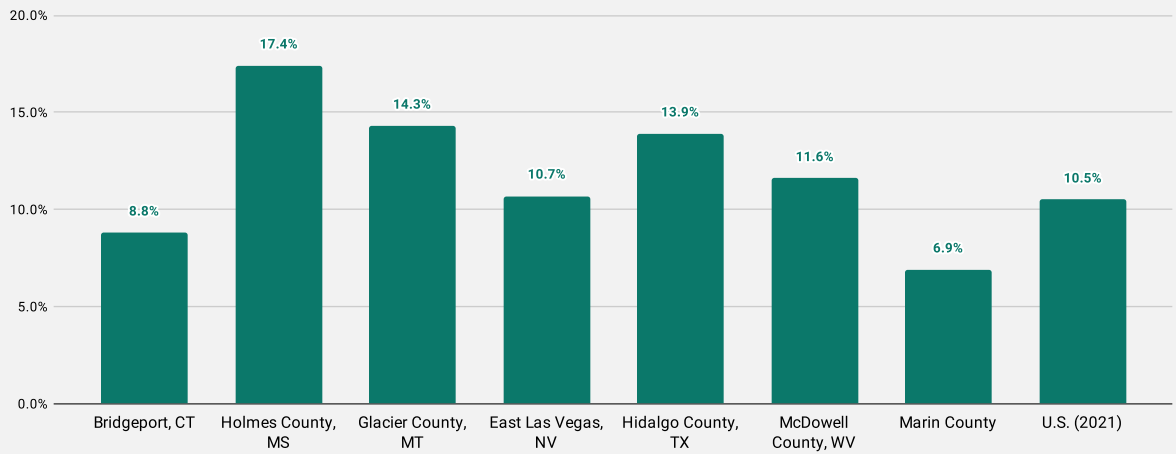


⁶⁸ Community Health Rankings and Roadmaps.

⁶⁹ The rate for Bridgeport, CT is likely understated, as data are only available at the county level. Fairfield County is one of the wealthiest counties in the country. For data and information on preterm births, see March of Dimes, "Long-term health effects of premature birth"; March of Dimes, "Preterm Birth," January 2022.

⁷⁰ U.S. Environmental Protection Agency, "Climate Change and the Health of Pregnant, Breastfeeding, and Postpartum Women."

Figure 17: Preterm Birth Rates



3. Higher Rates of Chronic Conditions

While these health indicators demonstrate ongoing levels of community vulnerability, perhaps the most significant health indicators affecting resilience to extreme weather and climate change relate to chronic conditions. Frontline communities frequently have higher rates of chronic or other health conditions that increase their vulnerability to extreme weather. Poor air quality resulting from extreme heat and wildfires create other hazards, especially for those living with asthma. According to the U.S. Centers for Disease Control and Prevention, those with chronic health conditions such as heart disease, circulatory problems, and obesity are more prone to heat-related illness. Some medications may also exacerbate the effects of heat.⁷¹ The frontline communities profiled here have significant levels of chronic disease.⁷²

The treatment of some chronic conditions, such as those included in Figure 18, are especially reliant upon the availability of electricity. Some medications, including insulin and other medications used in the treatment of diabetes, must be kept cold.⁷³ Patients needing kidney dialysis require electricity. Those relying on ventilators and oxygen therapy for the treatment of conditions like chronic obstructive pulmonary disease (COPD), severe asthma, cystic fibrosis, and sleep apnea also need electricity.⁷⁴ Blackouts, shut-offs, and damaged infrastructure from climate disasters put the lives of community members living with these conditions at particular risk.

“Latino children are about 3 times more likely than non-Latino children to live in a county where air pollution levels exceed federal air quality standards and twice as likely to visit the emergency room for asthma.”

Carter-Pokras O, Zambrana RE, Poppell CF, Logie LA, Guerrero-Preston R. The environmental health of Latino children. *J Pediatr Health Care*. 2007

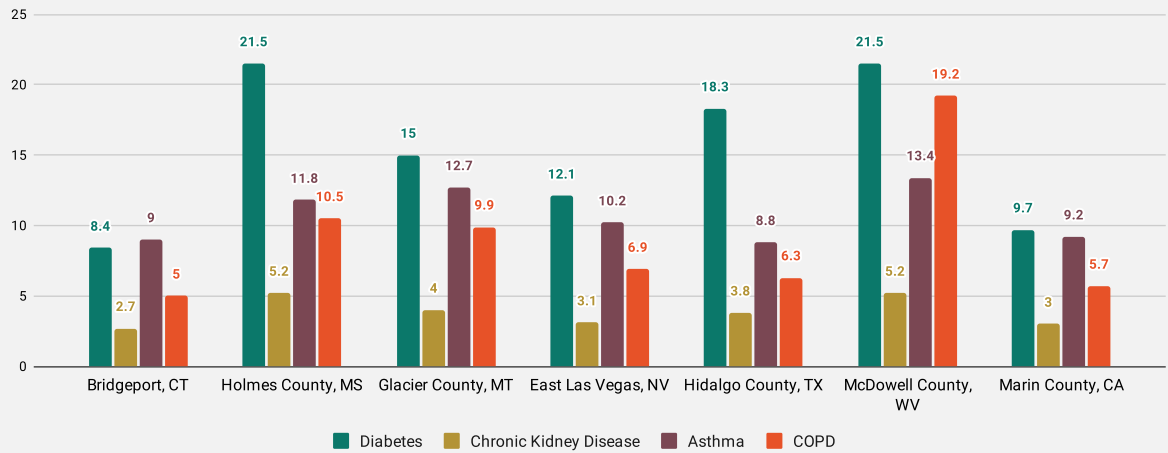
⁷¹ U.S. Centers for Disease Control and Prevention, “Heat and People with Chronic Medical Conditions.”

⁷² PLACES: Local Data for Better Health.

⁷³ U.S. Food and Drug Administration, “Information Regarding Insulin Storage and Switching Between Products in an Emergency.”

⁷⁴ Noelle Angeli M. Molinari, Bei Chen, Nevin Krishna, and Thomas Morri, “Who’s at Risk When the Power Goes Out? The At-home Electricity-Dependent Population in the United States, 2012,” *Journal of Public Health Management and Practice*, March/April 2017.

Figure 18: Percentage of Population with Climate-Affected Chronic Conditions, 2020



Glacier County, McDowell County, and Holmes County are already ranked among the counties with the poorest overall health in their respective states.⁷⁵ The effects of climate change on those living in these profiled communities will be significant, given pre-existing rates of disability ranging between 10% and 31%,⁷⁶ poor health, and insufficient income, transportation, or mobility to either adapt to extreme heat conditions or seek shelter elsewhere.

Community-Created Solutions to Health Needs

As was the case in so many other frontline communities, COVID-19 had a significant impact on health and the local economy. During the pandemic, community members took action to meet the immediate basic needs of their neighbors. They are now building on those efforts, as well as taking action to address the health impacts from climate change.

1. East Las Vegas: Air Quality

Through a grant from the U.S. Environmental Protection Agency, partner organizations and the University of Nevada Las Vegas have launched the “Buen Aire Para Todos” – “Clean Air for All” – campaign. The project will monitor both indoor and outdoor air quality in the neighborhood. Sensors will be placed in public areas and in local businesses. Mobile sensors will be installed on participating food trucks. “This project will focus on expanding community awareness education and outreach to help residents better understand air quality measurements and the health impacts of poor air quality and extreme heat,” says Jose Rivera of Make the Road Nevada.⁷⁷

2. Glacier County: Food Security

During the COVID-19 pandemic, community members in Glacier County organized to ensure that both those infected with COVID and those struggling with the economic fallout had the food they needed. In Glacier County, FAST Blackfeet (Food Access and Sustainability Team) was created, a Blackfeet nonprofit organization founded by a group of involved citizens dedicated to improving food security, providing nutrition education, and reclaiming and building food sovereignty within the Blackfeet Nation. These resources at FAST help the most vulnerable people – youth and elders.

⁷⁵ County Health Rankings and Roadmaps.

⁷⁶ 2016-2020 American Community Survey 5-Year Data Profile.

⁷⁷ See Impact NV, “Buen Aire Para Todos” for more information.

3. Holmes County: Mental Health and Trauma

Like so many places around the country, Holmes County is facing a mental health crisis, particularly among young people. The recent takeover of the Holmes County School District by the state, rising levels of violence among teenagers, the COVID-19 pandemic, and repeated flooding have all contributed to trauma. “A lot of folks do not have the resources and knowledge,” says Mac Epps of Mississippi M.O.V.E. “We use comic books, with majority Black lead characters, as a tool to help encourage and improve reading. We gave away free comic books at the last workshop. We had a boxing coach who worked with folks around self-esteem and self-discipline. And then we also had a mental health therapist who did a round circle, and we talked about trauma.”

Health Conditions and Policy Solutions

Poor health conditions, resulting to a significant degree from the pre-existing economic conditions in these communities, exacerbate vulnerability. Community members face increased additional risks to health outcomes from climate change. Existing chronic conditions become more difficult to treat, medical debt accumulates, and the risk of death increases, particularly during climate disasters.

Why It Matters

Increased risk of death from blackouts, shutoffs, and climate disasters for those relying on certain medications and medical devices.

Poorer health outcomes among those who lack affordable health insurance resulting from delays in care, increased stress, or higher levels of medical debt.

Increased risk for heart and lung problems, especially for those who were born preterm or who live with chronic health conditions, which can be exacerbated by extreme heat and poor air quality.

Lack of access to routine care and emergency response in areas experiencing physician shortages.

Poor air quality aggravates health problems and also increases economic stress, especially for the uninsured.

What We Can Do

Mobilize heating and cooling stations in most at-risk communities during extreme weather events.

Stabilize the grid to prevent blackouts.

Strengthen emergency evacuation and rapid response policies and procedures, particularly for those community members with mobility challenges or living with disabilities.

Improve access to comprehensive prenatal and postpartum care, including preventive care, mental health care, and supportive services.

Address social and environmental determinants of health to improve overall health conditions.

Improve access to health care, including **removing barriers to health insurance for undocumented community members**. In the 11 states that have not yet acted to expand Medicaid, **consider state ballot measures to expand Medicaid**, as seven other states have done, or expanded federal incentives.⁷⁸

Improve federal responses to physician shortages, including changes in graduate medical education policies, loan forgiveness programs, and licensing for physicians trained in other countries.⁷⁹

Fund the early electrification of public transit, delivery vehicles, school buses and other heavy trucks in areas of high air pollution.

⁷⁸ The 11 states are Texas, Wyoming, Kansas, Wisconsin, Tennessee, Mississippi, Alabama, Georgia, North Carolina, South Carolina, and Florida. (Kaiser Family Foundation, “Status of State Medicaid Expansion Decisions: Interactive Map,” February 16, 2023.) Ballot initiatives would be a possibility in Wyoming and Florida. (CNN, “Voters approve Medicaid expansion and a minimum wage increase in these states,” November 11, 2022.)

⁷⁹ See, for example, Time, “The U.S. Physician Shortage Is Only Going to Get Worse. Here Are Potential Solutions,” July 25, 2022.

Infrastructure Conditions

The histories of the profiled communities indicate that many of them were once the site of significant public and private infrastructure investment. Much of this investment was associated with an extractive economy. When resources were exhausted or investors found other sources of profit, the communities fell into decline.

The profiled communities have been hampered by insufficient investment in local infrastructure, including the housing stock and sewage and water systems, for decades. Urban planning efforts that mitigate the effects of climate change, such as tree canopies, have been neglected in these areas. The environmental clean-up required from past and present industrial activity has not happened. These factors limit communities' ability to cope with climate change and puts them at significant risk in the event of climate-related disasters.

The sample of infrastructure challenges examined in the indicators below include:

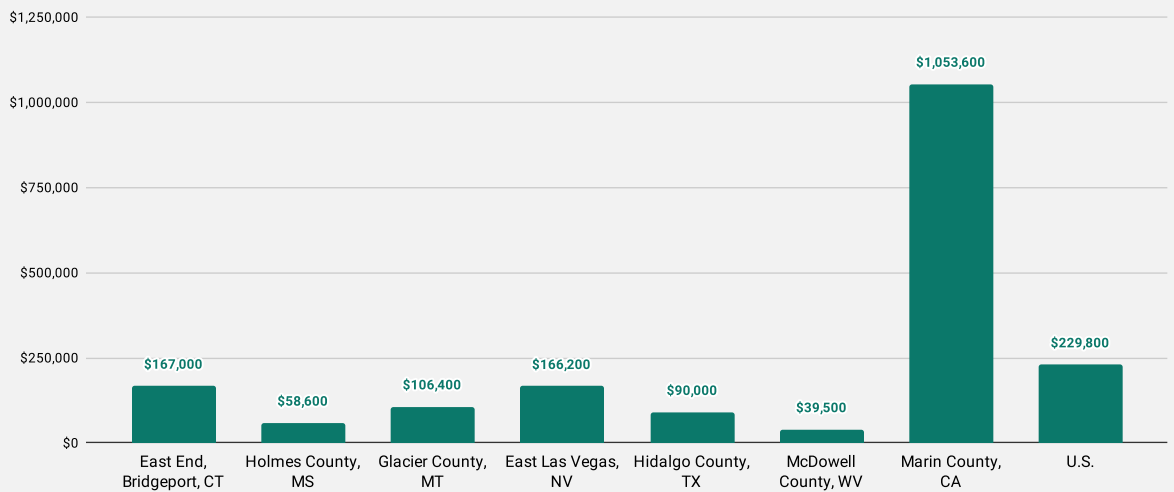
1. Poor quality of the housing stock
2. Outdated or dilapidated water and sewage systems
3. Lack of urban planning and climate-mitigation measures
4. Increased exposure to industrial hazards

Infrastructure Indicators

1. Poor Quality of the Housing Stock

As suggested by median home values combined with the percent of housing units that are vacant⁸⁰, the quality of much of the housing stock in these communities tends to be poor. A high proportion of housing units in several of these communities were also built before 1980, although that is not always an indicator of housing quality.

Figure 19: Median Owner-Occupied Home Values, 2020

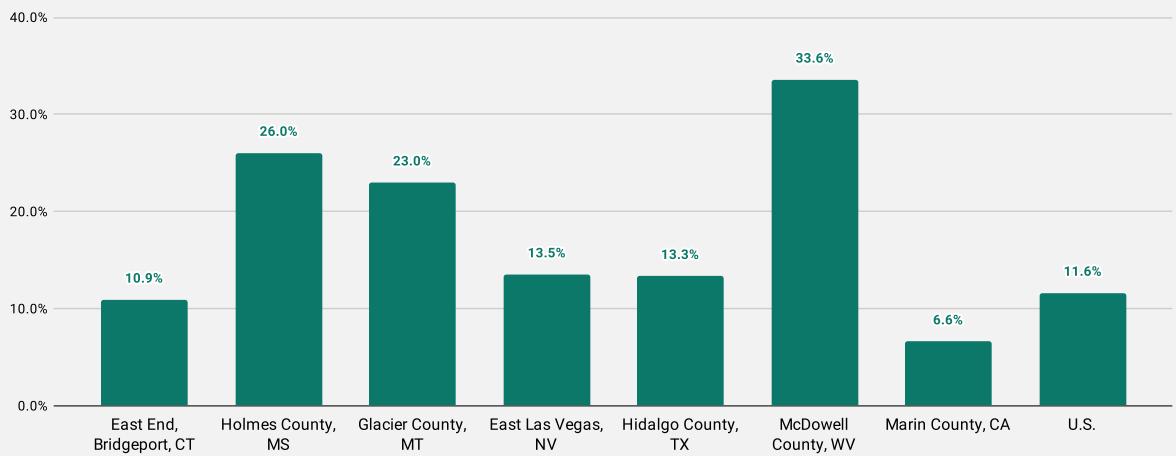


In all of these communities, the median home values fall far short of the U.S. median. Vacant units are sometimes so dilapidated that they require demolition. In Holmes County, Mississippi, for example, repeated episodes of flooding have led to unaddressed problems with mold and decay.⁸¹ In McDowell County, West Virginia, about one-third of housing units stand vacant.⁸²

“The history of the East End and east side is that those were the industrial areas of the city. So that’s where factories were centered, and when they closed, jobs left and prices became depressed, so it was more affordable for more people who have low-incomes.”

Christina Smith, Groundworks Bridgeport

Figure 20: Vacant Housing Units as Percent of Housing Stock, 2020



Mobile homes comprise a significant portion of the local housing stock in the profiled rural communities, far surpassing the national average.⁸³ Many mobile home residents live in homes that were built before 1976, when national standards for mobile home quality were established.⁸⁴ These mobile homes tend to be much less energy efficient and much more difficult to insure. They are also less likely to qualify for weatherization assistance. Mobile homes often fail to meet the structural requirements for solar panel installation, including adequate roof joists and foundations. Those who rent the land on which their mobile home is located are also less likely to invest in renovations, given cost considerations and a lack of housing security.

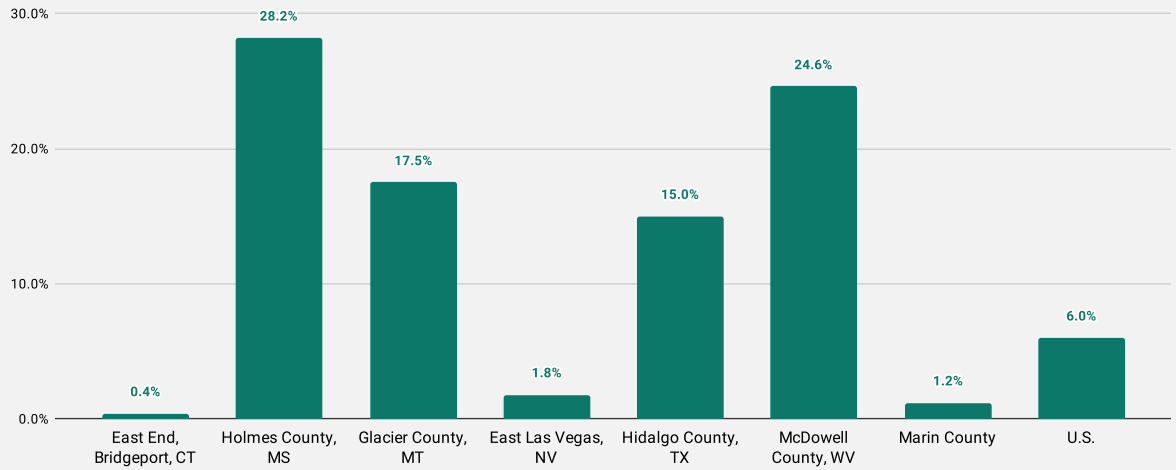
⁸¹ [The Guardian](#), “After the floods: the struggle for survival in a tiny Mississippi town,” May 12, 2019; [Mississippi Today](#), “Living Day to Day: Surrounded by water and ignored by powerful officials, Tchula and its people fight for survival,” May 15, 2019.

⁸² 2016-2020 American Community Survey 5-Year Data Profile.

⁸³ 2016-2020 American Community Survey 5-Year Data Profile.

⁸⁴ National Consumer Law Center, “Weatherization and Replacement of Homes,” February 2010. Those homes constructed before 1976 are typically referred to as “mobile homes,” while those constructed after 1976 are called “manufactured homes.” For the purposes of this report, we use the term “mobile home,” as that is the term used in the American Community Survey.

Figure 21: Mobile Homes as Percent of Housing Stock, 2020



Improving the quality of the local housing stock is challenging. Home repairs can be costly, and without access to credit, few homeowners can afford such investments. Renters are dependent upon landlords for needed repairs. Without home repairs, community members can be found to be ineligible for weatherization programs that might decrease home energy costs and help households cope with climate change.⁸⁵

The thing that is most important that families need is the ability to improve their homes to have better outcomes during heat or cold. The County has a weatherization program, but it can have an 8-month waiting list. Many are renters and are not able to weatherize their homes.”

Jaime Longoria, Hidalgo County Community Service Agency

2. Outdated or Dilapidated Water and Sewage Systems

The local public infrastructure in some of these communities is already in disrepair. In McDowell County, for example, an estimated one-third to one-half of county residents have failing water or sewer systems. Some local residents were under a boil water notice for more than a decade. The McDowell County Public Service District completed its first ever public sewage project in 2022. A previous sewage system was operated by a local mine. When the mine closed, the sewage system deteriorated to the point where it became unusable. Water quality has been an ongoing challenge, with many residents contending with polluted well water. A water quality improvement project was only recently completed.⁸⁶

“West Virginia has shown that, at the state and municipality level, we’re not prepared to handle climate disasters. Our stormwater infrastructure is based on modeling from decades ago that could not have predicted these higher levels of rainfall. And in terms of heat waves, we have a very high cost of electricity in West Virginia compared to the income of West Virginians. Heat waves increase electricity bills, increasing the cost of living.”

Morgan King, West Virginia Rivers Coalition

⁸⁵ Vox, “How to fight the affordable housing and climate crises at once,” April 17, 2022.

⁸⁶ U.S. News and World Report, “West Virginia Communities Celebrate Return of Clean Water,” April 25, 2022; Washington Post, “After generations of hauling water, a corner of Appalachia still waits for a better future,” June 28, 2021; Bluefield Daily Telegraph, “McDowell PSD working on first-ever sewer project,” July 26, 2021; NBC News, “All the water’s bad’: In McDowell County, you have to get creative to find safe drinking water,” June 17, 2021.

The thing that is most important that families need is the ability to improve their homes to have better outcomes during heat or cold. The County has a weatherization program, but it can have an 8-month waiting list. Many are renters and are not able to weatherize their homes.

Jaime Longoria, Hidalgo County Community Service Agency

3. Lack of Urban Planning and Climate-Mitigation Measures

Higher-income communities are more likely to have features in the built environment that mitigate the effects of extreme weather. For example, communities with adequate tree canopy can measurably lower street-level temperatures. Similarly, decreasing the percentage of impervious surfaces in a community can reduce the effects of extreme rainfall events or localized flooding.

The profiled communities are less likely to have such features. In all communities other than McDowell County and Holmes County, over 90% of the community lacks adequate tree canopy.⁸⁷ In East Las Vegas, “heat islands” are a particular concern. Temperatures are considerably higher in East Las Vegas during heat waves than in other parts of the city.⁸⁸

“From an equity lens, we work to understand where there’s the lowest tree canopy in the city and then target our efforts in that area, which is the east side, to plant trees.”

Christina Smith, Groundwork Bridgeport

4. Increased Exposure to Industrial Hazards

The profiled communities have significant histories of exposure to a broad spectrum of industrial pollutants. Each of these communities ranks in the 75th percentile or higher for exposure to at least one environmental hazards indicator, as measured by the U.S. Environmental Protection Agency’s Environmental Screening and Mapping Tool (EJScreen).⁸⁹ The tool includes 12 environmental indicators, as shown in the table below. Two communities – Hidalgo County and East Las Vegas – are in the 75th percentile or higher for exposure to 11 of the 12 indicators.

Figure 22: Communities with a Score in the 75th Percentile or Higher on Environmental Justice Screening Index Indicators

Risk Factor	Community						
	East End, Bridgeport, CT	Holmes County, MS	Glacier County, MT	East Las Vegas, NV	Hidalgo County, TX	McDowell County, WV	Marin County, CA
Traffic Proximity	X			X	X		
Lead Paint	X	X	X	X	X		
Ozone	X	X	X	X	X		
Superfund Proximity	X				X		
Risk Management Plan (for potential chemical accident) Proximity	X			X			
Particulate Matter 2.5		X	X		X		
Hazardous Waste Proximity	X			X	X		
Underground Storage Tanks	X	X	X	X	X		
Diesel Particulate Matter	X			X	X		
Air Toxics Cancer Risk	X	X	X	X	X		
Air Toxics Respiratory Hazard Risk	X	X		X	X		
Wastewater Discharge		X		X	X	X	

87 Headwaters Economics, *Neighborhoods at Risk*.

88 Las Vegas Review-Journal, “More trees may help east Las Vegas cool down from urban heat islands,” August 8, 2021.

89 U.S. Environmental Protection Agency, EJScreen: Environmental Justice Screening and Mapping Tool.

Community-Created Solutions to Infrastructure Needs

Improving infrastructure to the point where these communities will be better positioned to cope with climate change and respond to climate disasters will take significant investment to improve or rebuild the housing stock, modernize sanitation and water systems, and mitigate long-standing environmental hazards. Opportunities exist to prioritize these communities and others like them for available resources. In the meantime, these communities are taking matters into their own hands to protect their communities and strengthen resilience.

1. Glacier County: Climate Adaptation and Environmental Restoration

In the absence of a state Climate Action Plan, the Blackfeet Nation has developed their own plan. According to Termaine Edmo of the Blackfeet Environmental Office, climate action means “protecting our first teachers or key stone species like Beaver and Buffalo who we look at as leaders and how they care for all beings. Having a Climate Adaptation Plan developed with Piikanii values allowed a new way of merging Traditional Ecological Knowledge with western science. The Plan covers eight natural resource sectors most prominent to the Blackfeet Nation’s people. Each sector has a summary of climate change impacts and goals and strategies identified to combat climate change. The Beaver Mimicry project was the first implementation project to come out of the plan’s water sector. This low-tech method naturally stored water, recharged ground water, and provided heat stress reduction while promoting a healthy ecosystem. This project set us apart from all other adaptation methods and put our Piikunni spin on it. We breathed life into this project and used our Piikunni knowledge, such as songs and tradition, to gift our project’s success. We are incorporating as much traditional ecological knowledge as possible for the success of each sector.”

2. East End Bridgeport: Urban Planning and Renewal

Community members are working to revitalize urban areas and to mitigate the effects of climate change. “Groundwork Bridgeport works on revitalizing brownfield lands in post-industrial cities, like Bridgeport, into green spaces and revitalized spaces,” says Christina Smith. “From an equity lens, we work to understand where there’s the lowest tree canopy in the city and then target our efforts in that area, which is the east side, to plant trees.” Such measures reduce both exposure to industrial hazards and extreme heat during climate-related events.

3. McDowell County: Leveraging Resources

With the passage of the Inflation Reduction Act (IRA), advocates are educating community members and preparing them to take advantage of available funding opportunities. In 2021, legislation was passed authorizing Purchase Power Agreements. “Our solar industry has been really booming in the past few years and especially after the power purchase agreements were legalized,” says Morgan King. “They can’t keep up with demand. We’re hoping to see community solar legislation be introduced so that people in communities or renters can take advantage of the federal incentives for solar.” Another recent development derived from listening tours conducted on coal and power plant communities. The West Virginia Grants Commission was ultimately created by the state legislature as a result of this work, intended to help communities transitioning from coal to have a greater capacity to access funding for resources. While this would enable communities to have greater capacity, the Governor still had not made appointments at the time of the report in the second quarter of 2023.

Infrastructure Conditions and Policy Solutions

The condition of local infrastructure poses health and safety risks to residents, both pre- and post-disaster. Community members have lived with the deleterious effects of neglected infrastructure – both on their health and their pocketbooks – for decades. Without policy interventions, climate disasters in particular will take a disproportionate toll on these communities.

Why It Matters

- Increased challenges for disaster response** resulting from industrial pollutants that pose health risks to residents.
- Creation of “heat islands” and “urban inferno” conditions**, particularly in urban areas that lack adequate tree canopy and have a high proportion of impervious surfaces.
- Increased health and economic risk** for those whose jobs require that they work outdoors.
- Overwhelmed water and sewage systems** in cases of blackouts or flooding, creating health and safety risks to residents.
- Contaminated drinking water risks and health and safety risks from raw sewage** when flooding overloads stormwater systems.
- Higher energy costs** from poorly insulated homes.
- Increased exposure of residents to the elements** as a result of structural failures to windows and roofs. In periods of extreme cold, pipes may freeze or burst, creating additional hardship and expense.
- Ineligibility for weatherization upgrades.** Until a household can afford repairs, access to assistance to make energy-efficiency upgrades may be out of reach.
- Lower likelihood of eligibility for FEMA assistance** in a climate disaster, due to pre-existing substandard housing.
- Increased health risks to residents from mold** when flooding occurs.

What We Can Do

- Fund home repair and “pre-weatherization” programs** to bring homes up to weatherization standards.⁹⁰
- Increase funding for and direct funding to urban planning measures to mitigate the impacts of extreme heat**, such as permeable pavements and tree planting, to those communities most affected by “heat islands.”
- Prioritize frontline communities for stormwater, septic, and water system modernization.**
- Ensure that workplace safety standards provide protection for all workers**, including in response to climate disasters.
- Prioritize community voices to direct benefits from federal funds**, in alignment with The Justice 40 initiative.⁹¹

⁹⁰ See, for example, Vox, “How to fight the affordable housing and climate crises at once,” April 17, 2022.

⁹¹ For more information, see Just Solutions Collective, “Climate and Environmental Justice and the Infrastructure Bill,” November 16, 2021.



Conclusion

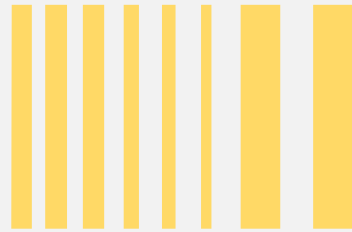
Research examining the relationships between these domains – Economic Conditions, Health Conditions, and Infrastructure Conditions – and vulnerability to climate change is still emerging, but such studies are not new. Discussions related to climate risk frequently consider socioeconomic indicators, such as poverty level, education level, or disability, and health. Often, they include race. Researchers frequently acknowledge that socioeconomic and health conditions make communities more vulnerable to climate change, particularly climate-related disasters.

This study has taken a different approach:

- It has considered the continuum of responses and spanned community efforts to contend with climate change. It goes beyond the ability of communities to recover in the event of a climate-related disaster. It takes a step back to consider the current-day capacity to respond to climate change. This includes the capacity to cope – for example, the presence or absence of resources available to pay for the increased heating and cooling costs associated with climate change. It also includes the degree to which communities are prepared and positioned to participate in the transition to a clean energy economy equitably.
- It has sought not only to identify those factors that indicate vulnerability but also to establish a causal relationship – these factors put these communities at greater risk.
- In exploring this causal relationship, it has argued that the “pre-existing conditions” experienced by these communities are the direct consequence of enacted policies that have deprived these communities of resources and assets, environmentally degraded or undervalued their lands, or facilitated systemic racism. As a result, they face greater risk from climate change than higher-income, more privileged communities. Long histories of economic, political, and social exploitation have facilitated existing conditions.
- The incorporation of community perspectives and solutions on these topics throughout the paper not only grounds and validates the data collected but also recognizes the resilience and capacity of people and communities to determine and create effective and viable solutions to the climate crisis.



This moment of unprecedented climate disasters and federal investments in environmental justice and a clean energy future presents an opportunity for regenerative leadership in communities like those profiled here. It is an opportunity to leverage community assets, ideas, and networks to implement and create change.⁹² It also presents an opportunity for environmental and climate justice advocates to join forces with those working in other sectors to improve outcomes related to the underlying factors, such as those identified here, that directly put communities at greater risk. Until public policy and policymakers understand and center the necessary attention these underlying conditions require, these communities will continue to be at greater risk from climate change and encounter disproportionately greater difficulties in the future in coping with and responding to its effects. Broader still, we believe that, unless we effectively and fully address these underlying conditions, we will not meet the challenge of the climate crisis, protect all of our communities from climate disasters, and position the U.S. as a leader in the clean energy future.





The Perfect Storm of Extraction, Poverty, and Climate Change:
A Framework for Assessing Vulnerability, Resilience, Adaptation,
and a Just Transition in Frontline Communities



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