

## Mid-South Rapid Retrofits Project

### *Addressing Barriers to Residential Energy Efficiency in the Greater Memphis Area*

#### WORKPLAN

#### 1. OVERALL PROJECT SUMMARY AND APPROACH

##### a. Description of GHG Reduction Measures

**Overview:** Shelby County Government, on behalf of the Mid-South Rapid Retrofits Coalition that includes the City of Memphis, TN; the City of Millington, TN; the City of Collierville, TN; the City of Bartlett, TN, the Town of Arlington, TN; and the City of West Memphis, AR, seek \$65,879,672 in US Environmental Protection Agency (EPA) Climate Pollution Reduction Grant (CPRG) implementation funds for the **Mid-South Rapid Retrofits Project: Addressing Barriers to Residential Energy Efficiency in the Greater Memphis Area** project. The Mid-South Climate Action Plan: Priority Reduction Measures (PCAP) indicates that residential buildings represent 4,745,617 metric tons of CO<sub>2</sub>e emissions annually, or an estimated 20% of total non-agricultural emissions for the Memphis metropolitan statistical area (MSA). And according to the American Council for an Energy-Efficient Economy (ACEEE), the Greater Memphis Area leads the nation in high energy burdens for low-income communities. Low-income homeowners and renters across this historically disadvantaged region need cost-saving weatherization and energy-efficiency repairs like attic insulation, window replacement, and air sealing, but a lack of certified auditors and contractors has led to long waitlists for existing weatherization programs. Some communities in the region lack access to weatherization assistance programs altogether. Reducing energy consumption, decreasing greenhouse gas emissions, and alleviating energy burdens in low-income communities will require a coordinated regional effort to (a) grow the skilled weatherization and energy retrofit workforce serving the region, (b) streamline existing programs with navigation and case management services, and (c) dramatically increase the level of resources available for energy audits, retrofit installations, and weatherization activities in the Mid-South.

**GHG Reduction Measure:** The project will reduce greenhouse gas emissions (GHG) in the residential building sector by addressing workforce, navigation, and resource barriers to activate and expand energy efficiency and weatherization programs across the Mid-South.

**Relation to PCAP:** In February of 2024, the Shelby County Government submitted the [Mid-South Climate Action Plan: Priority Reduction Measures \(PCAP\)](#) covering the eight-county Memphis MSA (spans communities in Tennessee, Mississippi, and Arkansas) to the US EPA. The PCAP highlights five priority GHG reduction measures for the Greater Memphis Area and Mid-South Region, including **Reduction Measure R.1: Low-Income Residential Energy Efficiency Retrofits**.



The Mid-South Rapid Retrofits Coalition is prioritizing Measure

**R.1: Low-Income Residential Energy Efficiency Retrofits** in alignment with the goals of CPRG because:

- The proposed measure will not only achieve significant cumulative GHG reductions by 2030, but will also address a **pressing equity challenge facing lower-income and disadvantaged communities (LIDACs)** across the Mid-South. According to [ACEEE](#), low-income households in Memphis face some

of the highest energy burdens in the country, with half of low-income households facing energy burdens over 13.2%, and a quarter of them, over 25.5%. The national average is 3.5%.

- **Reducing energy consumption** is a key strategy for reducing GHG emissions in a region where the [grid decarbonization is lagging](#).
- While many localities within the Greater Memphis Area have active weatherization and energy efficiency programs, there are **massive backlogs and waitlists that prevent residents from accessing these cost-saving and life-improving services that reduce energy consumption**. During the development of the PCAP, groups implementing energy efficiency and weatherization programs in the Memphis MSA indicated strongly that the most challenging barrier to reducing energy burden for regional residents is the **lack of auditors or contractors in the area who are qualified to complete the approved work orders**.
- Expanding regional training opportunities to build a skilled workforce of energy auditors and retrofit contractors will enable the region to **scale and sustain highly impactful weatherization and retrofit programs**. In addition to reducing GHG emissions, these programs' **co-benefits will include reducing energy burden for low-income residents, improving the living conditions and housing stock of low-income residents, and providing new green economy job opportunities in low-income areas**.
- **Limited alternative resources are available** to address the barriers to residential energy efficiency in the Greater Memphis Area (see *Section 1.b* below).

**Goal:** The goal of the proposed Mid-South Rapid Retrofits program is **to increase the number of low-income households served by weatherization and energy efficiency retrofit programs** from 2019 levels **by 350 percent over five years**. To achieve this, the Mid-South Rapid Retrofits project will grow the skilled weatherization workforce serving the region to accomplish an estimated **1,777 audits and 1,600 retrofits during the Rapid Retrofit Blitz by October 1, 2029**. Retrofits to households will include improving weatherization and insulation, installing smart thermostats to reduce energy consumption, and installing more energy efficient appliances and home products such as windows and roofs. While CPRG-funded retrofits will be conducted primarily within LIDACs in Crittenden County, AR and Shelby County, TN, the workforce training component is expected to benefit the entire MSA. The overall **target reduction in energy usage** through these programs is **30 percent**. The **cumulative GHG Emissions reductions from the proposed measure from 2025- to 2030 will total 45,411.99 metric tons CO<sub>2</sub>e**.

**Proposed Scope: Overcome Critical Shortage of Certified Auditors & Retrofit Installers:** With US EPA CPRG Implementation grant funds, the Mid-South Rapid Retrofits project team will **provide three tiers of expedited training and certification programs** to overcome the shortage of certified energy auditors, retrofit installers, and quality control inspectors needed to address the backlogged demand for weatherization and energy retrofit services in low-income households across the Memphis MSA:

**Tier 1 - Expedited Training:** The Green & Healthy Homes Initiative (GHHI) will scale and deliver a 3-day [Master Home Environmentalist Program](#) with a focus on weatherization and energy efficiency for 98 trainees throughout the 5-year grant program. This no-cost training will enable Master Home Environmentalists (MHEs) to conduct no-cost Healthy Home Checkups to look for interior and exterior hazards and disrepair that causes high energy burden and to complete small repairs/retrofits. MHEs will be eligible for additional no-cost training to prepare them to conduct more specialized retrofits and home repairs. This program will leverage ongoing Lead Safe Renovation, Repair, & Painting (RRP) training and other trainings necessary to ensure safety during Healthy Home Checkups.

**Tier 2 - Comprehensive Contractor & Auditor Training:** William R. Moore College of Technology (Moore Tech) will deliver comprehensive weatherization and energy efficiency training to 98 trainees, including

auditors and contractors, throughout the 5-year grant period. Tier 2 training will build upon Moore Tech's new 2-week weatherization training program to develop a specific semester-long curriculum that will prepare trainees for the jobs created by the Mid-South Rapid Retrofits project. Moore Tech will layer in additional courses and certifications for trainees, as needed, such as property maintenance plus heating, ventilation, and air conditioning (HVAC), duct sealing, and HERS (Home Energy Rating System) Rater, as well as foundational 14-week courses in electrical, plumbing, carpentry, and insulation. Moore Tech will deploy CPRG funds to bring on new instructors and deploy train-the-trainer models to scale the available courses. Participant support stipends will ensure that training is accessible to low-income jobseekers who may need transportation and childcare assistance to attend multi-week courses.

**Tier 3 - Building Performance Institute (BPI) Certification:** Moore Tech will prepare up to ten trainees per year for the Building Performance Institute's Home Energy Professional (HEP) certification exams. CPRG funds will provide scholarships to cover participant training and travel costs for the following BPI HEP certifications: Energy Auditor, Retrofit Installer Technician, and Quality Control Inspector.

To accomplish this, the Mid-South Rapid Retrofits Coalition will establish a Workforce Task Force that will include Moore Tech, the Green & Healthy Homes Initiative, the Shelby County Workforce Partnership, Workforce Improvement Boards (WIBs), local contractor associations, and vocational schools across the region to establish a talent pipeline into the new weatherization workforce training opportunities. This will include a trainee recruitment strategy targeting low-income and historically disadvantaged areas of the Greater Memphis Area. The Task Force will work with schools, churches, and WIBs to publicize the availability of no-cost or partially subsidized training with associated participant support services and to educate job seekers about the in-demand weatherization and energy efficiency jobs.

**Overcome Complex & Inaccessible Weatherization & Retrofit Application Processes:** Currently, the high number of existing programs and application systems places the burden of navigating bureaucracy on low-income residents. Individuals often attempt to apply for various housing related programs in-person or inquire via phone and find that 1) they are either not eligible for the program; 2) that they do not have all the necessary materials on-hand to apply; or 3) the programs are not currently accepting applicants. Those who do successfully apply to receive services struggle to determine their status. Further, existing home repair programs are fragmented by agencies on sporadic timelines, making it difficult to sequence work across agencies.

With US EPA CPRG Implementation grant funds, the Mid-South Rapid Retrofits project team will leverage and advance ongoing regional efforts to launch an online One-Stop-Shop website to provide residents with easy, simple access to all available housing-related resources, including weatherization and energy efficiency programs, in one place. The City of Memphis Mayor's Office, Innovate Memphis, Shelby County Department of Housing, and City of Memphis Housing and Community Development are working together to leverage Bloomberg American Sustainable Cities (BASC) initiative award funds (described further in *Section 1.b* below) to launch an eligibility screener information resource and develop a single-entry common application platform in Spring of 2024. The One-Stop-Shop will improve the process and delivery of housing repair services, such as weatherization, lead remediation, and affordable housing programs. The One-Stop-Shop website will host a universal application through which residents can submit initial screening information and be connected with a Navigator or Case Manager who will screen them for eligibility and refer them to the appropriate weatherization and energy efficiency services available to them. Case Managers will assist residents with enrollment, informing participants of what to expect and helping them with each step along the way. Case Managers will also track audits and retrofits completed, as well as annual energy savings for each served household. The backend of the One-Stop-Shop website

will include a cloud-based file management system to maintain files for program participants over time and across programs. Surveys and follow-up will enable the Case Managers to effectively track services received and energy saved, as well as to monitor program participant satisfaction. The Spring 2024 Phase One launch of the One-Stop-Shop website will be well-timed to support the efficient implementation of the Rapid Retrofits Blitz upon CPRG award.

To integrate the new One-Stop-Shop resource with the Rapid Retrofits Blitz, the Mid-South Rapid Retrofits Coalition will establish a One-Stop-Shop Task Force dedicated to coordinating with the Bloomberg-funded innovation team to ensure a seamless intake process for community members across the Mid-South and ease of tracking and reporting during the auditing and retrofit process. With limited CPRG funds, Memphis and Shelby County Office of Sustainability and Resilience (OSR) will dedicate staff time toward coordination of Coalition Members and Project Partners with the One-Stop-Shop innovation team to ensure applicants are served by the most appropriate funding sources.

***Overcome Lack of Available Funding to Address Energy Burden for Mid-South Households:*** With US EPA CPRG Implementation funds, the Mid-South Rapid Retrofits Coalition will scale existing weatherization and energy efficiency programs to address the backlogged demand and launch new weatherization and energy efficiency programs to reach unserved areas in Shelby County, TN and Crittenden County, AR. The Coalition will deploy funds to prioritize residents of high-minority and high-energy burden LIDACs for assistance in a “**Rapid Retrofit Blitz**” that will last the duration of the project period.

To accomplish this, the Mid-South Rapid Retrofits Coalition will establish a Rapid Retrofits Implementation Task Force that will coordinate with existing weatherization and energy efficiency service providers serving Shelby County, TN and Crittenden County, AR. Coalition Members will hire or contract the newly trained, certified auditors and retrofit installers to deploy additional CPRG funds to rapidly scale services, prioritizing the most vulnerable and disadvantaged residents. The Task Force will also work with Coalition Members whose residents lack access to weatherization and energy efficiency services all together, helping them through peer-to-peer networking and technical assistance to launch programs to reach unserved residents. Residents who are educated about the availability of services will also receive information about job training opportunities to involve disadvantaged residents directly in the improvement of their neighborhoods.

With CPRG funds, the Rapid Retrofits Implementation team will conduct 1,777 audits and 1,600 retrofits by October 1, 2029. Coalition Members will build the internal capacity they need to scale and manage their weatherization and energy efficiency retrofit programs, including program managers, as well as auditors, installers, and quality control inspectors from the expedited training programs. The Rapid Retrofits Implementation Task Force will coordinate with the One-Stop-Shop Task Force to activate a rapid pipeline of residents in need of screening and navigation to the appropriate Rapid Retrofits partner or weatherization and energy efficiency program. Certified technicians will complete energy-saving repairs, including (but not limited to) attic insulation, broken window repair or replacement, exterior door repair or replacement, weather stripping around doors or windows, repair of gas leaks, sealant of exterior or interior wall or floor penetrations, HVAC duct repair or replacement, HVAC repair or replacement, and electrification of home appliances. The average retrofit project conducted with CPRG funds will include electrification of heating systems with significant envelope upgrades. Remaining electric emissions will be reduced through local offsets from [Tennessee Valley Authority green pricing programs](#), or other utility Renewable Energy Credit programs (RECs), as available. These RECs will be from wind and solar within the region. The One-Stop-Shop intake process will facilitate efficient case management and tracking of work completed, performance measures, and participant satisfaction.

**Table 1 - Milestones & Tasks for Mid-South Rapid Retrofits Residential Energy Efficiency GHG Reduction Measure.**

Milestone/Task	Pre-Award	Y1	Y2	Y3	Y4	Y5
<b>Milestone 1:</b> Shelby County Government oversees and manages grant administration, Mid-South Rapid Retrofits Program administration, and reporting.						
Task 1.1: Shelby County Government program administration team establishes internal accounting, subaward, and reporting protocols in July and August '24.						
Task 1.2 Shelby County Government executes award agreement with US EPA in October '24.						
Task 1.3: Shelby County Government builds internal program management capacity, hiring Mid-South Rapid Retrofits Program Manager A and two Planner Is by December '24.						
Task 1.4: Shelby County Government will build internal accounting capacity, hiring one 1 Accountant B in by December '24 to support grant administration.						
Task 1.5: Shelby County Government administration team tracks implementation, manages finances, monitors subawards, and submits semi-annual reports and final report to EPA by October '29.						
<b>Milestone 2:</b> Convene Mid-South Rapid Retrofits Coalition Members and Project Partners.						
Task 2.1: Host kick-off meeting to formalize project roles upon announcement of selection in July '24.						
Task 2.2: Lead Applicant Shelby County confirms coalition governance structure and subaward and reporting protocols with Coalition Members and Project Partners, establishing a system for tracking expenditures and performance measures in July '24.						
Task 2.3: Coalition Members sign Memorandum of Agreement (MOA) in July '24.						
Task 2.4: Project Partners establish Workforce Task Force, One-Stop-Shop Task Force, and Rapid Retrofits Implementation Task Force in October '24.						
Task 2.5: Coalition Members meet quarterly. Task Forces meet monthly, and as needed for duration of 5-year grant period.						
<b>Milestone 3:</b> Train 246 certified energy auditors and retrofit contractors.						
Task 3.1: Moore Tech launches weatherization training program in February '24, with the first cohort completed.						
Task 3.2: In Q4 of '24, Workforce Task Force convenes workforce partners to finalize plan for establishing and scaling a Rapid Retrofits Workforce Pipeline through (a) targeted recruitment in LIDACs, (b) an established network of service providers to offer transportation, childcare, and other participant supports, (c) three tiers of efficient and accessible training and certifications, and (d) direct placement into Rapid Retrofits auditor and contractor roles.						
Task 3.3: Tier 1 - In Q4 of '24, GHHI trainer builds capacity and procures materials and equipment necessary to scale MHE training to reach nearly 100 participants over the 5-year grant period. GHHI will also secure additional licenses for the MHE Efforts to Outcomes Database to track performance and results.						
Task 3.4: Tier 2 - In Q4 of '24, Moore Tech hires three (3) instructors and procures materials and equipment necessary to build off its new 2-week weatherization training to launch a comprehensive, semester long weatherization/energy efficiency certification program for nearly 100 contractors/auditors trainings over the 5-year grant period. Moore Tech will locate off-site space to house additional courses, as needed.						



Milestone/Task	Pre-Award	Y1	Y2	Y3	Y4	Y5
Task 3.5: Tier 3 - In Q4 of '24, Moore Tech formalizes program to prepare contractor/auditor trainees for BPI Certification Exam, covering costs for test prep, exam, and travel.						
Task 3.6 Recruitment - In Q1 of '25, Workforce Task Force launches targeted recruitment strategy, working with trusted community-based organizations, CDCs, churches, and vocational schools to recruit jobseekers for new training. Targeted recruitment continues throughout 5-year grant-period.						
Task 3.7: Placement Planning - Workforce Task Force creates and distributes informational material to all program-funded students on Coalition Member and Project Partner construction procurement procedures.						
Task 3.8: Training - Beginning in Q1 of '25, nearly 250 jobseekers receive training across three tiers of weatherization and energy efficiency training.						
Task 3.9: Placement - Throughout the grant period, Workforce Task Force connects training graduates with Rapid Retrofits energy auditor and weatherization jobs, including through hosting an annual job fair.						
<b>Milestone 4:</b> Leverage the ongoing development of a One-Stop-Shop online point of entry for weatherization and energy retrofit services to coordinate effective delivery of weatherization and energy efficiency across the Mid-South region.						
Task 4.1: Pre-award, project team will establish a One-Stop-Shop Task Force for the purpose of coordinating with the Innovate Memphis-led team and the Bloomberg American Sustainable Cities (BASC) initiative to launch a Common Application for Home Repair Programs that will directly bolster the implementation of the Rapid Retrofits program.						
Task 4.2: One-Stop-Shop Task Force will ensure that Coalition Members' and Project Partners' existing weatherization and energy efficiency programs are plugged into the One-Stop-Shop webpage, Common Application Process, screening, and navigation/referral/case management services.						
Task 4.3: One-Stop-Shop Task Force will coordinate to ensure effective tracking & measurement of households accessing services through One-Stop-Shop.						
<b>Milestone 5:</b> Launch and implement Mid-South <b>Rapid Retrofit Blitz</b> , serving 1,600 low-income households over the 5-year grant period.						
Task 5.1 The project team will establish the Mid-South Rapid Retrofits Implementation Task Force, focused on rapidly deploying resources to reduce energy consumption in low-income, energy-burdened homes in October '24.						
Task 5.2: Participating Coalition Members will build the internal capacity to implement the Rapid Retrofits program, hiring 1-5 FTEs each in Q4 of '24 and Q1 of '25. These will include Program Managers, as well as direct hires from the energy auditor, retrofit installer, and quality control inspector training programs.						
Task 5.3: In Q4 of '24 and Q5 of '25, the Rapid Retrofit Implementation Task Force will coordinate with the region's weatherization and energy retrofit providers and the One-Stop-Shop Task Force to ensure that entry into their weatherization and energy efficiency programs is integrated with the universal intake process and file management, tracking, and reporting is coordinated, as well.						
Task 5.4: The weatherization and energy retrofit providers will serve the backlogged and waitlisted low-income households in Shelby County, TN and begin new programs in unserved areas in Crittenden County, AR.						

Milestone/Task	Pre-Award	Y1	Y2	Y3	Y4	Y5
Task 5.5: Coalition Members pre-purchase energy offsets for each household that receives retrofits or interventions from the project.						
Task 5.6: Mid-South Rapid Retrofit Implementation Task Force will develop outreach and educational materials (both print and virtual media) to distribute to each household that receives retrofit or upgrade services.						

**POTENTIAL RISKS & MITIGATION:** Potential risks associated with the proposed measure include the workforce and hiring challenges; the need for educational, behavioral, and policy change; ongoing operations and maintenance costs; and challenges with performance tracking.

**Labor Shortage:** The ongoing skilled labor shortage will remain a capacity challenge through the first years of the grant period as initial trainees move through the workforce program. The Mid-South Rapid Retrofits Workforce Training programs will focus first on expedited training (3-day MHE and 2-week Moore Tech Weatherization) to help trainees reach preparedness for work as quickly as possible, while also building out more comprehensive training and certifications to scale the number of certified auditors, retrofit installations, and quality control inspectors to sustain capacity to meet regional demand for weatherization and energy efficiency over time.

**Education & Behavior Change:** The Rapid Retrofit programs will require significant customer education and behavior change throughout the life of the project to ensure maximum benefits and GHG emissions reductions. Program implementers will educate target households about the long-term benefits of energy efficiency measures and their impact on household finances. Additionally, programs for rental units will provide additional information on benefits not only the renter's utility bill, but also home maintenance conducted by the landlord. The auditors and retrofit installers will educate residents on the use and safety of electric appliances. Continuing education after installation will remind participants to incorporate new practices in their day-to-day routines. Implementers will make best efforts to educate new occupants in homes that have received audits and retrofits previously, as it will help ensure the previous progress continues.

**Policy Change:** Home improvements often have a side-effect of raising property values and eventually property taxes. The Mid-South Rapid Retrofits Coalition Members will explore policies that ensure the financial benefits from energy efficiency do not unintentionally penalize low-income households for installing energy efficiency measures. Some existing policies, such as the *City of Memphis's Ordinance 5292, An Ordinance to Provide for Minimum Energy Efficiency in Rental Property*, have led to increased energy efficiency in residential rental buildings, and encouraging neighboring jurisdictions to adopt similar legislation would help expand these results further in the region. These policies may need additional support in the form of advocacy at the state level to ensure enforceability. The regional coordination driving this proposed CPRG project will help to facilitate coordinated policy change.

**Financial:** Maintenance costs of retrofits for some households may be nearly as prohibitive as the purchase and installation costs. Financing for ongoing operation and maintenance costs for the energy efficiency measures (such as windows) will be identified. Rapid Retrofits providers will offer housing counseling services, leave extra filters and maintenance supplies at the time of upgrades, and provide seasonal cleanout/services to help defray any increased costs of maintenance from retrofits.

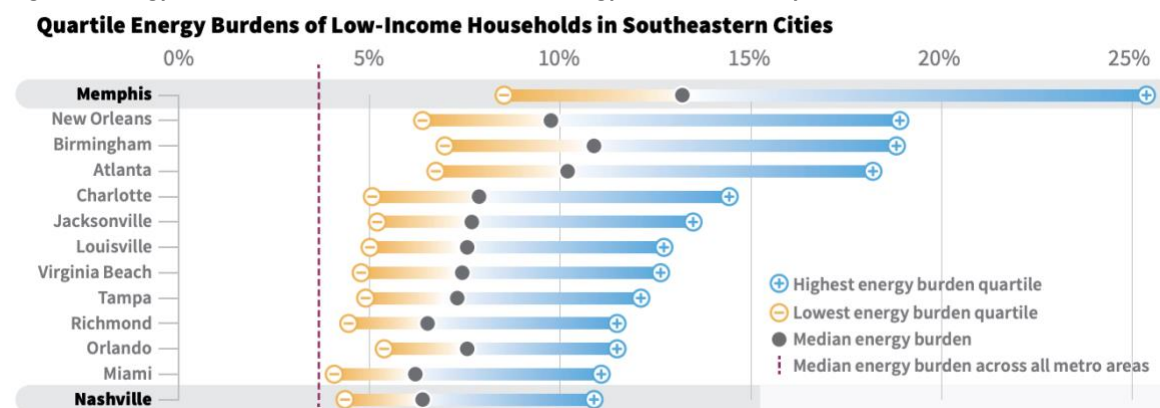
**Program Tracking:** Program evaluation over time will be challenging, as it may require residents’ consent to access their utility data prior to, during, and after their participation in the program, as well as cooperation among utility providers to provide the data. Additional concerns about tracking program effectiveness related to participants moving homes. To mitigate this, Memphis, Light, Gas and Water (MLGW) is a core partner of the Rapid Retrofits Coalition and Coalition Members will work early to bring in additional utility providers, as necessary to secure the data needed. The project team will make best efforts to conduct outreach to new residents if participating residents move during the project period to continue tracking performance measures at improved homes.

**Coalition Roles:** All Coalition Members were engaged in project design and will have active roles in implementation, as described in *Section 3.c* below. **Shelby County Government will submit an MOA signed by all coalition members by July 1, 2024.**

## b. Demonstration of Funding Need

**Need for CPRG Funding:** Memphis MSA residents - especially those living in LIDACs - face among the [highest levels of energy burden](#) in the country. This represents a critical opportunity to reduce energy consumption and decrease GHG emissions while providing cost-savings and quality of life improvements to residents of historically disadvantaged communities.

Figure 1. Energy Burden from American Council for an Energy Efficient Economy



According to ACEEE, spending greater than 6 percent of income toward utility bills is considered a high energy burden, while spending greater than 10 percent is considered a severe energy burden. Memphis (and the Mid-South generally) has struggled with high energy burdens for a long time. A 2016 ACEEE report identified Memphis as having the highest energy burden for low-income households in the nation, finding that some households were paying up to 25 percent of their income on energy bills (see Figure 1 above for comparisons with other cities).

Weatherization is a key strategy for reducing energy burden by reducing energy consumption, which in turn reduces the price of utility bills and the share of income used to pay them. Figure 2 demonstrates the severity of energy burden within the committed jurisdictions in the MSA. Seventy census tracts are within the 85th percentile of Climate and Economic Justice Screening Tool’s (CEJST) energy burden threshold. This means residents in these census tracts have a higher energy burden than roughly 85 percent of the U.S. population. In addition, all of these census tracts are identified as LIDACs, according to the CEJST methodology. These residents likely have the highest need for weatherization assistance and the lowest ability to pay for upgrades.

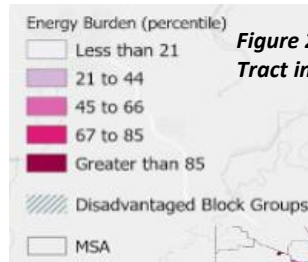


In the Memphis MSA, income levels, age, homeownership, and race are correlated with high energy burden. Black or African-American households, Hispanic and Latino Households, low-income households, and low-income multifamily households are more likely to experience extremely high energy burden.

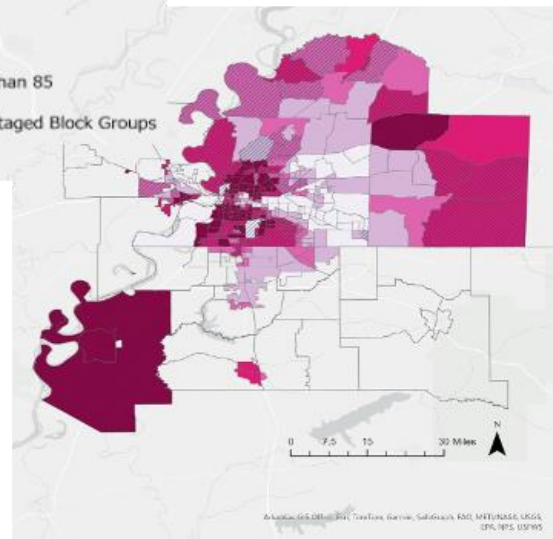
**Table 2. Memphis Energy Burden by Demographics**

Source: ACEEE. [“Lifting the High Energy Burden in America’s Largest Cities”](#)

All Households	Low-income Households	Low-income Multi-family	African American Households	Latino Households	Renting Households
12.8%	25.5%	21.8%	19.4%	15.9%	18.5%



**Figure 2. Energy Burden Severity by Census Tract in Mid-South Rapid Retrofits Project Area**



Historical patterns of disinvestment, racial prejudice, and inefficient land use development patterns have played a large and ongoing role in the Memphis MSA’s current need to address populations housed in inadequate housing, which is intertwined with experiencing high levels of energy burden. Though a wide variety of programs are already in place throughout the region, the scope of the issue in the Mid-South dramatically outstrips the available support. Because there are so many households who qualify for assistance and such limited sources of funding, demand for these programs outpaces the number of projects agencies can complete each year, and only a small portion of the households who need assistance can receive it each year.

This challenge is compounded by the lack of certified auditors, retrofit installers, and quality inspection controllers, which leads to long waitlists for weatherization services where they are currently available. Housing stock is aging across the Mid-South. According to the [2022 American Community Survey](#), 47 percent of the housing units in the entire Memphis MSA were constructed prior to 1980. In historically disadvantaged communities in our region, 69 percent of housing units were constructed before 1980. In addition to problems generated by older construction methods, deferred maintenance due to prohibitive costs also contributes to the need for weatherization assistance. This is more present in housing units where vulnerable populations (e.g., low-income households, renters, etc.) live.

Stories of Memphis area residents like Rebecca Manino, [whose challenges with high energy bills were detailed by the Tennessee Lookout in January 2024](#), reveal how inconveniences like outdated air conditioners and holes in the walls are evolving into serious safety risks as the Mid-South experiences more frequent and extreme weather patterns. Living in an energy-inefficient home, particularly one not properly weatherized, can lead to increased likelihood of health problems. Inadequate weatherization can result in increased exposure to extreme weather, making a house uncomfortable or, in severe cases, unhealthy to live in. An unhealthy home poses an increased risk of chronic illnesses or an increase in severity of symptoms for pre existing illnesses, such as arthritis, asthma, and respiratory illnesses. Mental health challenges can also be present in households that are not properly weatherized or are overly energy burdened, driven by factors such as financial instability, feelings of lack of agency or ownership, and insecurity in housing.

In addition to the major need for weatherization assistance, communities in the Memphis MSA need workforce development opportunities and career pathways to well-paying jobs, demonstrated by the intersection of several demographic trends. Within Memphis MSA LIDACs, the average unemployment rate of 12 percent is more than double the national average of 5 percent as of the 2022 American Community Survey. The average proportion of people in the Mid-South's LIDACs who have had some post-secondary education is 45 percent, which is significantly lower than the national average of 64 percent. Many energy efficiency jobs offer a living wage without the need for an academic degree. While the current landscape of energy efficiency-related jobs suggests advanced degrees are not necessarily required, trades and vocational training and certificate programs are needed to grow the field. These programs can be completed quickly, especially compared to other vocational training programs. Weatherization training at Moore Tech, for example, lasts for two weeks, while other training programs offered by Moore Tech (and other institutions) can last multiple months, if not years. As a result, the financial benefits of these new jobs can be realized sooner. Despite this, LIDACs do not comprise a [proportionate share of the energy efficiency workforce](#) on a national scale. This gap suggests a disconnect between those who could most benefit from these jobs and access to the training opportunities required to enter the field.

**Other Funding Sources:** While a variety of other funding sources for weatherization and energy efficiency programs are available at the federal and state level, these programs are not sufficient to meet the immense need for weatherization and energy efficiency services within the Memphis MSA. The proposed Mid-South Rapid Retrofits project will leverage existing resources to maximize GHG reductions in the residential building sector while benefiting LIDACs.

The US Department of Energy (DOE)'s [Weatherization Assistance Program \(WAP\)](#) is a formula grant that allows states and/or territories to allocate funding towards installing a variety of energy efficiency measures in residential buildings. In the Mid-South region, there are five Community Action Agencies that oversee programs; the City of Memphis Division of Housing and Community Development (one of the project partners for this grant) currently manages the WAP for Memphis and Shelby County. WAP prioritizes applicants by the presence of vulnerable household members (including people 60 years of age or older, people with disabilities, and children under the age of six), household income levels, levels of energy burden, and whether the household is considered a high residential energy user.

The DOE also operates the [Energy Efficiency Revolving Loan Fund Capitalization Grant Program](#), which will enable the creation of revolving loan funds overseen by state energy offices. The DOE is currently reviewing applications to announce awards in spring 2024. It is worth noting the DOE designated both Tennessee and Arkansas as "priority states", which means they will receive supplemental funding. The revolving loans created through the program will be used for energy efficiency audits and upgrades for both commercial and residential structures.

There are three main energy efficiency programs managed by utility providers targeted toward low-income communities, and they function similarly to each other. The Tennessee Valley Authority (TVA) offers the [HomeUplift program](#), which provides a variety of energy efficiency upgrades to low-income households who are subscribers of participating local power companies. Entergy, which services areas in our Arkansas and Mississippi jurisdictions, has funding for income-eligible customers to receive minor weatherization repairs to their homes through the [Low-Income Solutions Program](#). Memphis Light, Gas and Water (MLGW) offers a weatherization program specific to their customers. [Share the Pennies](#) is a bill rounding program that funds grants to low-income homeowners seeking to weatherize their homes or install energy efficiency measures at home.

Additionally, there are rebate-based programs offering money back for the installation of energy efficiency measures in homes. Starting this year, individuals can file for the [Energy Efficient Home Improvement Credit tax credit](#) if they made certain energy efficient upgrades to their homes within the tax year. Rebate amounts vary based on the type of measure installed. Utility providers also offer rebate programs for several energy efficiency measures, such as TVA's [EnergyRight program](#) or Entergy's [Home Energy Solutions program](#), with some measures offered free of charge to customers.

There is also a federal grant program available for workforce development accompanying residential energy efficiency retrofits. The DOE's [State-Based Home Energy Efficiency Contractor Training Grants](#), announced in July 2023, provides funding for state energy offices to create training programs for the contractors who would complete energy efficiency work. These grants would be an additional potential funding source that could be leveraged toward the goals set forth in this project.

**Funding Gap Analysis:** While there are many existing programs addressing weatherization and energy efficiency, there is a large gap between need and funding availability. The Department of Energy's Weatherization Assistance Program (WAP), for example, provides targeted assistance for low-income, elderly, and disabled adults and families, and it has a wide variety of qualifying projects. However, there is only enough yearly funding for a small fraction of the people who require assistance, especially in rural counties, where managing agencies tend to have large service areas and small budgets. Demand for spaces in these programs is so high that many agencies have paused accepting applications while they work through the list of previously approved projects, which can have hundreds of households on them.

Demand is similarly high with utility-funded programs, such as the TVA's HomeUplift program. This program operates in a similar fashion to the WAP, providing financial assistance for households to weatherize their single-family homes. TVA delegates implementation of this program to its providers, who must opt into the program to provide funding for their subscribers. Though not all TVA utility providers in the Mid-South region participate in HomeUplift, the ones that do have such high demand for services they accept applications infrequently.

**Other Funding Secured: Bloomberg American Sustainable Cities:** In March of 2024, Memphis was selected as one of 25 U.S. cities to join the Bloomberg American Sustainable Cities (BASC) initiative - a three-year initiative that will provide capacity-building designed to help leverage the availability of once-in-a-generation-levels of federal funding to build low-carbon, resilient, and economically thriving communities. The initiative aims to ensure the participating cities can leverage and implement federal funds - such as US EPA CRPG funds - to advance local projects, especially in disadvantaged communities historically overburdened by pollution. The City of Memphis will receive a team of up to three staff members, funded by Bloomberg, to drive progress on climate mitigation and promoting equitable outcomes, as well as policy and technical assistance in collaboration with community-based organizations to mobilize public, private and philanthropic investments. This philanthropic investment in local capacity will directly leverage the City of Memphis's participation in the Mid-South Rapid Retrofits Coalition, bringing the additional resources and expertise of Bloomberg's partnerships with PolicyLink, Bloomberg Center for Public Innovation at Johns Hopkins University, and Natural Resources Defense Council to advance the project as a scalable and replicable solution for historically disadvantaged areas challenged with high energy burden.

The City of Memphis Mayor's Office has proposed to deploy the BASC funds to work with Innovate Memphis, City of Memphis's Division of Housing and Community Development, Shelby County

Department of Housing, and other regional partners to launch the One-Stop-Shop online single point of entry for weatherization, energy efficiency, and housing repair services for low-income residents. The funding will support research on current programs, application processes, and stakeholder meetings; the build-out of a multi-program process map that includes timelines for program granting cycles; confirmation of technical requirements and evaluation criteria; generation of a platform wireframe design and prototype; software design for the eligibility screener, common application, and data capture; training and adoption by agencies; and coordinated case management and program delivery. This will include the development of protocols to protect data confidentiality and ensure secure access to case files.

**HUD PRO Housing [pending award announcement]:** In November of 2023, Shelby County Government's Division of Planning and Development, Department of Housing partnered with the City of Memphis' Division of Housing and Community Development to submit a proposal to the US Department of Housing & Urban Development (HUD) Pathways to Remove Obstacles to Housing (PRO Housing) project for the **Memphis Addressing Needs for Everybody Project (Project MANE)**. Project MANE will build on recent planning efforts to remove barriers and improve conditions that will facilitate the development and preservation of quality affordable housing stock. If awarded HUD PRO funds, Project MANE will complement the Mid-South Rapid Retrofits program to help reverse lasting impacts of past exclusionary and racist practices that have resulted in disparities in housing quality and health across the Mid-South.

**Tennessee Department of Environment & Conservation (TDEC) CPRG [pending award announcement]:** The Mid-South Rapid Retrofits Coalition understands that TDEC is submitting Tier A proposal to US EPA CPRG for \$393,945,926 on behalf of the Tennessee Valley Energy Efficiency Incentives Coalition (TV Coalition) to enhance the scope of Commercial, Industrial and Residential energy efficiency programs and reduce GHG emissions throughout the Tennessee Valley Authority's (TVA) service area in Tennessee, Alabama, Mississippi, Georgia, and the Bowling Green, KY MSA. The Mid-South Rapid Retrofits Coalition and the TV Coalition have collaborated to propose safeguards to ensure no overlap in GHG reduction measures occurs should both Coalitions be awarded funding. Should both Coalitions secure funds, the sub-awardee for the TV Coalition, TVA, will not allocate any CPRG funds to project activities within the Mid-South Coalition project area. The following jurisdictions are included in both the Mid-South Coalition project area and the TVA service area: City of Memphis, TN; City of Collierville, TN; City of Bartlett, TN; City of Millington, TN; Town of Arlington, TN; and Shelby County, TN.

### c. Transformative Impact

The Mid-South Rapid Retrofits project will create the following transformative opportunities that will lead catalyze lasting reductions in energy use and significant GHG emissions reductions:

- The expedited workforce training program will establish a **pioneering, replicable, and scalable solution** for communities across the country that are struggling to reduce emissions in the residential building sector due to a **shortage of certified energy auditors and retrofit installers**.
- Training local job seekers in energy auditor, retrofit installer, and quality control inspector jobs will **grow a "green" workforce skilled in GHG reducing career pathways**, which will result in significant GHG reductions beyond the grant period. Now is also the time to address this barrier to ensure that the Mid-South is able to **unleash the full potential of additional federal and state investment and incentives** that depend upon skilled energy auditors and retrofit installers.
- Conducting 1,777 audits and 1,600 retrofits will educate low-income residents regarding energy consumption, electrification, cost-savings, and long-term benefits of energy efficiency measures,

which will help to **sustain GHG-reducing behavior change** for program participants who will incorporate new practices in their day-to-day routines.

- Residential retrofits will **incorporate electrification** whenever possible, including replacing existing gas appliances with efficient electric alternatives, which will lead to even more impactful GHG emissions in low-income housing stock as the grid decarbonizes.
- Reducing energy burden for low-income residents in the Greater Memphis Area will have **significant co-benefits for equity, public health, the environment, economic and workforce development, and resilience**, as described in *Section 4.A below*.

## 2. IMPACT OF GHG REDUCTION MEASURES

### a. & b. Magnitude of GHG Reductions from 2025 through 2030 & from 2025 through 2050

Table 3 - Magnitude of GHG Reductions as a Result of CRPG Investment

	2025	2026	2027	2028	2029	2025-2030	2025-2050
Households Served	170	285	381	382	382		
Annual Energy Bill Savings (\$)	\$114,152	\$305,523	\$561,357	\$817,863	\$1,074,368		
Annual Emissions Reductions (metric tons CO <sub>2</sub> e)	1,313.15	3,514.62	6,457.63	9,408.37	12,359.11	45,411.99	185,386.60

For a detailed explanation of the assumptions underlying these projected impact measures and their durability, please see the attached Technical Appendix (*Techappx\_ShelbyCountyGovernment*).

### c. Cost Effectiveness of GHG Reductions

Table 4 - Cost-Effectiveness Summary of Mid-South Rapid Retrofits Program GHG Emissions

CPRG Request (\$):	\$65,879,672.00
Cumulative GHG Emissions Reduction, 2025-2030 (metric tons CO <sub>2</sub> e):	45,411.99 MTCO <sub>2</sub> e
Cost-Effectiveness of GHG Reductions (\$/metric ton CO <sub>2</sub> e):	\$1,450.71

The cost-effectiveness of the Mid-South Rapid Retrofits program is impacted by the its focus on a measure that **maximizes co-benefits to LIDACs** and **incorporates a robust workforce development program** designed to ensure capacity to scale and sustain the measure, as well as to grow jobs in areas of high unemployment. The project includes an average cost of \$9,000 per trainee for the nearly 250 trainees who will fill nearly half of the 500+ jobs created by the investment in weatherization and energy efficiency in Memphis MSA communities. This funding covers the costs for instructions, materials, training space, equipment, certification, and participant support costs, as needed (transportation, childcare, etc.) to ensure the program is accessible to low-income individuals. The Rapid Retrofits Coalition must front this increased cost per MTCO<sub>2</sub>e to effectively overcome the shortage of certified auditors and retrofit contractors that plagues existing energy efficiency programs. Further, the workforce training will help to establish a career pipeline for un/underemployed individuals living in LIDACs into well-paying “green” jobs that will continue to benefit workers and communities beyond the grant period.



#### d. Documentation of GHG Reduction Assumptions

Please see **attached Technical Appendix** (*Techappx\_ShelbyCountyGovernment*) for documentation of the methodologies, assumptions, and calculations used for developing the estimated GHG emission reductions for the proposed measure.

### 3. ENVIRONMENTAL RESULTS – OUTPUTS, OUTCOMES, AND PERFORMANCE MEASURES

#### a. Expected Outputs and Outcomes

**Table 5 – Mid-South Rapid Retrofits Projects Outcomes and Associated Outcomes Y1-Y5**

Project Outcomes & Outputs	Y1	Y2	Y3	Y4	Y5	Total
<b>Outcome A:</b> Skilled workforce established and well-paying jobs created to scale and sustain expansions in access to weatherization and energy efficiency.						
# of Trainees Recruited	26	44	58	58	58	245
# of Trainees Complete Program	26	44	58	58	58	245
# of Graduates Placed in Jobs	22	37	49	50	50	208
# of Jobs Created by Program Demand	55	92	122	123	123	515
<b>Outcome B.1:</b> Reduced energy burden for residents of low-income households in project area.						
<b>Outcome B.2:</b> Increased resilience to climate change (improved weatherization) for low-income households						
<b>Outcome B.3:</b> Reduced exposure to hazardous indoor air pollution and improved health outcomes.						
# of LIDAC Audits Completed	151	254	339	339	339	1422
# of Audits Completed	189	317	423	424	424	1777
# of LIDAC Retrofits Completed	136	228	304	306	205	1280
# of Retrofits Completed	170	285	381	382	382	1600
Electric Energy Consumption Reduced (kWh saved)	861,642	2,306,160	4,237,252	6,173,413	8,109,574	29,797,615
Natural Gas Energy Consumption Reduced (kWh-equivalent)	832,960	2,229,394	4,096,205	5,967,916	7,839,627	28,805,729
\$ in Annual Energy Savings Across Program Households	\$114,151	\$305,523	\$561,357	\$817,863	\$1,074,368	\$3,947,631
<b>Outcome C:</b> Reduced GHG emissions and co-pollutants from the residential building sector.						
GHG Reductions (metric tons CO <sub>2</sub> e)	1,313.15	3,514.62	6,457.63	9,408.37	12,359.11	45,411.99

Reduction in residential energy consumption is also expected to result in improvements to indoor air quality and reductions to co-pollutants, including Sulfur Dioxide (SO<sub>2</sub>) and Nitrogen Oxides (NO<sub>x</sub>). Co-pollutant reductions due to decreased energy consumption will be measured by converting mass emissions rates using EPA eGRID factors for SO<sub>2</sub> and NO<sub>x</sub> on an annual basis.

#### b. Performance Measures and Plan

At the project kickoff, the Shelby County Government will coordinate with Coalition Members and Project Partners to **clearly articulate the overarching goals of the program**, such as reducing GHG emissions,

decreasing energy burden for low-income households, improving indoor comfort, and enhancing household resiliency. The Mid-South Rapid Retrofits Coalition will collectively **track, measure, and report on progress toward the outcomes and outputs** listed in *Section 3.a* above, as well as additional **key performance indicators** including indoor air quality improvement, as measured by temperature, humidity, particulate matter, and volatile organic compounds and client satisfaction with the One-Stop-Shop and the Rapid Retrofits Implementation process, as measured by participant survey.

The Coalition will **confirm consistent and accurate data collection methods** for each performance measure, including through the use of the One-Stop-Shop case file management system. Methods for tracking outputs, including GHG reductions, will include:

- Pre- and post-retrofit energy audits
- Utility bill analysis
- Installation of monitoring equipment (e.g., smart meters, indoor air quality sensors)
- Surveys and interviews with participating households
- Contractor and case management reports on retrofit activities and costs

Through the development of the PCAP, the coalition has established a **baseline assessment** to understand the starting point before implementing retrofits, including current energy usage, indoor air quality, household demographics, and existing building conditions in participating homes. At the outset of the grant, the Coalition will **confirm benchmarks** for tracking progress over time and compare performance against established targets. Coalition Members and Project Partners will **regularly collect data, analyze results, and generate reports to track progress towards targets**. They will also schedule periodic reviews to assess program effectiveness and identify areas for improvement. The Coalition will **implement quality assurance measures** to ensure that retrofits are completed to high standards and deliver the expected energy savings and other benefits. Quality Control Inspectors trained through the program will **conduct regular inspections of retrofit work** and address any deficiencies promptly.

The Rapid Retrofits Implementation Team will regularly **solicit feedback from workforce trainees, participating households, contractors, and other stakeholders** to identify strengths and weaknesses of the Workforce Development, One-Stop-Shop, and Rapid Retrofits Implementation components of the program. The Coalition will use feedback to make **adjustments and improvements to program operations, outreach strategies, and service delivery**. The Coalition will conduct a comprehensive evaluation at the end of the program to assess its overall impact and effectiveness, comparing actual outcomes against targets and benchmarks and development lessons learned and best practices to enable replication and scaling of the program.

### **c. Authorities, Implementation Timeline, and Milestones**

**Lead Applicant:** **Shelby County Government** will serve as the lead applicant on behalf of the Coalition Members and Project Partners from the Memphis MSA. The **Division of Planning and Development (DPD) Office of Sustainability and Resilience (OSR)** will lead grant management and implementation of the proposed activities. OSR will coordinate coalition members and ensure all subawardees have key personnel in place to implement the proposed projects. Additionally, OSR will conduct all project analysis and estimate the greenhouse gas emissions reductions and other proposed project metrics. Financial management will include DPD receiving and monitoring grants with the Shelby County Division of Finance reviewing expenditures and receipts. Procurement will be coordinated with the Shelby County Department of Purchasing in accordance with applicable requirements in 2 CFR Part 200.

**Coalition Members:** the **City of Memphis, TN** (pop. 628,127); **City of Millington, TN** (pop. 10,176); **City of Collierville, TN** (pop. 51,343); **City of Bartlett, TN** (pop. 57,318), **Town of Arlington, TN** (pop. 14,448); and **City of West Memphis, AR** (pop. 24,150) - have the authority to implement the proposed residential retrofits measure. Local governments have the authority to implement policies and create programs related to low income residential energy efficiency retrofits. Rapid Retrofits Coalition Members will use the authority available in municipal departments already doing work in this field, including their housing departments, planning and development departments, and community development departments, to oversee the delivery of audits and retrofits within their communities.

**Workforce Training Providers:** The **Memphis-Shelby County Green & Healthy Homes Initiative (GHHI)** will be responsible for Tier 1 of the Workforce Training component of the project. GHHI will train 98 Master Home Environmentalists (MHEs) to conduct no-cost Healthy Home Checkups to look for interior and exterior hazards and disrepair and to complete small repairs/retrofit at no-cost to residents. **Moore Tech** will hold primary responsibility for Tiers 2 and 3 of the Workforce Training component of the project with support from existing workforce training programs across the project area. Located in Memphis, Moore Tech is a non-profit, independent technical trade higher education institution operated and governed by a board of trustees. Moore Tech is accredited by the Council on Occupational Education (COE) and adheres to the standards of the Department of Education as well as the state of Tennessee's higher education regulations. In February 2024, Moore Tech launched a two-week weatherization training program to certify contractors to conduct energy audits and retrofit installation. With CPRG funds, Moore Tech will build upon its new 2-week weatherization training with an extended curriculum and additional courses to launch and scale a comprehensive weatherization/energy efficiency certification program for nearly 98 contractors/auditors over the 5-year grant period.

**One-Stop-Shop Partners:** **Innovate Memphis** is a non-profit focused on delivering innovative civic solutions through collaborating with diverse stakeholders across public, private, and non-profit sectors to understand the root causes of long-standing challenges. Innovate Memphis is leading the Bloomberg-funded team to develop the One-Stop-Shop application website for weatherization and energy efficiency services and assisting with outreach and education to community members to spread the word about new access to energy efficiency and weatherization services. Innovate Memphis will help lead the One-Stop-Shop Task Force to ensure that the CPRG-funded weatherization and energy efficiency programs are well-integrated with the One-Stop-Shop platform.

**Rapid Retrofits Blitz Implementers:** **Shelby County Department of Housing** will provide energy efficiency retrofits and weatherization services for 1,000 homes within the County and the participating Shelby County Coalition Member jurisdictions over the five-year grant period. The **City of Memphis Division of Housing & Community Development** will serve as a subrecipient of CPRG funds to implement audits and retrofits for 200 units over five years. The City of West Memphis, AR, will also receive a subaward to include 150 units over five years. Retrofits for the final 250 units will be completed by **Memphis Light, Gas, and Water (MLGW)**. Memphis Light, Gas and Water (MLGW), the largest three-service municipal utility in the nation, has a long history of delivering residential energy efficiency programs and recognizes the need to expand and broaden the region's programs to reach more households in the Greater Memphis Area. MLGW will: assist with outreach and recruitment of job seekers to participate in workforce training; engage in outreach and education to community members to spread the word about new access to energy efficiency and weatherization services; and track and measure progress toward the goals of the Mid-South Climate Action Plan. MLGW will also serve on the One-Stop-Shop Task Force to ensure that the website is well-integrated with MLGW's residential energy efficiency programs. To supplement these efforts, the

**Memphis-Shelby County GHHI Master Home Environmentalists** will conduct no-cost Healthy Home Checkups to look for interior and exterior hazards and disrepair and to complete low-cost, quick, minor repairs while households are awaiting full Rapid Retrofits services.

Please see **Table 1 in Section 1** above for a **detailed implementation timeline** with key milestones for specific tasks to meet the project goals and objectives by the end of the grant period.

#### **4. LOW-INCOME AND DISADVANTAGED COMMUNITIES**

##### **a. Community Benefits**

The Mid-South Rapid Retrofits project team will recruit jobseekers from LIDACs to participate in the workforce development opportunity and will prioritize low-income and disadvantaged communities (LIDAC) households for audits and retrofits, aiming to complete at least 80% of weatherization and energy efficiency improvements in LIDAC households. Participation in the Mid-South Rapid Retrofits Program will have a variety of benefits and some disbenefits for LIDAC residents. Coalition Members and Project Partners will track LIDAC-specific metrics according to the performance measurement plan described in *Section 3.b* above. Clear communication and feedback channels will remain open throughout the project, including client satisfaction surveys offered at multiple points throughout the participants' journey through the program, as well as through regular interactions between participants and their case managers. See the **attached LIDAC Appendix** (*Areas\_ShelbyCountyGovernment*) for the list of LIDACs, as designated by CEJST and/or EPA EJScreen, within located within the participating jurisdictions. There are 437 LIDAC block groups in the Coalition Member Jurisdictions, which constitute 64.4% of the total census block groups located in participating Coalition Members jurisdictions. The Coalition Member jurisdictions represent 87.6% of LIDAC census block groups in the Memphis MSA.

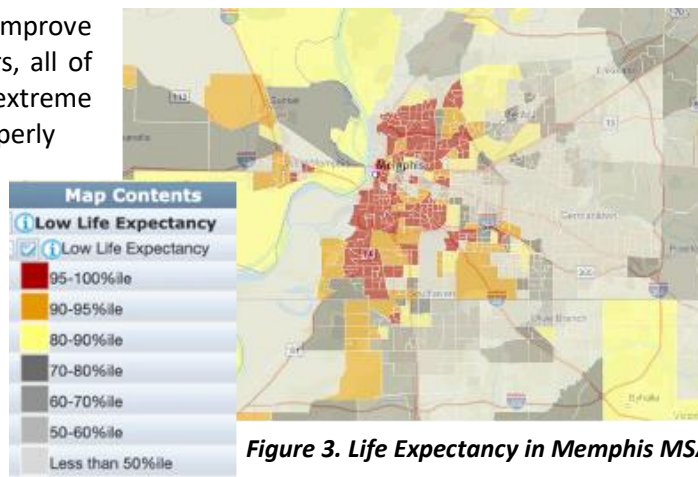
**EQUITY:** Low-income housing retrofits will help reduce the severe energy burden many households in LIDACs in the Mid-South experience. Reducing energy usage in residential settings will decrease utility bills and free up dollars to pay for other needs of LIDAC households. This project will also increase access to energy efficiency measures, especially in households that may not have considered them before. Adding capacity to energy efficiency programs can ensure more households are able to access these programs. The project team estimates that annual energy savings per household participating in the Mid-South Rapid Retrofits project will average \$671.48. The Mid-South Rapid Retrofits Coalition aims to ensure that at least 80% of all households retrofitted by CPRG funds (or 1,240 of the households retrofitted) are located in LIDACS. Making improvements through weatherization or energy efficiency upgrades can also make housing units better to live in, reducing stresses related to health, safety, and personal finances.

**ENVIRONMENT:** Reductions in residential energy use in LIDAC households throughout the participating jurisdictions will result in lower demand for electricity generation. A lower generation demand will result in improved air quality in the communities near fuel-burning power plants. Additionally, more energy efficient homes require less work from air conditioners to cool the home. Air conditioners work by forcing hot air from the building into the outdoors which can impact the immediate temperature surrounding the home, exacerbating the [urban heat island effect that already impacts LIDAC neighborhoods](#) across the Memphis MSA.

**PUBLIC HEALTH:** LIDACs in the Memphis MSA face devastating health disparities; a high concentration of Memphis MSA census tracts are in the 95-100% percentile for low life expectancy relative to census tracts across the nation according to US EPA's EJSCREEN Tool. An even higher concentration of Memphis MSA

census tracts are in the 95-100% percentile for Asthma Incidence. According to the Asthma and Allergy Foundation's [2023 Asthma Capitals report](#), in comparison to cities across the country, Memphis was ranked 7th in the nation for asthma-related deaths.

The Mid-South Rapid Retrofits Blitz will fix leaks, improve insulation, and perform roof or foundation repairs, all of which decrease the likelihood of harm from extreme weather, such as extreme heat or cold. Properly climate-controlled housing will improve the health and resiliency of its occupants, reducing exposure to harmful allergens and mold and decreasing likelihood of respiratory illnesses like asthma. A similar benefit will result from the improved performance of natural gas-powered appliances since well-maintained gas appliances will reduce the amount of indoor pollution and improve indoor air quality.



**Figure 3. Life Expectancy in Memphis MSA**

**ECONOMIC & WORKFORCE DEVELOPMENT:** The proposed three-tier workforce development program will provide job training opportunities to residents of the Memphis MSA and will target recruitment toward unemployed and underemployed individuals living in LIDAC neighborhoods. The jobs created through the Rapid Retrofits program are well-paying, skilled jobs. Since challenges like lack of access to reliable transportation or childcare may discourage people from participating in workforce training, participant support costs to help address these concerns are included in the budget for workforce development. Additionally, reducing energy burden through assisting households with weatherization and energy efficiency upgrades could help alleviate pressures in their personal budgets and allow them the freedom to use that money for other priorities.

**RESILIENCE:** Weatherization and energy efficiency retrofits for LIDAC households will decrease the likelihood of harm from extreme weather, such as extreme heat or cold, as it will improve insulation for homes and provide increased access to efficient space heating and/or cooling systems. Increasing the amount of people living in LIDACs who can remain safely in their homes during extreme weather will also reduce the demand on heating and cooling centers. Reducing energy use will also help prevent strain on the electric grid, as reduced energy consumption will decrease generation needs during peak hours. Additionally, energy efficiency could lead to improved community resilience, as it will improve financial resilience through new, well paying jobs and decreased energy burden.

**DISBENEFITS:** There are a few disbenefits to LIDACs that could arise from the proposed Rapid Retrofits project. Initial meetings with project partners revealed maintenance of retrofit measures, such as new HVAC systems or other appliances, have posed an issue in similar programs in the past. Education related to how to best care for new energy efficiency measures around the home can help address some of these concerns, as households may benefit from education on best practices when it comes to day-to-day operations of these measures and practices around the home that may help increase overall energy efficiency. The project team plans on incorporating this messaging as part of the onboarding and case management for participating households. Some other related concerns related to maintenance involve finances; that is, households may not have room in their personal budgets to accommodate regular maintenance of these measures after installation. The project's budget includes some funding for items that may assist in regular maintenance, such as air filter replacements for HVAC systems.



Data collection for ongoing tracking of benefits and disbenefits that result from the program may also pose a challenge. Since reduction in energy usage is most easily tracked using utility data, program participants will need to authorize the release of that information to the Coalition Team. MLGW staff are determining the appropriate steps to ensure access to the utility data. The City of West Memphis is the electricity provider for its residents and is working on determining similar data access provisions.

## **b. Community Engagement**

The needs of LIDAC residents in the Greater Memphis Area informed the design of the Mid-South Rapid Retrofits project, and the project will continue to engage these community members throughout the implementation process to ensure the project is benefitting LIDAC residents, as intended.

**Public Engagement in PCAP:** As a part of their public engagement process for the priority climate action plan (PCAP), The Tennessee Department of Environment and Conservation (TDEC) distributed an online public survey statewide. OSR distributed the link to the survey on social media channels and newsletters and sent the link to stakeholders and committed jurisdictions to distribute through their own networks. The survey was available for approximately two months and asked participants to prioritize emission sectors, what individual actions they take to reduce greenhouse gas emissions, and motivations, challenges, and benefits related to those actions. Additionally, the survey asked respondents to provide information on any current occurring projects and future projects they wanted to see enacted to reduce emissions in the area. TDEC shared with OSR the survey responses of those respondents who pinned their home location within the Memphis MSA's boundaries.

Memphis and Shelby County OSR received 105 responses out of the 1,294 participants who provided their home location, with 38 (36 percent) of them residing in low-income and disadvantaged communities (LIDAC). Fifty-four respondents provided information on projects in their area. Responses regarding future and current projects occurring in the MSA were included in the project analysis process and considered in the selection of priority reduction measures. 89 percent of respondents said concern for the environment and future generations was their motivation to take emission reduction actions and 68 percent cited a desire to reduce energy bills and save money. 75 percent of respondents named the high cost of sustainable or energy-efficient alternatives as a challenge they face in implementing emission reduction actions. Regarding benefits and challenges related to emission reduction projects, 77 percent of respondents thought that improved air quality and public health resulting from decreased air pollution was an important benefit to their community while 63 percent valued community resilience, or the ability to withstand extreme weather events.

**Trusted Partnerships with LIDACs:** The Coalition Members and Project Partners in this project have a network of community-based organizations (CBOs), Community Development Corporations (CDCs), faith-based organizations, and neighborhood groups that have long-standing, trusted relationships with historically disadvantaged communities throughout the project area. The Mid-South Rapid Retrofits Coalition will activate these trusted partnerships to (a) conduct recruitment for the Rapid Retrofits job training opportunities, (b) disseminate information about the new One-Stop-Shop webpage, and (c) solicit feedback and input on the job training, One-Stop-Shop website, and audit and retrofit process. These trusted partners will also help to establish clear and accessible communication channels to keep community members informed about project progress, timelines, and any potential disruptions.

**Ongoing Community Engagement throughout CPRG grant:** Ongoing community engagement throughout the five-year grant period will be critical to ensuring that the Rapid Retrofits program is successful in

improving quality of life and decreasing energy costs for LIDAC residents. Each component of the program - the Workforce Training, One-Stop-Shop, and Rapid Retrofits Implementation - builds in quality control and feedback mechanisms with clear communication channels for the end users and beneficiaries. The trainees will be asked to provide feedback via survey that the Workforce Training Task Force will use to refine the training programs. One-Stop-Shop users will have opportunities to answer surveys and participate in focus groups to ensure that the website and common application process is accessible and user-friendly for its intended user groups. Post-audit and post-retrofit satisfaction surveys will also help to guide refinement of the Rapid Retrofit Implementation programs. Each Task Force will ensure that project materials, communication channels, and engagement strategies, including the One-Stop-Shop platform are culturally relevant and accessible to diverse linguistic and cultural backgrounds within the community.

## 5. JOB QUALITY

The Mid-South Rapid Retrofits project is expected to grow more than 500 jobs, including more than 250 direct jobs resulting from the CPRG investment. These estimates are based upon the expenditure on retrofits, as outlined in the Technical Appendix (*Techappx\_ShelbyCountyGovernment*).

**Table 6 – Jobs Created by CPRG Investment**

Jobs Summary		Income Summary	
Direct	254.68	Direct	\$21,795,671
General Economy (Indirect + Induced)	260.7	General Economy (Indirect + Induced)	\$17,290,139
Jobs Added	515.4	Income Added	\$39,085,810

*Economic Impacts come from GreenLink Analytics Clean Energy Jobs Calculator*

A major component of the proposed Mid-South Rapid Retrofits is a workforce development program that will support the establishment of a career pipeline to grow a diverse, highly-skilled workforce for high-quality energy auditor, retrofit installer, and quality control inspector jobs. All three tiers of job training described above will be offered to participants at no cost and with the availability of supportive services, such as childcare, transportation assistance, supportive services for formerly justice-involved individuals, and supportive services for individuals in recovery from substance use, to increase accessibility of training. The Task Force will identify specific needs based on participant input to determine which barriers these funds can address. This program aims to provide comprehensive support to workforce development, which includes addressing the challenges of those who have experienced a lack of access to opportunity. This case management approach will support those most in need and help build local capacity beyond simply providing the training itself.

The Mid-South Rapid Retrofits Workforce Development Task Force will deploy a targeted recruitment strategy to hire individuals from disadvantaged communities, in alignment with applicable law. This will include working with trusted CBOs, CDCs, faith-based institutions, and neighborhood organizations to reach unemployed and underemployed residents of historically disadvantaged areas.

The Workforce Development Task Force will prioritize connecting trainees with dependable, well-paying, full or part-time jobs as well-trained energy efficiency-skilled contractors, energy auditors, retrofit installers, and quality control inspectors. Coalition Members aim to hire energy auditors or other trained individuals as full-time positions with full benefits (see organization chart included in this application's

budget justification). In addition, the Workforce Development Task Force will support local, often minority and women owned business enterprises, to take part in this program and grow local capacity to skillfully respond to bid opportunities emerging from this effort and other available local programs. All employees and independent contractors hired with CPRG funds will comply with Davis-Bacon Act as applicable with EPA regulations and CPRG-relevant waivers, ensuring well-paying wages. The project team estimates that nearly 500 individuals will benefit from higher paying jobs as supported by the project from both local small business enterprises and larger-scale businesses taking advantage of this opportunity.

The Mid-South Rapid Retrofits Coalition will view job quality expansively across all aspects of the project, including through encouraging strong labor standards for all contractors, sub-contractors, and sub-awardees involved in the implementation of the Rapid Retrofits program. The Coalition kick-off meeting will include an overview of the eight [Good Jobs Principles](#) developed by the U.S. Department of Labor and Department of Commerce and how to utilize the [Good Jobs Toolkit](#). The Mid-South Rapid Retrofits Coalition will encourage all participating employers, contractors, and subcontractors to adopt the following “high roads” labor practices: Through its subawards and procurement of contractors to implement the project, the Mid-South Rapid Retrofits Coalition will encourage: clear commitments to paying at least the median area income for all workers (where prevailing wage is not required by law; providing family-sustaining benefits and retirement contributions; establishing normal partnerships with labor organizations and other workers’ rights groups, such as the Memphis & West Tennessee Building & Construction Trades Council, AFL-CIO, and others; protecting employees’ rights to freely and fairly join a union and collectively bargain; using Project Labor Agreements or Community Workforce Agreements on construction projects; incorporating labor and job quality standards into procurement activities associated with the measure; developing health and safety plans in conjunction with workers, including anti-harassment training for workers and management, Occupational Health and Safety Administration (OSHA) training to minimize workplace hazards (e.g., OSHA 10 and OSHA 30), and supplemental health and safety training as needed; and using second-chance hiring policies, or the practice of hiring individuals with a criminal record, to expand opportunity for individuals with justice-system involvement.

## **6. PROGRAMMATIC CAPABILITY AND PAST PERFORMANCE**

### **a. Past Performance & b. Reporting Requirements**

**Project #1 Title:** Climate Pollution Reduction Grants - Planning Grant

**Assistance Agreement Number:** 02D56723

**Federal Funding Agency:** Environmental Protection Agency

**Assistance Listing Number:** 66.046

**Brief Description of the Agreement:** The Environmental Protection Agency awarded Shelby County Government \$1,000,000 in funds to design and produce climate action plans for the Memphis Area. These plans must incorporate proposed measures that will reduce greenhouse gas emissions in the MSA.

**Contact:** Kayla Kern, Project Officer, U.S. EPA - Region 4, [Kern.kayla@epa.gov](mailto:Kern.kayla@epa.gov)

**Grant Management and Reporting:** Shelby County Government is currently managing this grant, and has successfully submitted the program’s first key deliverable (the Priority Climate Action Plan) in a timely manner before the March 1, 2024, deadline. Additionally, since the beginning of the program SCG has submitted to EPA two quarterly progress reports in alignment with the requirements outlined in the assistance agreement. Project staff has also attended EPA trainings and progress meetings held by the assigned project officer(s).

**Project #2 Title:** National Disaster Resilience Grant Phase Two

**Assistance Agreement Number:** B-13-US-47-0002

**Federal Funding Agency:** Department of Housing and Urban Development

**Assistance Listing Number:** 14.272

**Brief Description of the Agreement:** Shelby County Government (SCG) was awarded \$60,445,163 to implement green infrastructure projects to increase Shelby County's resilience to future flooding while addressing unmet recovery needs from past events that caused the Mississippi River and its tributaries to flood. The projects in the plan include three wetland and riverine restoration projects that are also new recreational amenities, as well as the development of the Mid-South Regional Resilience Master Plan.

**Contact:** Cammie Music, Community Planning and Development Representative, U.S. Department of Housing and Urban Development, [cammie.m.music@hud.gov](mailto:cammie.m.music@hud.gov)

**Grant Management and Reporting:** SCG is currently managing this grant and is in good standing with the U.S. Department of Housing and Urban Development. SCG submits quarterly and annual reports that report on progress toward achieving expected outputs and outcomes. The County completed and submitted one of the 4 major project deliverables (the Mid-South Regional Resilience Master Plan) in December 2019. The project team has made sure to report delays, challenges, and complications they have faced in construction projects to HUD in the quarterly reports. Staff is confident they will complete the project by the 2025 grant completion date.

**Project #3 Title:** Supporting Safer Homes for Memphians: Addressing Equity and At-Home Health Risks During a Global Pandemic

**Assistance Agreement Number:** AJ-02D00321

**Federal Funding Agency:** U.S. Environmental Protection Agency

**Assistance Listing Number:** 66.312

**Brief Description of the Agreement:** Shelby County Government (SCG) was awarded \$200,000.00 to implement environmental justice initiatives and support local grassroots efforts to improve access to healthy homes resources. SCG worked with three local non-profits to implement three main activities, including 1) adaptation and development of a tool, the Black Millennials for Flint (BM4F) app, for the Memphis market; 2) assessment of lead and COVID-19 health hazards within high-risk households, with education and supplies; 3) outreach, education and advocacy around issues of lead-based paint and lead in water led by a multi-sector committee of community residents and other partners.

**Contact:** Daphne Wilson, EPA Project Officer, U.S. EPA, [wilson.daphne@epa.gov](mailto:wilson.daphne@epa.gov)

**Grant Management and Reporting:** SCG is currently in good standing with EPA and successfully completed the agreement by submitting quarterly and final reporting documentation to EPA's Project Officer and drawing all funds successfully through ASAP. All invoices and backup documentation are on file and all required paperwork was submitted with payment requests to SCG Department of Purchasing prior to issuing payments to vendors. The project team worked diligently to secure all required documentation from these non-profits that are often struggling with a lack of capacity for additional reporting requirements for these projects. These funds provide much needed capacity-building and resources to those agencies serving our most vulnerable community members.

**Project #4 Title:** Community Development Block Grant Formula Funding for Program Year 23 (PY23/FY24)

**Assistance Agreement Number:** B-23-UC-47-0002

**Federal Funding Agency:** U.S. Department of Housing and Urban Development

**Assistance Listing Number:** 14.218

**Brief Description of the Agreement:** SCG was awarded \$1,169,819.00 in Community Development Block Grant funds to address high priority community development needs to benefit low- and moderate-income

community members in the Shelby County urban county entitlement jurisdiction. Activities include housing rehabilitation, public services to benefit the elderly, and sidewalk and park improvements.

**Contact:** Alex Moore, Community Planning and Development Representative, U.S. Department of Housing and Urban Development, [alex.moore@hud.gov](mailto:alex.moore@hud.gov)

**Grant Management and Reporting:** SCG is currently in good standing with HUD to include timely submission of quarterly cash on hand reports. Shelby County has entered into cooperative agreements with six municipalities in the County in order to qualify as an Urban County. Housing rehabilitation activities occur on a scattered site basis throughout the jurisdiction. Public Services are offered in coordination with the municipalities in their senior centers or other public facilities. Public improvements and facilities activities are conducted in direct coordination with the municipalities. These efforts have afforded Shelby County experience in Davis-Bacon Wage Rate and National Environmental Protection Act compliance, 2 CFR Part 200 procurement requirements, overseeing housing rehabilitation work, monitoring subrecipient performance and compliance, and reporting accomplishments to HUD.

**Project #5 Title:** Shelby County Department of Housing Lead Hazard Reduction Program 2020-2024

**Assistance Agreement Number:** TNLHD0445-20

**Federal Funding Agency:** U.S. Department of Housing and Urban Development, Office of Lead Hazard Control and Healthy Homes

**Assistance Listing Number:** 14.905

**Brief Description of the Agreement:** SCG successfully secured competitive grant funds in the amount of \$4,143,959.00 from HUD with \$685,882.00 in local match funds to address lead hazards and healthy homes issues in the homes of eligible low- to moderate-income residents. This program addresses both lead based paint hazards and other healthy homes issues with Healthy Homes Supplemental funds in the amount of \$700,000.

**Contact:** Bruce Bailey, HUD Government Technical Representative, [bruce.e.bailey@hud.gov](mailto:bruce.e.bailey@hud.gov)

**Grant Management and Reporting:** SCG is responsible for outreach to secure clients, intake and income verification, inspections and generation of work write ups, and oversight of construction activities compliant with the Lead Safe Housing Rule. SCG is also responsible for ensuring compliance with the National Environmental Protection Act, 2 CFR Part 200 procurement requirements, and preparing and submitting quarterly performance reports to HUD. HUD has recognized SCG's success in implementing grant activities by inviting program staff to serve as speakers at mandatory training events for Lead Hazard Control grantees.

### c. Staff Expertise

The Memphis and Shelby County Division of Planning and Development (DPD) will lead grant management and implementation of the proposed activities. DPD has approximately 165 full-time staff across six departments, which include Land Use and Development Services, Construction Code Enforcement, Department of Housing (SCDH), Regional Transportation Planning (MPO), Comprehensive Planning, and the Office of Sustainability and Resilience (OSR) (for DPR's Department Structure, see **attached Budget Narrative** (*Budget\_ShelbyCountyGovernment*) and for resumes of DPD staff and key personnel from Coalition Members and Project Partners see **attached Team Bios** (*bios\_ShelbyCountyGovernment*)).

DPD has years of experience administering large-scale housing, planning, community development, National Disaster Resilience (NDR), and climate action programs. For example, SCDH has been responsible for managing Community Development Block Grant (CDBG) and HOME Investment Partnerships Program (HOME) entitlement grant funds since Shelby County became an Urban County in 1993, while OSR has been responsible for administering \$60,445,163 in NDR grant funds, as well as other competitive grant



funds through the U.S. Department of Energy (DOE), the U.S. EPA, and the Tennessee Department of Environment and Conservation (TDEC). DPD management regularly oversees grant spending, including voucher creation and drawdowns in systems such as Automated Standard Application for Payments (ASAP) as well as tracking and monitoring match, leverage, and subaward expenditures. Division programs have included public facilities and other community development improvements, housing rehabilitation and construction, lead-based paint hazard reduction, disaster recovery and resilience activities, workforce development assistance, and greenhouse gas reduction activities.

DPD has led meaningful efforts to address housing needs across the County, including analyzing and acting upon locally identified racial, economic, and health disparities. DPD prioritizes people-focused and equitable approaches in their service delivery, and recenters programs to better serve the needs of residents based on community-voiced input. DPD has planners and business analysts on staff who will continue to contribute to these efforts both with existing programming and new programs emerging from the CPRG implementation grant funds. DPD has the capacity to conduct complex demographic analyses, mapping and visualization of data, and process improvement to better target identified disparities.

OSR has years of previous and ongoing knowledge and experience quantifying GHG emissions levels in Shelby County and tracking progress on reduction goals set in the 2020 Memphis Area Climate Action Plan. Additionally, most recently OSR compiled GHG inventory for the eight-county Memphis MSA that served as the basis for the Mid-South Climate Action Plan: Priority Reduction Measures.

Shelby County Government has experience conducting weatherization workforce development programs for Shelby County residents. Specifically, SCDH has a history of collaborating with Moore Tech to build their weatherization workforce capacity. In the past SCDH has leveraged grant funds to support weatherization courses offered at Moore Tech. This partnership between SCDH and Moore Tech is successful and ongoing as SCDH has put several staff through Moore Tech courses and are interested in continuing to do so as more funding becomes available. SCDH staff also currently serve as members of Moore Tech's Weatherization Advisory Board.

Shelby County Government will be supported by the expertise and experience of the Rapid Retrofits Coalition Members and Project Partners. The program design will facilitate knowledge-sharing among Coalition Member jurisdictions with more experience implementing energy efficiency programs to help support those who will be building out programs for the first time. The Project Partners bring together expertise in energy efficiency, workforce development, climate pollution reduction, utility services, and community engagement. Shelby County Government is supported by the Southeastern Sustainability Directors Network and the Bloomberg American Sustainability Cities Initiative, which will provide technical assistance and support to ensure long-term success of the project, including through leveraging additional state and federal incentives into the project.

## **7. BUDGET**

### **a. Budget Detail**

Please see **Appendix A. Budget Spreadsheet & Narrative** for detail.

### **b. Expenditure of Awarded Funds**

The Shelby County Government has in place robust processes and controls to ensure efficient and timely expenditure of the CPRG funds by all Coalition Members and Project Partners.

#### Financial Management and Monitoring - Shelby County Government will:

- Deploy robust financial management systems to track subaward expenditures, monitor budget allocations, and ensure proper allocation of funds.
- Require subawardees to maintain accurate and detailed records of expenses, receipts, and financial transactions related to grant-funded activities.
- Conduct regular monitoring and oversight of subawardee financial activities to verify the appropriateness and accuracy of expenditures.

#### Subawardee Monitoring & Reporting - Shelby County Government will:

- Execute initial MOA and formal subaward agreements with Coalition Members and Project Partners, outlining terms, conditions, reporting requirements, and financial obligations.
- Ensure that subawardees understand and agree to comply with all relevant federal regulations, grant guidelines, and reporting deadlines.
- Provide guidance on budgeting, reporting, compliance, and other administrative requirements to help subawardees effectively manage grant funds, navigate compliance requirements and administrative procedures, and meet performance targets.

#### Collaboration and Communication - Shelby County Government will:

- Foster open communication channels between Shelby County Government, Coalition Members, and Project Partners, including through facilitating regular Task Force Meetings, all-hands updates, and individual consultations, as needed.
- Encourage collaboration and knowledge sharing among subawardees to leverage expertise, resources, and best practices for efficient provision of weatherization & energy efficiency services.
- Establish mechanisms for resolving conflicts, addressing concerns, and facilitating consensus among coalition members on project implementation and decision-making.

#### Performance Evaluation and Reporting - Shelby County Government will:

- Confirm performance metrics, indicators, and benchmarks to assess the progress and impact of subaward-funded activities.
- Require subawardees to submit regular progress reports, financial statements, and performance data to demonstrate outcomes achieved and compliance with grant requirements.
- Conduct periodic performance evaluations and reviews to identify successes, challenges, and areas for improvement, incorporating feedback from stakeholders and beneficiaries.

#### Risk Management and Contingency Planning - Shelby County Government will:

- Identify potential risks and challenges that may affect the timely and efficient expenditure of subaward funds, such as budgetary constraints, staff turnover, or external disruptions.
- Develop contingency plans and mitigation strategies to address identified risks, ensuring continuity of grant-funded activities and achievement of project objectives.

#### Continuous Improvement and Adaptation - Shelby County Government will:

- Regularly assess the effectiveness of subaward management processes, soliciting feedback from Coalition Members and Project Partners to identify areas for improvement.
- Continuously refine subaward administration processes to enhance efficiency, transparency, and accountability as lessons are learned over the five-year grant period.

### c. Reasonableness of Costs

All project costs will advance the implementation of the proposed GHG reduction measure. Please see **Appendix A. Budget Spreadsheet & Narrative** for a detailed justification of costs, including a detailed breakout of requested funding for each component of the project scope.