WORKPLAN

Section 1: Overall Project Summary and Approach

Our CPRG proposal, named the Louisville KY-IN Metropolitan Statistical Area (MSA) Regional Climate Action Accelerator (LRCA), centers on the strategic implementation of select measures identified in the Louisville Kentucky-Indiana MSA Priority Climate Action Plan (PCAP). The PCAP, developed through intentional research and extensive community engagement, serves as the cornerstone of our region's commitment to reducing greenhouse gas (GHG) emissions, advancing environmental justice, and fostering long term sustainable development. Our LRCA approach focuses on distilling the PCAP's recommendations into strategic objectives that not only promise tangible, immediate-term GHG reductions and community benefits, but also align closely with our region's and EPA's goals and priorities.

a. Description of GHG Reduction Measures

As described on Page 2 of the Cover Page (Brief description of GHG Reduction Measures), multiple PCAP actions have been grouped into four key objectives that form the backbone of this proposal. As a reminder, the four objectives are:

1. **Objective 1: Establish and capitalize a green bank:** Actions R2, C3, I2, W1, and W2 involve providing financial assistance to advance energy efficiency, clean energy, and emissions reductions in residential, commercial/institutional, industrial, and waste/wastewater sector projects and programs as noted in the PCAP.
2. **Objective 2: Institute a GHG reduction technical advisory service:** Actions R1, C1, C2, and I1 involve a host of technical assistance tools and services, such as bulk-purchasing, opportunity mapping, and expert advising, to help project owners rapidly deploy solutions by (i) assisting project teams to make optimal decisions for maximizing GHG reductions and community benefits; (ii) helping them navigate existing incentives and programs for quick implementation, and (iii) serving as a third party verifier of expected project outcomes and GHG impacts and accordingly qualify meaningful projects for financial incentives.
3. **Objective 3: Initiate and expand equitable green jobs:** Actions R3 and C5 pertain to workforce training and small, minority, woman-owned business enterprises (SMWBE) development programs to build regional capacity to deploy CPRG projects, as well as to ensure that jobs, bids, and other economic development benefits are inclusive of low-income and disadvantaged communities (LIDACs).
4. **Objective 4: Build a utility scale solar project:** Action C4 is a specific utility scale solar project intended to help the Louisville/Jefferson County Metro Government (LMG) make significant progress towards its established goal of 100% clean electricity for municipal operations by 2030, and serve as a positive example for the region.

These objectives streamline our CPRG approach, allowing for administrative efficiencies while enabling multiple PCAP measures to complement and enhance each other effectively. The features, tasks, milestones, assumptions, and risks of the proposed objectives are further described in **Section 3.c**.

b. Demonstration of Funding Need

The LRCA team's pursuit of CPRG implementation funding is crucial due to the pressing need to address GHG emissions, advance environmental justice, and foster long term sustainable development in the Louisville KY- IN MSA. Despite proactive efforts to explore and secure funding options, existing streams

have fallen short of meeting the comprehensive challenges outlined in the LRCA project. We assessed various avenues, including local resources like the city general fund, federal, state, and philanthropic grants, tax incentives, policy changes, and more, demonstrating a thorough commitment to securing resources for GHG reduction measures. This approach extends beyond exploration to active engagement with federal and non-federal funding sources. Additionally, the MSA faces historical barriers in low-income disadvantaged communities' (LIDAC) access to capital, exacerbating the challenge of equitable financing for beneficial projects. These barriers, rooted in systemic inequalities, underscore the urgency of EPA CPRG implementation funding to address environmental justice concerns and ensure equitable access to resources.

Funding Streams Explored

Our thorough review of funding opportunities on platforms such as the White House BIL Guidebook and IRA websites demonstrates a proactive and strategic approach to securing necessary resources. By showcasing the strategic utilization of available resources and a commitment to exploring all potential avenues, we present a compelling case for CPRG implementation funding. We will explore the following additional incentives to augment and sustain the project:

- Local: Metropolitan Business Development Corporation (METCO), Manufacturing Tax Moratorium, Property Assessment/Reassessment Moratorium, Louisville Downtown Revitalization Fund, Louisville Affordable Housing Trust Fund, Louisville Community Development Block Grants, HOME Investment Partnerships Program, Tax Increment Financing (TIF), Industrial Revenue Bonds (IRB), Energy Project Assessment District (EPAD) program, Cool Roof Incentive Program.
- Kentucky and Indiana: Kentucky Business Investment (KBI) Program, Kentucky Enterprise Initiative Act (KEIA), TIF, IRB, Kentucky Small Business Tax Credit Program (KSBTC), Bluegrass State Skills Corporation (BSSC) Training Grants, Economic Development for a Growing Economy (EDGE) Tax Credits, Hoosier Business Investment Tax Credit (HBITC), The Community Revitalization Enhancement District (CRED) Tax Credit, The Redevelopment Tax Credit Headquarters Relocation Tax Credit, Venture Capital Investment (VCI) Tax Credit, Research and Development (R&D) Tax Credit, Workforce Training Grants/Skills Enhancement Fund (SEF), TIF, Indiana Economic Development Corporation (IEDC) Grants and Loans, Energy Efficiency and Renewable Energy Incentives.
- Federal: Community Reinvestment Act (CRA) Credits, New Market Tax Credits (NMTC), R&D Tax Credit, Work Opportunity Tax Credit (WOTC), Investment Tax Credit (ITC),Historic Rehabilitation Tax Credit, Empowerment Zone Tax Credit, Low-Income Housing Tax Credit (LIHTC), Qualified Opportunity Zones (QOZ) Tax Incentives, Small Business Health Care Tax Credit, Employee Retention Tax Credit (ERTC)

Federal & Non-federal funding sources

Our LRCA proposal focuses on advancing ambitious solutions in our region's largest GHG emitting sectors in an efficient and effective manner. In recent years, LMG has explored the following opportunities to meet our goals:

- LMG implements successful programs to reduce GHG emissions like Solarize Louisville, the Cool Roof Incentive Program, EPAD, and Go Green METCO small business loans, yet these programs are a fraction of the proposed LRCA budget and are no match for the scale and pace of GHG reductions needed to meet our science based GHG emissions reduction target of net zero community-wide by 2040.
- LMG secured the U.S Department of Energy (DOE)'s Communities Local Energy Action Program (C-LEAP) pilot technical assistance grant to develop an equitable clean energy roadmap for

affordable housing. The technical, financial, and workforce analysis from that effort have informed this proposal, particularly Objectives 1 and 3. LMG also secured the DOE's Buildings Upgrade Prize ($400,000) and will be receiving the DOE Energy Efficiency and Conservation Block Grant (~$680,000) to implement residential energy upgrades, but these fall significantly short of funding the scope of work recommended by C-LEAP.

- LMG used its general budget to contract the National Renewable Energy Laboratory (NREL) to assist with planning to meet LMG's goal of 100% clean electricity by 2030. This effort and continuing negotiations with the Louisville Gas & Electric (LG&E) has prepared us to apply for CPRG implementation funding for Objective 4.
- LMG applied for the EPA's Solar For All (SFA) competition and is looking forward to hearing a positive result. If SFA is funded, the impact of those funds could be enormously amplified by CPRG funding which would establish a more ready pipeline of solar-ready homes to complement the SFA grant.
- LMG was not eligible to apply for the National Clean Investment Fund and Clean Communities Investment Accelerator applications, which have been the only substantial dedicated source of funding for green banks. However, LMG supported other eligible applicants, and if they are successful, CPRG funding would prepare us to receive and extend the benefits of those grants in our region.
- LMG unsuccessfully attempted to apply for a DOE solar job training grant a couple of years ago, but we have significantly progressed since then based on the award rejection feedback, and have built strong relationships with workforce organizations, trade unions, industry associations, and other critical implementation partners.
- LMG is also interested in policy options such as advanced building codes and renewable portfolio standards to meet goals, but is constrained by state regulation.

We have also successfully obtained other grants from entities such as the U.S. Department of Transportation, U.S. Department of Housing and Urban Development, highlighting our commitment to leveraging available resources. However, the partial funding secured from these sources highlights the continued necessity of CPRG funds. While initial support addresses preliminary aspects of the project, we recognize the need for additional resources to fully implement comprehensive objectives of the LRCA project, which totals $199,999,999. This recognition is informed by an understanding of the scale and complexity of the challenges, as well as a commitment to achieving impactful EPA goals. We will continue to pursue other federal and non-federal opportunities to ensure our LRCA project is strengthened and sustainable.

c. Transformative Impact

The LRCA proposal strategically focuses on the residential, commercial, industrial, electric power, and waste sectors due to their status as the largest sources of emissions according to our GHG inventory. Targeting these sectors allows us to make a significant and rapid impact on overall emissions reduction. These sectors are particularly challenging to abate due to existing state regulatory constraints and financing hurdles. Our innovative proposal to establish a green bank is groundbreaking for our region, offering a replicable and scalable model for long-term sustainability by leveraging additional funding sources. The green bank not only facilitates emissions reduction but also drives market transformation across these important emissions sectors. Critical services such as expert GHG advisory support, workforce development, and administrative assistance further bolster the feasibility and success of our green bank initiative.

Objective 1. Establish and capitalize a green bank: (Actions R2, C3, I2, W1, W2)

The LRCA green bank, a regional development finance agency, is poised to have a transformative impact by focusing significant, urgent investments in the residential, commercial, industrial, and waste sectors, which collectively contribute over 70% of regional Scope 1 emissions. Currently, smaller, disaggregated resources exist, but the green bank will aggregate them and leverage additional financial incentives, offering a single point of contact for borrowers. The substantial CPRG capitalization grant will further launch the bank, attract a diverse range of projects, and generate immediate revenue for reinvestment (our relatively conservative assumptions reflect a ratio of 20% for dollars invested to revenue generated), thereby catalyzing substantial emissions reductions across sectors.

Residents of LIDAC communities face significant and disproportionate energy burdens, highlighting the need for rural and urban residents of Louisville KY-IN MSA to receive support for reliable, long-term utility cost reductions. An American Council for an Energy-Efficient Economy (ACEEE) report found that the median energy burden for low income households in Louisville was 7.6%[1]. The LRCA project aims to reduce residential sector emissions, alleviate energy burden, and enhance residents' health and quality of life through financial assistance for upgrades including building envelope, energy efficiency, and clean energy. Tailored programs for low-income groups will comprise grants and forgivable loans, delivered in partnership with existing energy utility rebate programs though LG&E, Duke, and rural electric utilities. Middle to high income groups can access below-market-rate loan products through the green bank. The existing regional Solarize Louisville program offers a grant for low-income households to go solar, and has proven effective in lowering household energy costs, increasing household disposable income, and reducing the risk of displacement.[2] This program serves as a model for future residential programs that aim to reduce energy emissions and costs through interventions such as weatherization, lighting and HVAC upgrades, urban heat reduction, cool roofs, tree planting initiatives, and more.

The green bank will also create financial assistance incentives for commercial/institutional, industrial, and waste sector partners to implement energy efficiency, clean energy, and other GHG reducing projects and programs. This approach targets hard-to-abate sectors facing unique challenges, leading to significant emissions, criteria air pollutant (CAP), and hazardous air pollutant (HAP) reductions. The incentive program will be paired with the Energy/GHG advisory service and community oversight (for the industrial sector) to enhance decision-making and ensure success. The commercial/institutional sector will also allocate grants or forgivable loans for community-based institutions, such as community centers, childcare facilities, and nonprofits. Examples of industry projects eligible for financial assistance include operational improvements, energy efficiency measures, and industrial process fuel switching away from carbon-intensive fuels.

Additionally, reducing methane emissions through the waste/wastewater sectors will contribute to significant GHG reductions, while drastically reducing waste and enhancing quality of life. Example projects include advanced methane monitoring and capture techniques; energy efficiency measures including power factor correction strategies; energy reduction measures such as solar; and odor reduction strategies for LIDAC. Moreover, food waste diversion programs can not only avoid landfill emissions, but also tackle food insecurity in LIDACs and promote behavior change by encouraging residents to actively participate in reducing waste and increasing access to healthy food. Funding for these and other community driven projects can be secured through financial support from the green bank, advancing LRCA's mission of activating climate action informed by data and community priorities.

[1] https://www.aceee.org/sites/default/files/pdfs/u2006.pdf
[2] https://www.louisvillesustainabilitycouncil.org/solarize-louisville

Objective 2. Institute a GHG reduction technical advisory service: (Actions R1, C1, C2, and I1)
Our Energy/GHG Advisory Service represents a distinctive, transformative approach that enhances data driven decision-making, consumer protection, and impact verification to facilitate the optimal utilization of green bank funds and quick implementation of GHG reducing projects across the various sectors. Through this service, applicants will be paired with expert technical advisors who will analyze their proposal and recommend GHG reduction best practices, financing options, and reliable estimates for returns on investment. Further, the Advisors will serve as independent verifiers of expected project GHG impacts to inform the Industrial Community Board's review of projects and assist with qualifying meaningful projects for financial assistance. This creates built-in community engagement and trust right from the start. While focused on commercial, industrial, and waste sectors, the Advisors will be available to support residential projects, mainly facilitated through the bulk-purchasing programs, on an as needed basis. This approach targets hard-to-abate sectors and enables continuous improvement of financial offerings, leading to significant emissions reductions.

Our Energy Efficiency Bulk-Purchasing Campaign strategy builds on the success of our regional Solarize bulk purchasing program, offering a replicable and scalable model. This campaign, characterized by robust public education about energy efficiency best practices, a streamlined application process, vetting of contractors, and leveraging bulk-purchasing power to secure competitive wholesale discounts, will help to increase the adoption of energy efficiency measures such as weatherization, lighting and HVAC upgrades, heat pump installations, and more. LRCA has noted that because our electric grid is coal intensive, electrification alone could lead to increased emissions if not paired with clean energy. Through extensive Solarize participant feedback surveys, we have learned that the value of making processes easy and providing trustworthy contractors cannot be understated. With the unfortunate rise of predatory solar and construction companies, residents are rightfully hesitant to make investments in unfamiliar technologies despite their interest in greening their homes, which reinforces the importance of this program.

Another strategy we propose to significantly reduce GHG emissions is the Opportunity Mapping and Voluntary Benchmarking program. This program creates an energy use/GHG emissions "heat map" and a voluntary building benchmarking program, serving as a scalable approach to target buildings in the greatest need of upgrades. This program will improve awareness, behavior change, and progress tracking.

Objective 3.**Initiate and expand equitable green jobs*** ***(Actions R3 and C5)***
The most significant barrier to rapid and scaled implementation is the dearth of a skilled workforce. According to 2022 U.S. Bureau of Labor statistics data, Louisville has a below-national average number of remodelers, building construction, electrical and wiring, drywall and insulation contractors, building inspection services, and others essential energy upgrade jobs[3]. Equitable workforce and business development align with our commitment to meeting program demands with an equity lens. Due to structural inequities, LIDACs are underrepresented in clean energy employment sectors. Our objective to initiate and expand equitable energy jobs can generate transformative, replicable, and scalable effects by building wealth equity through the delivery of quality green jobs and business growth opportunities for LIDACs and SMWBEs. Through an intentional focus on targeted recruitment and barrier removal in partnership with congressional budget office's (CBOs), the LRCA can meaningfully meet environmental justice goals.

[3] https://www.nrel.gov/docs/fy24osti/88331.pdf

Objective 4. Build a utility scale solar project: (Action C4)
By executing a utility scale solar project, LMG's objective is to lead by example and make a significant leap towards our established goal of 100% clean electricity for municipal operations by 2030. Our Utility Scale Solar project will generate 8.8 MW of renewable energy through a 25 year utility Green Tariff agreement, offsetting peak daytime electricity use and about a fourth of LMG's net annual electricity use. This strategy delivers meaningful emissions reductions benefits and creates clean energy jobs. It is easily scalable and replicable by other regional utility customers of similar sizes, driving market transformation.

All four objectives: establishing and capitalizing the green bank, instituting GHG reduction technical advisory service, initiating and expanding equitable energy jobs, and building a utility scale solar project are all pioneering, replicable, scalable, and transformative initiatives that not only reduce GHG emissions but also enhance community benefits and environmental justice. Market transformation is driven through innovative financing tools; accelerated adoption of green technologies through data-driven and consumer focused technical assistance; easy and affordable access; and an equity-focused oversight process, promoting inclusive decision-making and accountability in GHG reduction efforts. We are confident that these initiatives will lead to transformative opportunities for households and organizations in the Louisville KY-IN MSA.

Section 2: Impact of GHG Reduction Measures (60 possible points)

The measures, magnitude of cumulative GHG emission reductions, and cost effectiveness calculation are summarized in Table 1. The quality of assumptions and calculations are contained within the Technical Appendix and in shortened form in this section.

Table 1. Summary of GHG reduction measures and associated cost efficiency calculations.

Objective/Action	Magnitude GHG reduction 2025-2030	Magnitude GHG reduction 2025-2050	$/MTCO2e 2025-2030
Establish and capitalize a green bank: Actions R2, C3, I2, W1, and W2	R2. **71,388** metric tons CO2e reduction (2025-2030) C3. **92,571** metric tons CO2e reduction (2025-2030) I2. **406,000** metric tons CO2e reduction (2025-2030) W1. **236,096** metric tons CO2e reduction (2025-2030) W2. **15,629** metric tons	R2. **472,976** metric tons CO2e reduction (2025-2050) C3. **524,247** metric tons CO2e reduction (2025-2050) I2. **2,179,333** metric tons CO2e reduction (2025-2050) W1. **1,416,574** metric tons CO2e reduction (2025-2050) W2. **15,629** metric tons	R2. avg **$224** per metric ton CO2e (2025-2030) (1 yr implementation timescale) C3. avg **$548** per metric ton CO2e (2025-2030) I2. avg **$133** per metric ton CO2e (2025-2030) W1. avg **$316** per metric ton CO2e (2025-2030)

	CO2e reduction (2025-2030)	CO2e reduction (2025-2050)	W2. **$320** per metric ton CO2e (2025-2030)
Institute a GHG reduction technical advisory service: Actions R1, C1, C2, and I1	C1, C2. **45,670** metric tons CO2e reduction (2025-2030) I1. **1,831** metric tons CO2e reduction (2025-2030) (R1 does not have a proposed budget)	C1, C2. **100,475** metric tons CO2e reduction (2025-2050) I1. **4,029** metric tons CO2e reduction (2025-2050) (R1 does not have a proposed budget)	C1, C2. **$150** per metric ton CO2e (2025-2030) I1. **$150** per metric ton CO2e (2025-2030) (R1 does not have a proposed budget)
Initiate and expand equitable energy jobs: Actions R3 and C5	R3 and C5 support other objectives, but do not directly lead to GHG reductions.	R3 and C5 support other objectives, but do not directly lead to GHG reductions.	R3 and C5 support other objectives, but do not directly lead to GHG reductions.
Build a utility scale solar project: Action C4	C4. **51,638** metric tons CO2e reduction (2025-2030)	C4. **250,324** metric tons CO2e reduction (2025-2050)	C4. **$387** per metric ton CO2e (2025-2030)
Cumulative Total	**920,824** MTCO2e	**4,963,587** MTCO2e	**$230** per MTCO2e

Most GHG emissions reductions anticipated are from Objective 1, or projects funded by the green bank. Some GHG emissions reductions are also expected from Objective 2, or the Energy/GHG Advisory Services, tools, and campaigns that facilitate awareness and behavior change. No direct GHG emissions are claimed from Objective 3, or green workforce development, although that is crucial to effectively implementing the other objectives. Because no projects have been qualified for financial assistance at this time, GHG emissions reductions for Objectives 1 and 2 are based on a combination of research, example projects received from MSA stakeholders, and proposed CPRG budget allocations for each sector. These examples have been chosen to represent typical project applications expected in respective sectors, and funding to those projects aren't guaranteed. These assumptions and methods are further described below and in the Technical Appendix. Objective 4 is the only specific project whose GHG reduction estimates are based on a predetermined scope.

Further, GHG reductions expected are largely CO2 reductions. One of the industrial emissions reduction example projects included in our GHG calculations also involves hydrofluorocarbons (HFC - R507) emissions reductions as noted above. The food waste diversion program contributes to substantial CH4 (methane) reductions as noted above.

d. Documentation of GHG Reduction Assumptions

To ensure that the specific circumstances of the Louisville KY-IN MSA are appropriately taken into account in calculating GHG emissions, regional and county-level data has been incorporated for energy production and consumption in the MSA from nationally recognised sources and models (such as the National Emissions Inventory, NREL State and Local Planning for Energy (SLOPE), and local utility companies).

Further, during the CPRG PCAP and Implementation grant stakeholder engagement process, LMG requested regional partners to send us GHG reducing candidate projects so that we may better understand the needs and opportunities in our community and build out a potential pipeline of quickly implementable projects. **Over 100 projects were collected during this process, with aggregated total capital costs nearing $1.5 billion**.[4] While no specific green bank financial assistance recipients are being identified at this time, we utilized some of the real project examples to calculate expected emissions reductions for green bank supported projects. While we expect to receive a range of green bank assistance applications that will be vetted according to a predetermined evaluation criteria, projects that appear to meet desired cost effectiveness thresholds have been included in the calculations for illustrative purposes. The LRCA intends to establish a formal threshold cost effectiveness criteria, for instance $450/ metric ton of CO2e, to ensure that assisted projects deliver meaningful reductions. Data from these other sources – including energy consumption, GHG emissions, building dimensions, operational data – for specific project buildings, facilities, systems, and GHG reduction measures have been incorporated where appropriate.

Utility and Stationary Emissions Assumptions

Electricity grid emissions factors for the Louisville KY-IN MSA for 2025-2030 have been calculated using the following data: LG&E grid emissions data, EPA eGRID 2022 data for Kentucky and Indiana, LG&E grid emissions data, EPA eGRID 2022 data for Kentucky and Indiana, and fuel-type emissions factors were collected from EPA Emissions Factors Hub 2024.

Buildings: Residential

GHG reductions from residential building energy efficiency measures have been assessed using data and analysis from the Lawrence Berkeley National Laboratory.[5] Based on NREL Open Energy Data Initiative load profiles for specific energy improvements, the annual energy saving from a basic weatherization programme would be 5280kWh per household for a house with electric resistance heating. The high grid electricity emission factor for the MSA means that focusing on all-electric households would offer greater GHG reductions than focusing on households using natural gas. We quantify expected emissions reductions based upon a total of 6,420 homes weatherised by 2030, a rate of adoption assumed to be possible given the existing WeCare program.

Outreach and technical assistance impacts are built on promoting adoption of GHG reduction measures in the residential sector, including behavioral change (such as altering desired building thermostat temperatures), adoption of energy efficiency measures, and adoption of renewable energy measures. The factors derive from the work of Sussman and Chikumbo (2016) and run through 2030. The NREL SLOPE model was used to project residential energy consumption to 2050.

Buildings: Commercial and Industrial

Commercial and Institutional emission reductions assume building energy efficiency measures modeled from the American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE)[6] and City

[4] We further describe the outcomes of this process in our Budget Justification Attachment and extensive details on the projects themselves can be located in the Optional Attachment under "*Project Pipeline_Louisville-Jefferson County Metro Government.pdf.*"

[5] https://buildings.lbl.gov/publications/cost-decarbonization-and-energy

[6] https://www.ashrae.org/technical-resources/aedgs/50-percent-aedg-free-download

of Philadelphia[7] that modeled energy reductions measures and costs for schools, hospitals, retail, hotels and offices. These sources were chosen as the Louisville MSA is in the same climate zone 4.

The impact of promoting behavioral change and providing GHG reduction advisory services in the commercial and industrial sectors has been estimated using previous studies and audits of such services. The National Audit Office audit of the UK Carbon Trust (which provides energy advisory services to the commercial and industrial sectors) – "The Carbon Trust – Accelerating the move to a low carbon economy (2008)" found the average cost per ton of carbon reduced by advisory services to be £32.70 ($41.39). This is based on assumed lifetimes for implementation and persistence of the GHG reduction measures proposed by energy audits. Based on a review of Carbon Trust persistence factors (ref Salix Compliance Tool and Business Case V36) we have applied an average GHG reduction persistence factor of 11 years (though this clearly varies depending on the measures identified).

Industrial Operations

The impact of applying enhanced process and furnace control systems to enhance energy efficiency at such facilities has been assessed using previous research by University of Louisville. This research involved testing enhanced control systems on live operational plants.

All sectors: Solar PV

The NREL PVWATTs calculator has been used to calculate solar PV electricity generation for different potential PV installations in Kentucky.[8] The NREL calculator takes into account different designs of PV installations and the average solar flux for the proposed location. NREL analysis has also been used to estimate total costs associated with installing photovoltaic (PV) systems for residential rooftop, commercial rooftop, and utility-scale ground-mounted systems. Solar PV costs have been estimated using NREL's research into solar installed system cost analysis.[9] The cost of the utility scale solar project for LMG (Action C4) has been derived from preliminary estimates from LG&E, based on Kentucky Public Service Commission approved rates under the Green Tariff program.

Section 3: Environmental Results – Outputs, Outcomes, and Performance Measures

a. Expected Environmental Outputs and Outcomes

Expected outputs of the LRCA objectives are as follows:

- **Objective 1 Green bank (R2, C3, I2, W1, W2) and 2. GHG Advisory service (R1, C1, C2, I1):** Approx. 6970 projects supported via financial assistance, 6909 residential, 47 commercial, 7 industrial, 7 waste. 20% investment recovered for reinvestments. ~15% reduction in energy costs for residents, potentially much more for other sectors.
- **Objective 3: Initiate and expand equitable green jobs (R3 and C5):** Approx. green job trainees and 100 SMWBEs supported.
- **Objective 4: Build a utility scale solar project (C4):** 8.8 MW solar facility installed.

Expected outcomes over the 5 year grant period: Per Section 2, the LRCA project results in substantial lasting GHG emissions reductions. Among the GHG reduction strategies included in this request for funding, the LRCA is proposing energy efficiency strategies across multiple sectors – residential, commercial, and industrial, and the expansion of renewable energy programs. The adoption of

[7] https://drexel.edu/~/media/Files/now/pdfs/Reducing%20GHG%20in%20Philadelphia.ashx?la=en
[8] https://pvwatts.nrel.gov/
[9] https://www.nrel.gov/solar/market-research-analysis/solar-installed-system-cost.html

wide-spread energy efficiency and renewable energy measures throughout the MSA can reduce the need for both baseload electricity production, as well as the need to make use of additional electricity generating units (EGUs) at times of peak demand – typically associated with summer cooling and winter heating needs. The generation of electricity throughout the MSA is heavily dependent on coal-fired units. At the state-wide level, Kentucky sees 68% of its electricity generation from coal, while coal-reliance is at 52% in Indiana.[10]

Combined, coal-fired generating units are the largest point source sector of CAP emissions in the MSA region. Specifically, coal-fired EGUs are the largest point source of fine particulates and nitrogen oxides (NOx), a precursor emission to both ozone and secondary fine particulate formation. This is significant as five of the core counties in our MSA are currently designated as moderate nonattainment for the 2015 ozone standard and, though designations have not yet been made, the area has a design value that does not meet the new 2024 annual fine particulate standard. These coal-fired EGU sources also contribute emissions of HAPs to the region, being the largest source sector of mercury and arsenic and the second largest sector contribution of hexavalent chrome.[11]

Ultimately, the LRCA project promises GHG, HAP, and CAP reductions, as well as cost efficiencies, that will enhance cost savings, health, and quality of life across the MSA and particularly in LIDAC residents, due to their proximity to industry.

b. Performance Measures and Plan (10 possible points)
Performance measures, or assessments, are detailed below by sector and mitigation measure. The authorities listed in 3.c will be those that collect the data from these assessment strategies biannually. Each assessment will be evaluated throughout the project to ensure performance targets are being met. The lead applicant will be the final responsible party to collect, analyze, recommend improvements, and report on performance. Performance outcomes and any improvements or corrections will be reported to the EPA on a quarterly basis and aggregated in an annual and final report.

Objective 1: Establish and capitalize a green bank: Actions R2, C3, I2, W1, and W2
Performance metrics: Number of leads applying for green bank assistance; Location and demographics of participants; Status of leads: # contacted, # connected with advisory service, # securing grants or loans; Lead time for a project to receive financial assistance; Conversion rates of applicant participants receiving financial assistance and completing implementation; Grant funds disbursed; Co-investments leveraged; Financial assistance amount and co-investment ratio; Returns on investment; Energy usage and bill reductions from implementing measures; $/tonne of CO_2e reduced through financial assistance program; Quantification of GHGs, CAPs, and HAPs; Quantity of food diverted; Number of healthy meals delivered; Number and demographics of food recovery recipients; Emissions avoided as a result of landfill diversion; Participant feedback; Total $ funds disbursed.

Objective 2: Institute a GHG reduction technical advisory service: Actions R1, C1, C2, and I1
Performance metrics: Number of leads being referred to advisory service; Location and demographics of participants; Sector and square footage of participating properties; Status of leads: # contacted, # advised, # securing grants or loans, # voluntarily implementing advice without financial assistance; Lead

[10] https://www.eia.gov/state/
[11] 2020 National Emissions Inventory

time to submit final recommendations to participant; Conversion rates of applicant participants receiving financial assistance and completing implementation; Grant funds disbursed; Co-investments leveraged; Financial assistance amount and co-investment ratio; Returns on investment; Net energy reductions by participants; Energy usage and bill reductions; Energy Use/GHG Intensity reductions; $/tonne of CO2e reduced through financial assistance program; Quantification of GHGs, CAPs, and HAPs; Participant feedback

Objective 3: Initiate and expand equitable energy jobs: Actions R3 and C5
Performance metrics: No of recruited trainees and SMWBEs; Location and demographics of participants; % LIDACs participating; % participants completing training and graduating ; % participants placed in jobs; Starting wage for participants, Employee retention rates and turnover with employers partners; % SMWBEs completing program; Economic benefits to trainees and SMWBEs; # jobs created by the LRCA; % minority owned businesses contracted

Objective 4: Build a utility scale solar project: Action C4
Performance metrics: MWh of solar energy generated compared to energy used for C4; Reduction in GHG emissions resulting from Solar PV displacing other generation sources; Cost changes in consumer bills; GHG, CAP and HAP impacts; # jobs creates; LIDACs employed or contracted

LMG will facilitate effective tracking of outputs, outcomes, performance measures and compliance reporting by vetting qualified contractors, building the reporting requirements into their scope of work, providing rigorous training and onboarding to ensure policies and procedures are clear, and scheduling regular check-ins (weekly for the first and fifth quarters, following the launch of the commercial/industrial/waste and residential programs respectively, and monthly during other quarters) to stay up to date on project progress and metrics, and proactively mitigate any challenges.

c. Authorities, Implementation Timeline, and Milestones
LMG serves as the primary implementation authority, but will work through a network of contractors and partners who will be chosen through rigorous and fair procurement processes. We are committed to bringing a whole-city, integrated approach to our GHG reduction measures. This means leveraging all the tools at the city's disposal, including, but not limited to, municipal budget; personnel; investments in sustainability, housing, and business development; tax and development incentives, bonds; land development code; historic preservation code; permitting and inspections; institutional credibility; media attention, and public reach to synergistically advance sustainability, equity, housing, and economic development goals. Each of the four objectives are designed to be scalable, anticipating demand that is far larger than this proposal can fulfill and conveying our intention to continue operating these objectives to meet our municipal and regional GHG reduction targets. Figure 1 contains a Timeline and Milestones for each Objective and related Budget items. We have added a preaward planning period to match goals developed by the Mayor's Office.

Figure 1. All Objectives with associated timeline color coded as Planning/Red; Procurement & Hiring/Yellow; and Implementation/Green. Reporting occurs every two quarters as identified by the X. Implementation continues through the remaining performance period except for Objective 4.

Tasks	Preaward		Q1	Q2	Q3	Q4	Q5	Q6-Q20	
Administration									
Grant management contractor				x		x		x	
Marketing and community engagement									
Objective 1: Establish and capitalize a green bank									
Interim green bank, hiring									
Formal green bank									
Objective 2: Institute a GHG reduction technical advisory service									
Leveraging bulk purchasing									
Opportunity mapping									
Equipment rental program									
Energy and financial advisory services									
Industry community advisory board									
Objective 3: Initiate and expand equitable energy jobs									
Workforce Development programs									
Objective 4: Build a utility scale solar project									
Execute utility scale solar contract									

Objective 1: Establish and capitalize a green bank. Actions R2, C3, I2, W1, and W2 have aligned goals of providing financial assistance to advance energy efficiency, clean energy, and emissions reductions projects in residential, commercial/institutional, industrial, and waste/wastewater sectors. Streamlining these actions together enhances administrative efficiencies, but can also accommodate customized features for each sector as needed. This program's focus includes (i) creating a regional green bank as the primary vehicle to disburse and manage financial assistance, and (ii) identifying opportunities to leverage other resources through the green bank, including coordinating with utility rebate programs, leveraging Inflation Reduction Act tax credits, and more.

Key Features and Tasks: Key features include establishing a regional green bank within LMG, as a coordinated effort between the LMG Offices of Sustainability (OS) and advisors such as Economic Development, Management and Budget, external technical experts, and development finance institutions and stakeholders, with community input. Tasks include (i) seeking technical assistance to develop the framework for establishing a regional green bank within LMG (during the pre award phase - already in progress) - including creating the goals, functions, legal set-up, governance, policies, procedures, and staffing; (ii) if there are delays in launching the green bank, create an interim green bank team within LMG (LMG already has lending authority through its Economic Development and Housing

Departments) and incubate it while the formal green bank is being established; and (iii) establish the formal green bank and through it, develop and administer green bank products tailored to each sector. For the residential program, coordinate with existing utility rebate programs for easy deployment of LIDAC focused financial assistance products. Further explore ways to leverage and stack additional sources of funding, including bonds, tax credits, assessment districts and other tax incentives, existing lending tools, and grants for maximum impact.

Sectoral customization: Per R2, the residential focused green bank products will feature a partnership with existing utility rebate programs, e.g. LG&E's WeCare program and Duke Energy's weatherization and Small Business Saver program, for fast deployment and compounded benefits for LIDACs. For R2 and C3, 40% and 10% respectively of the allocated green bank capitalization funds for the residential and small scale commercial/institutional facilities will be partially or fully forgivable loans or grants, providing accessible finance to LIDAC communities. Per R2, C3, I2, W1, and W2 - all green bank products will offer favorable and flexible terms including below market interest rates to lower the barrier for investments and expedite the deployment of meaningful GHG reducing projects. The types of projects under each sector span the following:

- R2: existing and new single family, multifamily, owner occupied, or tenant occupied housing.
- C3: retail, office, public institutions, educational, hospitality, healthcare, nonprofits, places of worship, solar fields, and more of all sizes.
- I2: facility energy upgrades, process improvements, fuel switching, and more on industrial facilities, manufacturing plants, chemical processing facilities, etc.
- W1: waste and wastewater facility improvements and programs addressing methane and other GHGs reduction and capture, food waste diversion, treatment facility improvements, wastewater screening, dewatering, thermal hydrolysis, anaerobic digestion, source control through reduction in inflow and infiltration, energy efficiency measures including power factor correction strategies, energy reduction measures including solar, odor reduction strategies to benefit LIDACs, and more.

Key Milestones and Ensuring Success:

- Pre-award phase (Current - September 30, 2024): LMG has an existing ongoing contract with the Council of Development Finance Agencies (CDFA) to review the existing city-wide development finance situation and recommend a strategic plan for development finance, including an imperative focus on establishment of a green bank. CDFA's contract began on February 1, 2024, and to date, a background study, in person site visits, and key stakeholder engagements have been completed. The final recommendation report is due in June 2024 and will include an emphasis on establishing a green bank, as per LMG's request. We feel confident that the following 14 months (from June, 2024 to October 1, 2025, which is assumed to be a year from the CPRG start date) will provide adequate time to establish and launch the formal green bank. Prior to the award, LMG OS will also set up a green bank advisory committee with representatives from the OS and experts from development, finance, investment, community, environmental justice, and other pertinent areas to shape the green bank. We believe that we are on track to establish a green bank well before October 2025, but in case of delays, will plan to set up an interim green bank within LMG's lending agency to initiate implementation efforts and advise the development of a formal green bank to launch in Year 2.
- Quarter 1 (starting October 1, 2024): On receiving the award, hire key personnel including green bank Director and loan officers and establish an interim green bank entity within LMG. Set up green bank products for Year 1 prioritized project sectors.

- Quarter 2-4: Interim green bank starts disbursing Year 1 financial assistance to select commercial/institutional, industrial, and waste/wastewater projects that can start to deliver immediate GHG reduction impacts. Meanwhile the team will develop a process through which residential participants of the utility rebate programs can easily be referred to and access additional funding through the green bank
- Quarter 4: Formal green bank entity is launched and the interim team starts transitioning over.
- Quarter 5-20: Formal green bank fully assumes role of managing CPRG financial assistance funds and disbursing more high volume residential sector loans. This also includes the utility rebate partnership programs.
- Long term impact: During the first 3 years of the CPRG grant period, the green bank will be established and capitalized using CPRG grants alone. Beyond that time frame, the green banks' return on investment and additional leveraged capital will also sustain the green bank's momentum through year 5 and beyond. LMG has requested additional funds through lead applicants of the National Clean Investment Fund and Clean Communities Investment Accelerator to sustain the momentum created by the CPRG funding or scale up the program to meet known demand. Determination has been indicated to be in March 2024.

Assumptions: The green bank will offer innovative financial assistance products that will fill an existing market gap and reduce the financial barriers for residential, commercial/institutional, industry, and waste/wastewater projects to invest in meaningful upgrades that reduce GHG emissions.
Managing Risks: Potential risk lies in establishing the green bank in a timely manner. Further, utility cooperation for rebate programs, particularly with smaller rural electric co-ops, could delay the deployment of some residential energy programs MSA-wide. Despite this, it's considered low risk in Louisville due to ongoing momentum around establishing the green bank, strong internal support from the Mayor's office and contracted advisory support. Positive responses from the utilities also indicate low risk of delays with the utility partnership program. Simplifying the user process is a primary goal for the program, necessitating expertise in mixing various financing sources and grants. Another risk lies in delays in developing this expertise and infrastructure, but again, with work underway and sufficient lead time to proactively mitigate anticipated challenges, this is considered a low risk.
Alignment with PCAP and CPRG Goals: These actions were included in the PCAP following extensive research and community input. Regulatory barriers, low public awareness of green technologies, and lack of flexible finance options have constrained green investments in the targeted sectors, which contribute a vast majority of GHGs. These actions align with CPRG's objectives of rapidly reducing GHG emissions by financially supporting a ready pipeline of impactful projects; delivering key community benefits like cost savings, lowered pollution, and improved indoor air quality; and by being replicable and scalable. The green bank model has been successfully implemented in comparable cities and the budget allocation for this Objective secures the greatest reduction in GHG emissions per dollar invested while still retaining true to public input demanding residential sector interventions.

Objective 2: Institute a GHG reduction technical advisory service. Actions R1, C1, C2, and I1 incorporate residential bulk purchasing, commercial opportunity mapping and benchmarking, and advisory services or technical assistance.

R1: Leveraging Bulk Purchasing Power: Building on the ongoing success of our Solarize campaign, our program will leverage bulk purchasing power to secure wholesale discounts from vetted vendors and provide property owners with streamlined application processes to make investing in energy efficiency and clean energy upgrades easy. Our approach also includes comprehensive public education initiatives to promote awareness, interest, and participation. We plan to vet contractors rigorously, negotiate discounts, and simplify the application process.

Key Features and Tasks: Program features include the utilization of bulk purchasing power to negotiate wholesale discounts for residents; streamlined and simple application process; and robust public education to raise awareness, interest, and participation in residential energy upgrade initiatives, including weatherization, lighting upgrades, HVAC upgrades, heat pumps, urban heat reduction strategies, and solar. Key tasks include: Vet contractors through a competitive and equitable process and negotiate bulk-purchasing discounts; streamline the application process for residents; conduct robust public education on the benefits of residential energy efficiency and clean energy.
Key Milestones and Ensuring Success:

- Quarter 1: We will complete program design as well as procurement, contracting, contractor training, and testing of the application process.
- Quarter 2-20: Our implementation timeline begins promptly and continues through year 5, when the grant concludes.

Assumptions: Several qualified contractors will bid, and awarded contractors will provide quality services at competitive rates. Our stringent contractor vetting guarantees top-notch services, quick implementation, and positive participant experiences which, paired with the extensive education campaign, will further boost participation. Participants will find the process appealing and participate in large numbers.
Managing Risks: While acknowledging potential delays in contractor vetting, we deem this risk low and manageable, ensuring smooth program execution. Another potential risk is that we may not have a large number of competitive bid responses from contractors across all the energy services we hope to provide. Parallel efforts in workforce and business development coupled with strong demand and city/MSA support will likely alleviate this issue and attract a competitive vendor pool.
Alignment with PCAP and CPRG Goals: This action was included in the PCAP based on the success of programs such as solarize in reducing barriers to residential green investments at. It supports the CPRG objectives by facilitating building upgrades, reducing GHG emissions significantly, and fostering long-term market transformation and behavioral change.

C1: Opportunity Mapping and Voluntary Benchmarking Program: Our initiative focuses on utilizing an emissions reduction opportunity map, or energy "heat map" to drive awareness, voluntary action, and inform the prioritization and customization of resources for facilities with unique energy improvement needs.
Key Features and Tasks: Procure an energy "Heat Map" tool or service that includes an interactive map for visualizing energy losses and other helpful data that can drive voluntary action; if possible, also include a user-friendly benchmarking functionality to enable the tracking of improvements over time.
Key Milestones and Ensuring Success:

- Quarter 1: Complete planning and procurement of the heat map tool. Success relies on the selection of an user friendly tool that offers rigorous data management and user engagement.
- Quarter 2-20: Launch the tool for public and contractor use. The tool eliminates the barrier of operationalizing large scale building audits or needing to rely on building owner participation to upload utility data or invest resources in personnel to conduct manual benchmarking.

Assumptions: The program's success assumes ability to procure an easy-to-use heat map tool resulting in active participation rates.
Managing Risks: Risks include delays in collecting data and deploying the tool, as well as low engagement from building owners or managers in the absence of a complementing marketing program. Mitigation strategies include establishing clear and strict timelines and supplementing efforts with a robust education campaign.
Alignment with PCAP and CPRG Goals: This measure was included in the PCAP as a result of the cost effectiveness of making such information available on a large scale to support awareness and decision

making. It meets CPRG's objectives by pursuing scalable and replicable policies and programs across jurisdictions. Our opportunity mapping and voluntary benchmarking program leverages data visualization and stakeholder engagement to drive energy efficiency improvements, aligning closely with our overarching goals of impactful climate action.

C2, I1: Energy Advisory Service: Our Energy Advisory Service establishes an expert advisory consultancy focusing on energy efficiency, renewable energy, and GHG reduction measures. Paired with financial expertise, the service provides a valuable tool to guide applicants to make data driven decisions easily, and navigate incentives to enable the implementation of projects.
Key Features and Tasks: Expert consultants or contractors will be procured to provide expert energy advisory service. Contractors will create advisory materials regarding best practices, develop criteria for proposal vetting, and work with applicants one-on-one in a concierge type service to rapidly provide GHG reduction options for their project and help them navigate financing, incentives, and connection with other support services such as bulk purchasing, opportunity mapping, etc. They can also help create innovative financing structures based on observed needs and issues. The service will also provide independent third party verification of impacts for both outcome reporting and to build transparency and community trust. For industrial applications, the service will advise the community advisory board on the expected impacts of projects to allow for decision making.
Key Milestones and Ensuring Success:

- Quarter 1: Create scopes of work for the energy advisory service and procure qualified contractors. Develop streamlined operational procedures and workflows so the advisory service is synchronized with the green bank team. Establish a threshold for qualifying projects (tentatively $450 per metric ton of CO2e reduced)
- Quarter 2-20: Roll out advisory service and start advising and qualifying meaningful projects for financial assistance. Success hinges on rigorous training and ongoing support for advisors. Simultaneously establish collaborative partnerships with industry, workforce, service providers, and other support services to ensure advisors are well prepared to provide thorough information and tailored guidance to applicants. Success also relies on robust initiative vetting criteria, timely expert advice delivery, and comprehensive outreach to industrial stakeholders.

Assumptions and Managing Risks: Assumptions include the availability of qualified experts, participants' engagement, and accessible funding. Risks include low availability of expert services (considered low risk) and limited uptake of services. Mitigation strategies include pairing services with a strong marketing campaign.
Alignment with PCAP and CPRG Goals: Our Energy Advisory Service is strategically designed to provide expert guidance on GHG emissions reduction strategies, addressing challenges through training, support, and clear financing guidelines to ensure impactful and accessible service delivery. It is derived from the PCAP and was listed as an important priority by community and sector stakeholders. It contributes to CPRG's goals by implementing cost effective measures for significant GHG reductions and associated community benefits, as well as improving consumer awareness through a suite of success projects that can shift consumer demand and contribute to market transformation.

Objective 3: Initiate and expand equitable green jobs. Our equitable workforce and business development initiative is dedicated to establishing an equity-focused training and skills transfer program, collaborating with workforce development organizations, emphasizing barrier removal, recruiting from LIDACs, and supporting local emerging SMWBEs. This initiative focuses on creating high quality green jobs to support GHG reduction efforts.
Key Features and Tasks: Key features include collaboration with various stakeholders, barrier removal strategies for LIDACs (such as providing stipends, transportation, childcare, and other support), and

business development support for SMWBEs (through mentoring, expanding contractor bonding capacity, and financial assistance). Tasks involve refining program priorities, identifying collaboration areas, selecting contractors or subgrantees, and establishing ongoing monitoring.
Key Milestones and Ensuring Success:

- Quarter 1: Contract workforce development specialist to help convening energy sector experts, workforce development boards, universities, colleges including our historically black college and university (HBCU), technical colleges, unions, industry trade associations, business incubators, and LIDAC focused economic development organizations to refine program priorities, curriculum and training needs, employment opportunities, and identify areas of collaboration; planning the features and goals of the workforce program accordingly.
- Quarter 2: Procurement and selection of a contractor or subgrantee who can deliver a high quality jobs training program with barrier removal, employer partnerships, DBRA and other compliance requirements, and other priorities.
- Quarter 3-20: Implementation of training programs paired with facilitating relationships to place trainees and apprentices with companies delivering CPRG funded projects so that CPRG financial assistance funds ultimately benefit LIDACs and create quality jobs. Further, LMG's Equity Procurement Taskforce will be leveraged to mentor and help SMWBEs participate in CPRG bids.

Assumptions: Training programs and barrier removal strategies effectively address LIDAC workforce needs and promote wealth equity.
Managing Risks: Risk factors include delays in program establishment, lack of targeted community participation, and limited employer base involvement. Choosing the right workforce subgrantees and fostering collaborative partnerships are crucial for success and rapid scaling. Because of an abundance of qualified and interested workforce organizations, this is considered low risk. The clean tech sector's early stage and workforce shortage require significant investment and effort.
Alignment with PCAP and CPRG Goals: The PCAP include these actions because of industry demand for qualified workforce and community demand for quality green jobs - which were reinforced through stakeholder engagement sessions. The actions are aligned with CPRG's objectives of delivering substantial community benefits and enhancing wealth equity by fostering employment opportunities and SMWBE business support.

Objective 4: Build a utility scale solar project. Intended to help Louisville take a significant step towards its goal of 100% clean electricity by 2030, this regional solar field will also create jobs and displace fossil fuel based energy generation in a cost effective manner.
Key Features and Tasks: Working with LMG's utility, Louisville Gas & Electric (LG&E) on a Green Tariff agreement, filing for approval with the Kentucky Public Service Commission, and contracting with LG&E to build the solar field.
Key Milestones and Ensuring Success: Planning is scheduled to be completed pre-award and procurement can be completed as soon as award is received in Quarter 1.
Managing Risks: Risks include potential permitting delays and material availability, although significant issues are not anticipated. Unexpected material or permitting delays are accounted for in project planning.
Alignment with PCAP and CPRG Goals: This was included in the PCAP as Louisville's 100% clean electricity goal is supported by a Council Resolution and has immense community support. It is aligned with CPRG's goal of creating a significant, readily implementable, and scalable impact. This initiative is poised to implement a significant solar project, leveraging collaboration and adherence to regulations for successful execution, contributing directly to our goals of sustainable energy, green jobs, and environmental impact.

This proposal contains a large percentage of contracted services (and potentially subawards) to help develop the highly technical and labor intensive activities such as the green bank, workforce development, and expert advisory entities who will catalyze GHG reductions. The LRCA timeline is front loaded in the first two years to rapidly develop our initiatives. 90% of the total budget will be spent by the beginning of year three, which will require quick staffing and completion of contracted services. Final authority over all project activities will reside with LMG and be maintained through a competitive and fair bidding process that follows our municipal code guidelines.

Section 4: Benefits and Community Engagement

a. Community Benefits

The LRCA proposal seeks to maximize benefits to LIDACs through its efforts. Per EPA, LIDACs are defined as residents in CEJST-identified census tracts. The LRCA objectives deliver significant benefits for LIDACs. The availability of green bank financial assistance across various sectors promises energy cost savings for LIDAC residents (estimated 13-18%)[12]and businesses, enhancing disposable income and financial resilience. In particular, our renter population would benefit from lowered energy bills, a growing concern, particularly in LIDAC communities who have been documented to experience utility shutoffs and higher energy burdens than the average in our region. In just 2021, LG&E reported a total of 41,145 electrical and 1,834 gas utility disconnections.[13] Additionally, investments in efficient HVAC upgrades result in better ventilation, air quality, thermal comfort, and overall quality of life. Commercial, industrial, and waste/wastewater sustainability programs can improve air quality, advancing health for surrounding residential communities. Investment in food waste diversion programs means improved access to healthy food in food desert areas. Much of the region's energy production comes from the burning of coal and other fossil fuels, so continued investments in clean energy - both distributed generation and utility scale - will lead to a cleaner energy grid, contributing to reduced GHGs, CAPs, and HAPs, as well as greater climate resiliency and regional energy security.

The LRCA proposal also helps avoid disbenefits for LIDACs. Energy upgrades across sectors reduce maintenance costs for residents and small organizations, decreasing potential issues like mold and other health hazards. The energy/GHG advisory service prevents LIDACs from falling prey to predatory contractors and ensures they don't waste time and money on subpar investments. Overall, the project aims to improve the overall well-being and sustainability of LIDACs in Louisville by addressing both direct benefits and avoided disbenefits.

b. Community Engagement

In the development of the PCAP, OS acted as the project manager and primary coordinating agency. Despite initial time constraints, OS remained committed to ensuring an inclusive engagement strategy that represents the diverse interests of stakeholders and community members across the Louisville KY-IN MSA. The engagement approach encompassed the formation of a core team, which included representatives from the OS, the University of Louisville (UofL), the University of Strathclyde (UofS), David Neumann (contracted facilitator), Annette Dangerfield (Project Manager with the LMG Mayor's Office), LMG's Air Pollution Control District (APCD), and Keramida (Technical Partner). This team was tasked with overseeing crucial aspects of the PCAP development. Additionally, OS enlisted over 100 stakeholders from various sectors and communities to form the Net Zero Advisory Group (NZAG). The NZAG convened four times, totaling nine hours, and advised on priority actions across different

[12] https://www.nrel.gov/docs/fy24osti/88331.pdf
[13] https://metropolitanhousing.org/wp-content/uploads/2023/12/2023SMHR_WEB.pdf

emissions sectors. To gain deeper insights into the priorities of LIDAC, UofL conducted 44 one-on-one interviews with key stakeholders, with a specialized focus on LIDACs and surrounding MSA counties. Furthermore, OS circulated a priority project questionnaire to governmental agencies, institutional partners, businesses, developers, and industries, receiving over 100 responses. A regional climate action survey was also disseminated to the residents of the Louisville KY-IN MSA, resulting in 1,048 unique responses. OS hosted three public meetings to discuss PCAP priorities, engaging around 50 residents. During this engagement process, we continuously vetted and incorporated community input to ensure that the proposals were implementable. To aid in this, the APCD compiled a database of PCAP-relevant actions from Louisville's past climate plans, which was shared with the NZAG. This process was enriched by referencing various plans and studies, including those from the Indiana University (IU) Environmental Resilience Institute (ERI) and the Kentuckiana Regional Planning & Development Agency (KIPDA). Community input has been fundamental to the development of this application, and along with rigorous research on sources of emissions, past plans, and best practices, has informed a robust PCAP and CPRG Implementation priorities. LMG remains committed to incorporating diverse linguistic, cultural, institutional, geographic, and other perspectives at every stage of project development and implementation. This inclusive approach will ensure that the PCAP remains responsive to the evolving needs and priorities of all stakeholders within the Louisville KY-IN MSA. All subcontractors will be required to participate in community engagement as part of the scope of work for the initiatives, and the vetting process for contractors will require proof of an existing community engagement plan, or a proposed strategy. $6,182,500 is earmarked for community engagement activities in this proposal. Numerous community supporters of these objectives have provided letters of support which are included as attachments to this proposal. Additonally, the Energy/GHG Advisory board will play a pivotal role in ensuring community feedback continues throughout the LRCA project implementation.

Section 5: Job Quality

Prioritizing economic opportunities for our community is crucial as we invest in GHG reductions. In this proposal, we provide descriptions of strategies and implementing partners who will help ensure job quality and a skilled workforce are prioritized. Chapter 37 of the municipal code contains extensive protocols and procedures, purchasing mandates, labor protections, and job quality expectations for any project led by the LMG. In alignment with Executive Order 14082 and the guidelines outlined in our municipal code, the LMG is deeply committed to prioritizing economic opportunity, fair labor practices, and job quality in all projects funded by the CPRG program. The following guidelines derived from Chapter 37 will shape our approach to project development, vetting, and program implementation: local business preference, prevailing wage compliance, apprenticeship initiatives, affirmative action plans for contractors and vendors, continued financial systems, minimum wage standards ($21 per hour min), support for minority, female, and disabled business enterprises, fair labor standards for projects subsidized by taxpayers, and damages protocol[14].

Our proposal is designed to ensure that the GHG reduction measures we implement will generate high-quality jobs with a diverse and highly skilled workforce, adhering to high-road labor practices. We have a proven track record of facilitating high-quality jobs in the region, as evidenced by the following 2023 job announcements: Stellar Snacks created 290 jobs at $26.52 per hour, MMY Global generated 73 jobs at $30 per hour, Congo Brand provided 500 jobs at $41.50 per hour, AP Electric contributed 300 jobs at $40 per hour, and Houston Johnson, Inc. added 76 jobs at $25.09 per hour. Furthermore, ongoing projects in the region include Bullitt - Rivian with 218 jobs at $33.40 per hour, Shelby - EnerVenue with

[14] https://codelibrary.amlegal.com/codes/louisvillemetro/latest/loukymetro/0-0-0-4220

450 jobs at $24 per hour, Bullitt – UPS Supply Chain Solutions with 121 jobs at $37 per hour, and Shelby - Wieland North America Recycling with 225 jobs at $23 per hour.

High-Quality Job Commitments

To safeguard job quality and promote fair employment practices, we commit to implementing living wage standards, ensuring that all jobs created or supported through CPRG-funded projects offer wages that enable workers to meet their basic needs and sustain a decent standard of living. We prioritize access to benefits such as healthcare, retirement plans, and paid leave, and enforce workplace safety regulations to protect the health and well-being of workers. Additionally, we support opportunities for skills development, training programs, and pathways for career advancement within the clean energy and sustainability sectors. We establish mechanisms for ongoing monitoring and enforcement to prevent labor exploitation, discrimination, and unsafe working conditions. In 2023, LMG passed an ordinance that bans vendors that receive more than $50,000 in LMG contracts from entering into a sexual assault or harassment related non-disclosure agreement with an employee.

Adherence to Labor Standards

To uphold strong labor standards and ensure compliance with applicable laws and regulations, we require compliance with prevailing wage laws, mandating that contractors and subcontractors involved in CPRG-funded projects adhere to prevailing wage requirements to prevent wage undercutting and ensure fair compensation. We enforce non-discrimination policies, prohibiting discrimination based on race, gender, age, disability, sexual orientation, or any other protected characteristic in hiring, promotion, and workplace practices. We facilitate collective bargaining rights, recognizing and respecting the rights of workers to organize and bargain collectively, where applicable, to negotiate fair wages, benefits, and working conditions. We partner with labor organizations, collaborating with labor unions, worker advocacy groups, and community organizations to promote labor standards and address any concerns or grievances raised by workers.

Cultivating a Diverse, Highly Skilled Workforce

To foster workforce diversity and enhance the skills of our labor force, we prioritize equitable hiring practices, actively seeking to recruit and retain individuals from underrepresented groups, including women, minorities, veterans, and individuals with disabilities, through targeted outreach and recruitment efforts. We invest in workforce development programs, allocating resources to training programs, apprenticeships, and educational initiatives that equip workers with the skills and certifications needed to excel in clean energy and sustainability-related fields. We support supplier diversity initiatives, encouraging the participation of small, minority-owned, women-owned, and disadvantaged business enterprises in the supply chain for CPRG-funded projects to promote economic inclusion and create opportunities for local businesses. We foster inclusive workplace cultures, promoting an inclusive and supportive work environment that values diversity, equity, and inclusion, and actively seeks to address barriers to participation and advancement faced by marginalized groups. LMG is committed to ensuring that the CPRG implementation grant funds and the implementation of the GHG reduction measures will result in the creation of high-quality, family-sustaining jobs with opportunities for career advancement, fair labor practices, and a diverse, highly skilled workforce. By adhering to the Good Jobs Principles developed by the U.S. Department of Labor and Department of Commerce, and incorporating high road labor practices such as local hiring requirements, prevailing wage standards, unionization, gender and racial equity hiring requirements, workforce development and training, and domestic content share requirements, we will continue to prioritize job quality and labor standards in all our projects, fostering economic opportunity and sustainability in the Louisville KY-IN MSA.

Section 6: Programmatic Capability and Past Performance

a. Past Performance

We have successfully managed several federally funded projects. Under the American Rescue Plan State and Local Fiscal Recovery Funds (SLFRF), we oversee $388M for COVID-19 health, premium pay, infrastructure, and revenue recovery since 2021, without any audit findings. With the Community Services Block Grant (CSBG) of $3.45M, we manage programs focused on poverty alleviation and community empowerment, passing 10 performance monitoring evaluations over five years without findings. We also administer the $11.3M Community Development Block Grant (CDBG) and $3.6M HOME Investment Partnerships funds efficiently, successfully meeting project goals and federal requirements. Additionally, our oversight of the $976,280 Emergency Solutions Grant (ESG) provides immediate housing support for those individuals facing housing challenges. A description of each federally funded grant is provided below.

State and Local Fiscal Recovery Funds

- Project Title: American Rescue Plan State and Local Fiscal Recovery Funds (SLFRF)
- Assistance Agreement Number: Both SLFRP1043 and SLFRP3405
- Federal Funding Agency: U.S. Department of Treasury
- Assistance Listing Number: 21.027
- Brief Description: $388M in SLFRF funding for activities that fall within four primary eligibility groups: COVID-19 health and economic recovery, premium pay, infrastructure, and revenue recovery. We have operated more than 75 SLFRF-funded projects since 2021 and have received no SLFRF audit findings across the life of the SLFRF.
- Contact: We do not have direct contact at the U.S. Department of Treasury for SLFRF.
- Discussion: LMG has operated SLFRF-funded projects since 2021 and will continue to manage these projects through the end of the performance period on December 31, 2026. To date, LMG successfully managed these recovery funds, as indicated in our annual Recovery Plan and Performance Reports. Our success with SLFRF is due to our comprehensive approach in managing this unique, once in a generation assistance. For our Court Eviction Diversion project, we anticipated providing rental assistance to 2,700 tenants and exceeded that number by over 500 tenants. Additionally, we vaccinated 8,042 residents under our COVID-19 Response-Vaccination project.
- Reporting Requirements: The Office of Management and Budget (OMB) holds the primary responsibility for preparing and submitting SLFRF Quarterly Project and Expenditure reports to the U.S. Department of Treasury. OMB works with the Louisville Accelerator Team (LAT) project managers and department staff to obtain key performance Indicators (KPIs) and project status data. OMB SLFRF accountants prepare the financial data, which is reviewed and verified by the OMB SLFRF compliance officers. The LAT team holds primary responsibility for preparing the annual Recovery Plan and Performance Reports. LAT works with staff across all projects to gather the required information for each SLFRF project. OMB also provides financial data for the annual report. To date, the U.S. Department of the Treasury has accepted all of our quarterly and annual reports to date. Additionally, All SLFRF reports have been submitted timely, with no reports submitted after the deadline. As of January 2024, we have successfully reported on more than $170M in expenditures.

Community Services Block Grant

- Project Title: Community Services Block Grant projects (multiple)
- Assistance Agreement Number: Unknown

- Federal Funding Agency: U.S. Department of Housing and Urban Development (HUD)
- Assistance Listing Number: 14.218
- Brief Description: $11.3M in Community Development Block Grant (CSBG) funding for our Office of Resilience and Community Services (RCS) and our Office of Housing and Community Development (OHCD). CSBG funds community projects that meet one of the following National Objectives: Benefit to Low-to-Moderate Income Persons, Urgent Need, Elimination of Slum or Blight.
- Contact: Erik Hoglund, Acting Director, Louisville Field Office: erik.d.hoglund@hud.gov.
- Discussion: LMG has a large, dedicated team across multiple agencies to successfully manage all annual HUD CPD entitlement grant funds. This team includes grant coordinators, project managers, OMB accountants, and federal compliance monitors to ensure all requirements under these federal grants are met. Successful management of the CSBG programmatic and financial requirements are reflected in 10 monitorings with no findings over the last five years.
- Reporting Requirements: OMB is responsible for preparing and submitting CSBG monthly financial reports and draw requests to the Commonwealth of Kentucky. OMB works with RCS staff to ensure all costs charged to and reported for the grant are eligible and allocated properly. RCS submits quarterly and annual reports on outcomes, outputs, and capacity building activities, including volunteer and training hours. RCS also submits reports and documentation of CSBG eligibility requirements for clients as well as coordination of Community Action Board activities and membership. As reflected in the CSBG Standards and Annual Compliance performance monitorings, RCS and OMB have submitted timely and acceptable financial and programmatic reports over a multiyear period. Successful management of the CSBG programmatic and financial requirements are reflected in 10 monitorings with no finding over the last five years.

Community Development Block Grant

- Project Title: Community Services Block Grant projects (multiple)
- Assistance Agreement Number: Unknown
- Federal Funding Agency: U.S. Department of Housing and Urban Development
- Assistance Listing Number: 14.218
- Brief Description: $11.3M in Community Development Block Grant (CDBG) funding for our Office of RCS and our OHCD. CDBG funds community projects that meet one of the following National Objectives: Benefit to Low-to-Moderate Income Persons, Urgent Need, Elimination of Slum or Blight.
- Contact: Erik Hoglund, Acting Director, Louisville Field Office: erik.d.hoglund@hud.gov.
- Discussion: LMG has a large, dedicated team across multiple agencies to successfully manage all annual HUD CPD entitlement grant funds. This team includes grant coordinators, project managers, OMB accountants, and federal compliance monitors to ensure all requirements under these federal grants are met. LMG has successfully managed the CDBG Program and reports ongoing progress to HUD yearly.
- Reporting Requirements: CDBG accomplishments are reported to HUD on an annual basis with the submission of the Consolidated Annual Performance and Evaluation Report (CAPER). The CAPER reports on both financial progress and demographic information for program beneficiaries. LMG's most recent Program Year 2022 CAPER was submitted to HUD on September 30, 2023.

HOME Investment Partnerships

- Project Title: HOME Investment Partnerships projects (multiple)
- Assistance Agreement Number: Unknown

- Federal Funding Agency: U.S. Department of Housing and Urban Development
- Assistance Listing Number: 14.239
- Brief Description: $3.6M in HOME Investment Partnerships funding for our Office of RCS and our OHCD. HOME funds support the creation and preservation of affordable housing and tenant based rental assistance.
- Contact: Erik Hoglund, Acting Director, Louisville Field Office: erik.d.hoglund@hud.gov.
- Discussion: LMG has a large, dedicated team across multiple agencies to successfully manage all annual HUD CPD entitlement grant funds. This team includes grant coordinators, project managers, OMB accountants, and federal compliance monitors to ensure all requirements under these federal grants are met. LMG has successfully managed the HOME Program and reports ongoing progress to HUD yearly.
- Reporting Requirements: HOME accomplishments are reported to HUD on an annual basis with the submission of the Consolidated Annual Performance and Evaluation Report (CAPER). The CAPER reports on both financial progress and demographic information for program beneficiaries. LMG's most recent Program Year 2022 CAPER was submitted to HUD on September 30, 2023. LMG's CAPER reports reflect ongoing progress.

Emergency Solutions Grant (ESG)

- Project Title: Emergency Solutions Grant (ESG) projects (multiple)
- Assistance Agreement Number: Unknown
- Federal Funding Agency: U.S. Department of Housing and Urban Development
- Assistance Listing Number: 14.231
- Brief Description: $976,280 in ESG funding for our Office of RCS and our OHCD. ESG funds support those experiencing a housing crisis, or homelessness with immediate access to shelter, rapid rehousing, street outreach, or homeless prevention services.
- Contact: Erik Hoglund, Acting Director, Louisville Field Office: erik.d.hoglund@hud.gov.
- Discussion: LMG has a large, dedicated team across multiple agencies to successfully manage all annual HUD CPD entitlement grant funds. This team includes grant coordinators, project managers, OMB accountants, and federal compliance monitors to ensure all requirements under these federal grants are met. ESG management at LMG also partners closely with the Louisville Continuum of Care for coordinated management of homeless support systems.
- Reporting Requirements: The ESG reporting is completed on a quarterly basis through HUD's Sage reporting system. This system includes data from the Homeless Management Information System (HMIS) as well as financial progress reports. LMG's final progress report for the 2022 Program Year was submitted to HUD on September 30, 2023. LMG's ESG reporting reflects ongoing progress.

c. Staff Expertise

The LRCA project will be led and supported by highly qualified staff, contractors, advisors, and volunteers across various disciplines. Key team members have been noted below, and a broader list of advisors and partners have been mentioned in the *Bios_Louisville-Jefferson County Metro Government.pdf* attachment. Staff are highly experienced and possess the expertise to plan, oversee, and implement the LRCA initiatives proficiently. The organizational schematic in the budget attachment of this proposal outlines the oversight structure of the LRCA project. During the planning phase of the project, the Green Bank Director and Board of Directors, along with the Grants Management Contractor will be chosen. The current oversight and management staff, and advisors for the project are listed below.

CPRG Oversight and Management:

Sumedha Rao - Executive Director, LMG Mayor's Office of Sustainability (Project Manager): Sumedha holds an MS in Sustainability Science and serves as the Executive Director for LMG's Mayor's Office of Sustainability, overseeing a $1 million operating budget and key climate initiatives. Previously, she directed urban sustainability programs in various roles in the U.S. and India. Sumedha will oversee and manage all LRCA project initiatives.

Susan Durham - Senior Advisor for Grants, LMG Office of the Mayor (Grants Management and Compliance Advisor): Susan W. Durham is a Certified Grants Management Specialist with 15 years of experience. She has managed over $700 million in federal COVID relief funds for the Louisville Metro Government and currently serves as the Senior Advisor for Grants and Community Partnerships. Susan enhances Louisville's grant capacity through partnerships, training, and resource development. She holds an M.A. in Grant writing, Grants Management, and Evaluation from Concordia University and an M.S.U.S. in Urban Studies from the University of Nebraska at Omaha. Susan will also oversee and manage all LRCA project initiatives.

Development Finance and Workforce Advisors:

Joshua McKee - Interim Director, LMG Economic Development: Joshua is the Interim Director of Economic Development for the LMG. With a background spanning roles in economic development and higher education at the University of Louisville, he has managed significant projects and budgets, focusing on business attraction, retention, and workforce solutions.

Toby Rittner, President and CEO, Council of Development Finance Agencies: Toby is the President and CEO of the Council of Development Finance Agencies (CDFA), and is currently leading a development finance consulting contract with LMG. He advised President Biden's Transition Team on federal small business policies, led the $10B State Small Business Credit Initiative, and preserved tax-exempt Private Activity Bonds in the Tax Reform Act of 2017.

Keith Talley - President & CEO, Louisville Housing Opportunities And Micro Enterprise: Community Development Loan Fund, Inc. (LHOME): Keith became President and CEO of LHOME, a Louisville based CDFI, in April 2022. Previously with LMG for eight years, he held roles in air pollution control and community building. With 18 years in banking, focusing on lending and affordable housing, Keith also served in leadership roles in community development banks.

Aleece Smith, Director of Inclusion and Sector Strategies, KentuckianaWorks: Aleece is the Director of Inclusion and Sector Strategies at KentuckianaWorks. With expertise in coalition building, systems change, and community development, she has previously coordinated sector-specific workforce partnerships and managed health innovation projects at the YMCA of the USA in Chicago.

GHG Reduction Technical Advisors:

Rachael Hamilton - Director, LMG Air Pollution Control District: Rachel is the Director at LMG APCD, managing an $8 million budget and a team of 57 professionals. With previous roles as Assistant Director and APCD Regulatory Division Head, she's adept at regulatory programs and budgeting. Rachael holds a J.D. from the University of Louisville and a B.A. in Biology from Salem College.

Michelle King - Assistant Director, LMG Air Pollution Control District: Michelle is the Assistant Director at LMG APCD. She leads community engagement and manages policy development, overseeing a $7+ million budget. She holds a Juris Doctor/Master of Public Affairs from Indiana University and a bachelor's in environmental science from Morehead State University.

Zachary Tyler - Energy Manager, LMG Facilities and Fleet: Zachary is the Energy Manager at LMG, overseeing utility tracking, HVAC system optimization, and advancing energy goals. Previously, he developed energy programs at Cenergistic for the University of Kentucky and led a reforestation project in the Amazon as a Fulbright Fellow.

Elisabeth McCraken - Executive Director, Kentucky Pollution Prevention Center: Elisabeth McCracken is the Executive Director at the Kentucky Pollution Prevention Center (KPPC), University of Louisville. She has a background in biology from Eastern Kentucky University and has served in various roles at KPPC since 1998. Elisabeth holds certifications as a Green Manufacturing Specialist and ISO 14001 Lead Auditor.

LIDAC and Community Engagement Advisors:
Joi McAtee - Executive Director, LMG Office of Equity: Joi, based in Louisville, KY, is a strategic leader currently serving as the Executive Director at LMG's Office of Equity.
Lyndon Pryor - President, Louisville Urban League: Lyndon is the President and CEO of The Louisville Urban League (LUL). He previously served as Interim President and Chief Engagement Officer and has a background in student development and housing programs.
Cassia Herron - Kentuckians for the Commonwealth: Cassia is a community development professional with over 20 years of experience.
Andrea Gaughan - Professor, University of Louisville: Andrea is a Professor at the University of Louisville's Department of Geographic and Environmental Sciences, and served as the project manager for LIDAC analysis for the regional PCAP.
Stewart Burns - Director, Martin Luther King Legacy Studies and Environmental Justice Studies, Simmons College of Kentucky: Stewart is an activist scholar and serves as the Professor and Chair of the Interdisciplinary Studies Department at Simmons College of Kentucky.

MSA Advisors:
Ryan Lloyd, Grant Administrator and Planner, KIPDA: Ryan has a Master's in Sustainability from the University of Louisville (2020-2022) and a BA in Environmental Science from Wheaton College (2011-2015). Currently, he serves as a Grant Administrator and Planner at KIPDA, specializing in grant writing for Kentucky counties.
Claire Johnson - Redevelopment and Economic Development Director, City of New Albany: Claire L. Johnson is an accomplished urban planning professional with a master’s in urban planning from the University of Louisville. She currently serves as the Redevelopment & Economic Development Director for the City of New Albany
Rita Hudson Shourds, President & CEO of Align Southern Indiana: Rita is an accomplished leader with an Ed.D. from Spalding University, an M.S. from the University of Louisville, and a B.A. from Indiana University Bloomington. Previous to her current role, she has served in executive roles at Ivy Tech Community College and Home of the Innocents.
Therese Dorau - Assistant Director of Climate Policy and Implementation, Indiana University ERI: Therese J. Dorau is an experienced climate policy expert currently serving as Assistant Director of Climate Policy and Implementation at Indiana University Environmental Resilience Institute. She holds a M.S. in Sustainable Systems from the University of Michigan and a B.S. in Chemistry from Xavier University.

Section 7: Budget

Please refer to the attachment Budget_Louisville-Jefferson County Metro Government.pdf for the budget narrative.