

1. Overall Project Summary and Approach

The Southeast Michigan Coalition to Decarbonize Buildings is an initiative that will dramatically reduce greenhouse gas emissions from residential and municipal buildings and decrease energy burden for low-income and disadvantaged residents. This proposal will build upon and fill gaps within existing programs to achieve more comprehensive decarbonization, remove complexity for residents through an Energy Advisor service, and optimize the use of existing funding opportunities.

This coalition is led by SEMCOG, the Southeast Michigan Council of Governments. SEMCOG is the federally designated planning agency for air and water quality, economic development, and transportation in the Metro Detroit region. SEMCOG works to coordinate planning among 180 units of local government across seven counties in Southeast Michigan. This coalition consists of the region's largest government entities as key partners, including the City of Detroit, Livingston County, Monroe County, Macomb County, Oakland County, St. Clair County, Washtenaw County, and Wayne County.

The project is also supported by the State of Michigan's Department of Environment, Great Lakes, and Energy (EGLE), along with several of the larger local municipalities in the region including the Cities of Ann Arbor (Washtenaw County), Sterling Heights (Macomb County), and Southfield (Oakland County). This regional coalition represents over 4.8 million people, which is approximately half the population in the state of Michigan. Approximately 28% of the region's census tracts are identified as low income and disadvantaged communities, representing more than 1.3 million people.

The goals of this project directly support the EPA's goals for the CPRG program, including ambitious near-term emissions reductions with substantial community benefits in low income and disadvantaged communities. It will complement existing funding by filling persistent gaps in incentives for building decarbonization through a program that can be scaled regionally to remove barriers for implementation.

Specifically, the project's goals are to:

1. Eliminate over 200 thousand metric tons of CO₂e from building energy use between 2025 and 2030 and over **282,000 metric tons of CO₂e** between 2025 and 2050 by completing the following work by 2030:
 - a. Deep energy retrofits and provision of zero-emissions electricity to at least **6,500 low-income households in single-family homes**.
 - b. Deep energy retrofits and provision of zero-emissions electricity to over **1,800 low-income, multi-family residential units**.
 - c. Energy audits, home assessments, and the creation of a Decarbonization Pathway and Financing Plan for **1,500 non-income qualified households**, to catalyze action to reduce emissions in their homes; and,
 - d. A range of measures from small-scale solar installations to large building retrofits and fuel switches to reduce emissions from **518,500 square feet of municipal building space** particularly in Justice40 communities.
2. **Decrease energy costs** in low-income, high energy-burdened residences, and the municipal buildings of Justice40 communities.

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3. Establish a long-term, transformative **Energy Advisor Service** to simplify, normalize and expedite building decarbonization between 2025 and 2030, and build local capacity to ensure the work continues after 2030.
4. Participate in and support regional efforts to **increase the workforce** able to do building decarbonization work and renewable energy installation and maintenance at the scale that will be required to achieve climate goals.
5. Improve **indoor and outdoor air quality** in disadvantaged communities.
6. Plant **9,850 climate-resilient trees** to provide shade and cooling effects to buildings, increase natural sequestration, and improve outdoor air quality, urban canopy, and stormwater diversion.

1a. Description of GHG Reduction Measures

The coalition has chosen to focus on a major region-wide decarbonization initiative because:

- **The single largest source of greenhouse gas emissions in Southeast Michigan is energy use in buildings.** According to SEMCOG's 2019 GHG inventory, buildings produced 48.9 metric megatons of GHG emissions, or 60% of the region's total emissions. Reducing these emissions is critical to achieving local, national and international climate goals.
- **Implementing this program will not only reduce emissions, but it will also reduce energy costs for thousands of low-income Michiganders.** Many residents in the coalition counties have high energy burdens. Over 236,000, or 10% of households in the region have incomes within 0-30% of the Area Mean Income (AMI). These households spend an average of 17% of their annual income on energy. This program will ensure that participating low-income households are able to spend significantly less on home energy for many years to come.
- This program is built upon the knowledge, experience and passion of many throughout the region and state. The experience that informs this program's development and the breadth of resources the coalition members are able to leverage - from outreach networks to bulk purchase agreements for solar panels, to 'pipelines' of homes ready for retrofits - will ensure its transformative impact. Taking advantage of this existing capacity and knowledge will allow this program to operationalize quickly and expedite the **decarbonization of nearly 10,000 dwellings between 2025 and 2030, reducing energy poverty for residents, and supporting the development of skilled workers to support continued building decarbonization efforts.**

The Building Decarbonization Program will complete the following GHG reduction measures by 2030. These Reduction Measures are described in detail in this application and directly relate to several priority measures identified in PCAPs for both SEMCOG and the State of Michigan. Both PCAPs identified existing buildings in LIDACs as key priority areas, as shown in Table 1.

Table 1: Application Reduction Measures and Connection to Applicable PCAPs

Application Measure	PCAP Reduction Measures	
	SEMCOG	State of Michigan
Measure 1: Residential Retrofits and Fuel Switching	#1 and 3	#3 and 4
Measure 2: Residential Renewable Electricity	#1 and 3	#3 and 4
Measure 3: Energy Advisor Service	#1 and 4	#3 and 4
Measure 4: Climate Resilient Trees	#5	N/A
Measure 5: Municipal Retrofits	#1 and 3	#6

Each County opted for the measures that are currently implementation- ready in their jurisdiction. To allocate funds designated for the residential improvements across the coalition, each county will receive

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a share of the total residential retrofit services equal to a Weighted Share of Total and Disadvantaged Population. This method was agreed upon by all participants. One adjustment was made within Wayne County's share to shift their allocations to a greater number of multi-family dwellings and a lower number of single-family dwellings based on need and readiness for implementation. Otherwise, the proportions shown here reflect each county's Weighted Shares of Total and Disadvantaged Populations. SEMCOG, as the coalition lead, affirms that a Memorandum of Agreement signed by all Coalition Members will be provided by July 1, 2024. The Coalition Members and their participation in the different measures is shown in Table 2.

Table 2: Coalition Members and Participation in Application Measure

Coalition Partner	Measures 1, 2, 4		Measure 3	Measure 5
	Single Family Homes	Multi-Family Units	Audits & Planning	Municipal Retrofits
Livingston	185	17	47	✓
Macomb	1,465	135	372	✓
Monroe	204	20	52	✓
Oakland	1,456	134	370	✓
St. Clair	N/A	N/A	N/A	✓
Washtenaw	434	40	110	✓
Wayne	2,756	254	550	✓
Detroit	0	1,250	0	✓
Total	6,500	1,850	1,500	

The Residential Decarbonization component of this program consists of three GHG reduction measures (Measures 1, 2 and 3 as detailed below) implemented in 8,350 dwellings. The goals will be:

- to achieve an average total energy use reduction of at least 50% across all dwellings,
- to remove fossil fuel technologies from all single-family dwellings, and in at least 50% of multi-family dwellings, and
- in every household, to provide renewable electricity to ensure that the households energy costs are lower after the work is complete.

The work will be divided into two phases with a major milestone at the end of each phase:

- **Phase 1** will run from 2025 to 2026, during which time just over 1,000 residences will be retrofitted. Tasks, roles and responsibilities will include:
 - A Program Steering Committee will be established by November 1, 2024. It will consist of SEMCOG, representatives of the coalition counties, and community partners. The Committee will be responsible for:
 - Championing the Residential Decarbonization initiative within their counties.
 - Attending bi-annual and ad hoc meetings with the Energy Advisor team to address issues, review progress, and make decisions to ensure the program's success.
 - Liaising with county staff.
 - Providing county support with community outreach and communications.
 - The Energy Advisor team will:
 - Be established and operational by March 1, 2025.
 - Provide the transformational Energy Advisor Service to all 8,350 low-income residents and portions of the Service to 1,500 non-income qualified residents in this program. (See the

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Energy Advisor description in the Demonstration of Funding Need section of this application for a complete list of the Service's tasks and responsibilities.)

- Share progress and work with the Program Steering Committee quarterly to continuously improve the program.
- In late 2026, SEMCOG will ensure the Program Steering Committee and the Energy Advisor Service complete a Program Review. During this review, data on Phase 1 retrofits will be compared to the initiative's goals. Program changes will be agreed to address any goals that were not met or otherwise improve the service. These changes will be incorporated into the launch of Phase 2.
- **Phase 2** will run from 2027 to 2029. The number of dwellings retrofitted annually during Phase 2 will increase, as will the number of Energy Advisor staff. Progress monitoring and reporting will continue as in Phase 1, and program reviews will be completed annually. Milestones in Phase 2 will include completing retrofits on each 500 or 1,000 homes. Reaching these milestones will be publicized and used to support ongoing outreach and communications efforts.

Measure 1: Residential Retrofits and Fuel Switching

By 2030, retrofits and fuel switching measures will be completed in the homes of 8,350 LIDAC residents of Southeast Michigan. 6,500 of these will be single-family homes and another 1,850 will be multi-family units. To maximize emissions reductions, the project will on average, achieve:

- Reductions in total energy consumption of at least 50%; and,
- Replacement of fossil fuel systems in the home (including heating/cooling and appliances) with heat pumps and high-efficiency electric alternatives.

Every home will have its pre-retrofit energy consumption and the fuel type documented, and average annual greenhouse gas emissions be calculated. The energy consumption will be captured again after the retrofits are completed, and again one year after the retrofits, when a full year's worth of energy data will be available. This will ensure that the new systems are working well together in all seasons and allow technicians to make any necessary adjustments. Greenhouse gas emissions will also be calculated again at each of these times. This information will be anonymized for reporting.

Based on their experience running home improvement programs, coalition members agree that complexity is as significant a barrier to decarbonizing homes as cost. In order to achieve widespread residential decarbonization, it will need to be as easy as possible for residents to navigate. To support this, the coalition will establish a transformative Residential Energy Advisor service to manage all elements of the Residential Decarbonization component of this project. The service will be an expanded version of a program piloted by the City of Ann Arbor, which is also modeled on the 'I Heart My Home' program in Connecticut. With CPRG funding, the Energy Advisor service will be ready to begin providing residents with comprehensive support to decarbonize their homes in early 2025.

The Energy Advisor program will consist of four areas of responsibility:

- Community Outreach and Intake - focused on taking initial calls from residents, addressing their initial needs, and providing energy audits, building assessments, Decarbonization and Funding Plans, and handing off low-income clients to Construction Management. These staff will be the 'energy advisors'.
- Program Management - responsible for coordinating with coalition members, developing the list of eligible work, systems, appliances, etc. for the program, as well as establishing and maintaining the process flows within the program and with external organizations.

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- Program Reporting - responsible for monitoring and reporting to SEMCOG and the Program Steering Committee on the required key performance indicators. This will include data required to achieve the program's goals (particularly between Phases 1 and 2), to meet the requirements of the CPRG, and to position the program to continue after 2030.
- Construction Management - responsible for supporting coalition members with issuing bids for work, procuring materials and systems as required, ensuring contractors have the appropriate credentials to do deep decarbonization work and monitoring their performance, and ensuring permits and inspections are completed.

Risks and Mitigation: There is a risk that supporting contractors and county staff will complete or accept retrofit work that achieves lower standards than what is required to achieve significant emissions reductions. This is because the work they do currently and the standards they are familiar with do not achieve, for example, reductions in total energy consumption of 50%.

This risk is being mitigated in two ways. Firstly, Energy Advisor staff will receive significant training to the required standards. These programs also do not generally track energy consumption before and after work is completed in a home. To ensure that the project goals are achieved, SEMCOG and the coalition members reserve the right to jointly adjust allocations if some counties have challenges completing 'deep energy retrofits' as defined above on all of their allocated retrofits on this schedule.

Measure 2: Residential Renewable Electricity

By 2030, the same 8,350 retrofitted, low-income dwellings will also be provided with renewable electricity either by installing a rooftop solar PV system, connecting them to a community solar installation, or by purchasing green power. On average, each home will receive the equivalent of a 5kW solar PV system in 'green electricity' at no cost to them.

Furthermore, the Decarbonization and Funding Plan for each low-income home will ensure that whenever necessary, zero-emissions electricity will be provided *before* increasing the electric load with heat pumps, electric stoves or electric clothes dryers. This is not the standard approach. Normally, installing a solar PV system is the last step in a residential decarbonization project. This ensures the solar system is sized to meet the electricity demand of the heat pumps and appliances added during the retrofit process. Currently in Southeast Michigan, natural gas systems are often less expensive to operate when compared to electricity. However, because this program aims to ensure that energy costs are only ever lowered for low-income homeowners, it is expected that in most cases this approach will be reversed, and the emissions-free electricity will be added before the electric heat pumps and appliances. In this way, when these appliances are added and electricity consumption increases, the increased load will be handled by the zero-cost, zero-emissions electricity and will not increase the homeowner's energy costs even temporarily.

Measure 3: Energy Advisor Service

Between 2025 and 2030, 1,500 non-income-qualified residents will be able to receive free home energy audits and a customized Decarbonization and Funding Plan to stimulate them to take advantage of existing funding and upgrade their homes to reduce their emissions. While not all participating households will take full advantage of this information, the estimates included here assume that:

- One-third of participants reducing their household emissions by 10% by making basic changes such as repairing holes, sealing leaks and adding insulation.

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- One-third will also make additional energy efficiency upgrades such as purchasing new appliances or windows, to reduce their emissions by 25%; and
- One-third will also electrify their homes and replace their existing space heating and cooling, and water heating systems with heat pumps, to achieve a 50% emissions reduction.

This component of the program is important in a number of ways. The complexity of decarbonizing a home is a challenge for everyone, not only low-income residents. To ensure we reach our climate goals, this work needs to be ‘normalized’ in all communities and within all socio-economic levels. Providing non-income-qualified homeowners with a home energy audit, a clear plan of what needs to be done to decarbonize their home, an outline of the benefits, and a guide to the generous funding that’s available will stimulate some to make changes. It will also provide them with materials and information they can share with their neighbors.

Risks and Mitigation: This measure has a risk of not effectively stimulating people to take action independently to reduce the emissions from their homes. To mitigate this risk, the Decarbonization Pathway and Funding Plans will be carefully designed to be clear, accurate and understandable. The Project will also monitor the effectiveness of the materials at catalyzing people to take action and will make improvements regularly. Surveys and personal follow-ups will be done at least twice with all residents who receive a Decarbonization Pathway and Financial Plan.

Measure 4: Climate-Resilient Tree Planting

Between 2025 and 2030, the Program will plant 9,850 climate-resilient trees - one for each household participating in the program - to increase natural sequestration and green space at or near their homes.

The goals of planting trees are to sequester carbon from the atmosphere, remove pollutants from outdoor air, divert stormwater, cool outdoor and indoor spaces, and provide habitat for animals.

Risks and Mitigation: The emissions reductions from this Measure are at risk of decreasing over time if the trees are not well cared for, or if they are damaged or killed by disease, pests or fire. The program has been designed to mitigate against all of these risks:

- Owners who agree to have a tree on their property will be given information about how to care for it, and asked to sign an agreement indicating that they commit to looking after it.
- Each tree will be planted along with a watering bag to help ensure its roots get enough water while the tree gets established.
- All of the tree species selected will follow the guidance of planting “the right tree, in the right place, for the right purpose”. They will:
 - Require little maintenance, and tolerate a range of moisture levels, soil and light conditions.
 - Have relatively few pests and low susceptibility to disease, both now and expected in the future.
 - Not be prone to producing roots that damage sidewalks or underground infrastructure; and
 - Align with recommendations from the Michigan Department of Natural Resources for community tree plantings.

The emissions reductions and other quantified benefits for this measure assume that a total of 4,000 Bur oak (*Quercus macrocarpa*), 4,000 Red maple (*Acer rubrum*), and 1,850 Ginkgo trees (*Ginkgo biloba*) will be planted by 2030. It was also assumed that approximately 1% will die annually, such that in 2050, approximately 8056 trees will still be alive.

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Collaboration and Program Design: SEMCOG has adopted a regional target to reach 40% tree canopy across Southeast Michigan’s urban areas, with a priority to planting trees in those areas with less than 20% canopy. These high priority areas often correlate with equity and environmental justice concerns that are exacerbated by climate pollution, such as air quality and heat vulnerability. Macomb County and Wayne County, as well as the City of Ann Arbor have tree planting programs and are jointly supporting the design of this element of the Building Decarbonization Program. Based on their guidance, it is expected that:

- Energy advisors will recommend whether a tree can be planted at each home and be responsible for getting the owner’s permission to plant one. If the owner does not agree to this, permission will be sought to plant the tree nearby in an open space, or along a bike path or boulevard.
- Energy advisors will select the type of tree to plant at each location using the guidance above, and incorporate the planting into the planning and scheduling of work for each home. They will ensure that the location of the tree will be appropriate for it to grow and will not shade residents’ rooftop solar systems. If appropriate, they may plant it within 20 feet of the residence to allow the building to be cooled by the tree’s shade as it gets larger.

Measure 5: Municipal Facility Retrofits

SEMCOG will establish a competitive grant to support the decarbonization of municipal buildings and facilities with a focus on Justice40 communities within the coalition counties. SEMCOG will administer the program, and leverage the capacity of its established [Regional Review committee](#) to review applications and select awards for grant funding.

The goals of this component of the program will be:

- To significantly reduce emissions from over 500,000 square feet of municipal buildings and facilities by 2030, with a focus on Justice40 communities.
- To achieve these emissions reductions with a combination of building retrofits, energy efficiency improvements, and renewable energy system installations.
- To reduce building energy costs for these municipalities, freeing up the funds to be used for community services, or to be put towards the decarbonization of other municipal buildings.
- To implement decarbonization measures in these buildings in a way that will be visible to the public and provide educational signage in order to help ‘normalize’ the changes.
- To take advantage of other incentive programs like the federal direct pay tax credit.

Program Design: The Municipal Building Decarbonization will include two separate grant competitions that will be timed to align with Phase 1 and 2 of the Residential Decarbonization component of the program. The competitions may include multiple tiers of funding awards to accommodate a variety of sizes and types of municipalities, as well as both simple and more complex decarbonization projects. The estimates provided in this application assume that the grants will be directed as follows:

- 94% of the funds will be awarded to larger-scale building retrofits, energy efficiency improvements, fuel switching, and HVAC changes such as:
 - Replacing or improving building envelopes, roofs, and making changes to doors and windows to reduce energy loss.
 - Replacing space heating and cooling as well as water heating systems with electric heat exchange systems that use renewable sources of heating and cooling, (e.g. industrial or sewer waste heat, ground or air source heat exchange).
 - Upgrading lighting, ventilation, fans, or motive equipment.
 - Recommissioning and upgrading building management systems may also be eligible in conjunction with other GHG reduction measures.

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- Approximately 6% of the funds will be directed towards smaller-scale renewable energy installations such as solar PV on rooftops or embedded within windows and exterior walls, or thermal solar installations.
- Large-scale projects will be encouraged to include as many of the following elements in their application as possible:
 - Measures to reduce the building's total energy consumption by at least 50%.
 - Measures that will reduce energy consumption by at least 5% from a combination of lighting, auxiliary motors, and auxiliary equipment; and
 - Installation of renewable energy generation to meet at least 25% of the building's needs.
- Applicants will be permitted to request a proportion of the funding for the following uses:
 - Up to 20% of the funds can be used to make repairs or improvements to the building that will allow it to accommodate decarbonization measures (e.g. improving the roof to support the weight of solar panels), or to ensure the building's long-term durability.
 - Up to 2% of the funds requested can be used to add educational elements about the work done, for the public.
 - Up to 3% of the funds requested can be used to add infrastructure to support active transportation. This can include secure bike storage, change rooms, showers, etc.

Applicants will be encouraged to include multiple measures in a project so as to maximize the emissions reductions achieved. For example, if a building requires significant roof work, applicants should be strongly encouraged to add solar systems. Applicants will also be encouraged to think creatively about ways to reduce emissions. For example, if south-facing windows cause a building to overheat, they could consider installing angled solar panels over the windows to partially shade the interior while also generating electricity.

Grant Awarding: SEMCOG's Regional Review Committee is a regionally representative group of local elected officials that have been elected by their peers to serve in a decision-making capacity for regional funding awards. SEMCOG has an established process to provide committee members with evaluation criteria and scoring guidance, which will include additional technical support to understand the GHG reduction impacts of the types of work that will appear in these applications. The criteria will include the project's alignment with CPRG goals, suggested funding distribution, redirecting savings into other emissions reduction or community improvement initiatives, ensuring geographic distribution, and other evaluation parameters.

1b. Demonstration of Funding Need

Communities across Southeast Michigan have consistently demonstrated a need for energy efficiency improvements that far exceeds the available financial support. While existing programs have made tremendous impacts, their competitiveness highlights the potential to expand these opportunities:

- Oakland County launched the Oakland Saves Grant Program on January 23, 2024, to provide \$5 million in funding for energy efficiency measures like weatherstripping, insulation, heating, and air conditioners. The program was fully subscribed within five days. And although over 1,100 households received grants from the Program, many more had to be turned away.
- Washtenaw County's ongoing Roof Replacement Program maintains a waitlist. After grants are issued each year, the waitlist is opened at a pre-advertised date and time to allow additional homeowners to sign up for the service. The waitlist immediately fills up and is closed again for another year.

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- Macomb County offers a Housing Rehabilitation Program which maintains a continuous waitlist for home repairs for low-income residents.

CPRG funding presents the opportunity to connect and expand the impact of these local successes regionally, while strategically targeting gaps in their services or inequities in distribution. For example, in Southeast Michigan there is currently very little financial or program support to help low-income families in multi-family buildings improve their household energy efficiency and reduce their emissions and energy costs. The City of Detroit in particular encouraged this coalition to include funding for large, multi-family dwellings. For this reason, this program has designated funds to be used to reduce emissions in 1,850 multi-family units across the region.

In order to develop the scope and budget for this project, representatives from EGLE, public utilities, counties, and weatherization agencies shared key existing funding sources and identified opportunities for strategic alignment. This program has been designed to complement others rather than duplicate. The major programs for stacking or braiding of funding include:

- US EPA Solar for All through EGLE
- Federal and High Efficiency Electric Home Rebate Program (IRA 25C) through EGLE
- Federal Residential Clean Energy Tax Credits (IRA 25D)
- MI Hope: Michigan State Housing Opportunities Promoting Energy Efficiency
- Michigan Saves Home Energy Loan Program, State of Michigan Green Bank
- DTE's Michigan Green Power Program
- Utility Rebates through DTE and Consumers Energy
- County Level Weatherization Assistance Programs funded through the US Department of Energy

While many of these programs help reduce emissions, they also have limitations in their allowable project scope, funding levels, and geographic focus areas. With the guidance of the Energy Advisor Service and infusion of additional CPRG funds, this Program aims to connect and expand these and other resources to maximize benefits. If a local government receives CPRG funding for a project that would otherwise be eligible under this program, for example through a State-level application and award, such a project would expressly not be eligible for funding under this proposed program.

Funding to Establish the Energy Advisor Service for Residential Decarbonization

The Energy Advisor Service is the most transformative component of this project. It is an 'enabling action' which is expected to catalyze significant emissions reductions, and greatly simplify the process of decarbonizing homes. The coalition has explored potential sources of funding for the Energy Advisor Services, and determined the following:

- Funding may be available for a portion of the staff training that has been identified. This funding would come from the training components of the Infrastructure Investment and Jobs Act and the Inflation Reduction Act. The amount of funds available for this program to draw from will be confirmed as planning continues.
- This program will also benefit from the lessons learned through the pilot program currently underway in the City of Ann Arbor. This proposal envisions an expanded version of Ann Arbor's service, and guidance from the first 6 months of their pilot will be shared with the coalition to hone the program design.

No additional potential funding sources have been identified for the remainder of the program.

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Funding for Residential Building Decarbonization

A significant amount of funding, support and contract support already exists to help residents of Southeast Michigan improve their homes. Some of these programs were designed specifically to support low-income residents. Others are tiered to provide larger support (such as grants covering 100% of labor and materials) to low-income residents, and smaller benefits (such as partial rebates or tax credits) to those with higher incomes. Many existing programs provide ‘weatherization’ or energy efficiency measures such as additional insulation, to improve a dwelling’s overall condition. Table 3, below, shows the relative abundance of home improvement programs in the areas participating in this coalition.

Table 3: Alternative Funding Sources by Program Type and County

	Livingston County	Wayne County	Detroit	Washtenaw County	Macomb County	Monroe County	Oakland County
Home Energy Audits, Building Assessments	2	2	3	5	3	2	3
Repairs	2	3	3	4	3	3	3
Weatherization	5	6	6	8	6	6	6
Energy Efficiency	5	5	5	5	5	5	6
Electrification	2	2	2	2	2	2	2
Renewable Energy	3	3	3	3	3	3	3

To maximize and leverage these resources, the Program is led by these guiding principles:

- **Optimize the use of existing funds:** The Building Retrofits portion of the Program will achieve these ambitious emissions reductions by drawing first from at least 30 existing funding programs already available to residents of the participating communities. These programs range from county-administered weatherization assistance and home rehabilitation programs to utility rebates, state-level emergency home repairs and solar incentives, to the federal IRA programs.
- **Supplement with CPRG funds to amplify the impact:** Where there are gaps in funding from these initiatives, the Building Decarbonization program will draw from the funds it is requesting through this grant application. This approach will help support existing programs, and ensure that funding already allocated for energy efficiency, fuel switching and new installations of renewable energy in homes is taken full advantage of before drawing from the CPRG funds.

Figures 1 and 2 illustrate the proportions of funding for Measures 1 and 2 that are expected to come from existing funding sources and from CPRG funds.

Figure 1: The proportion of single-family home retrofit and renewable electricity costs that will be provided by existing funds vs CPRG funds.



Figure 2: The proportion of multi-family home retrofit and renewable electricity costs that will be provided by existing funds vs CPRG funds.

		Existing Funding		
Energy Audits, Building Assessments & Repairs	50%			50%
Weatherization	50%			50%
Energy Efficiency	50%			50%
Electrification	50%			50%
Renewable Electricity	20%			20%
			CPRG Funding	

Funding for Municipal Building Retrofits

Less funding is available to support municipal building decarbonization projects than residential ones. EGLE’s 2024 Community Energy Management Program offers funding between \$5,000 and \$100,000 per grant. However, projects that will achieve significant emissions reductions can be much more expensive. At the same time, municipal facilities such as recreation centers are often very high producers of emissions, and their energy costs constitute a significant amount of municipal operating budgets. In LIDAC communities in particular, reducing those costs will allow municipal governments to redirect funds into other community programs, services or capital projects. For this reason, this Program is requesting CPRG funding to help LIDAC municipalities complete this type of work and benefit from it. Participants will also be able to leverage funds through federal direct pay energy tax credits, if applicable.

1c. Transformative Impact

This project aims to achieve deep emissions and cost reductions quickly with the following guiding principles for a transformative impact:

1. **Achieve comprehensive decarbonization:** Many existing home repair, and weatherization programs only provide home owners with piecemeal improvements like weatherstripping. The Building Decarbonization Program will undertake instead to upgrade each home comprehensively, bringing it as close as possible to a ‘zero-emissions’ state by the completion of the work. To do this, each residential building or unit will receive a deep energy audit and building assessment, followed by a comprehensive Decarbonization and Funding Plan. For low-income households the program will also manage all of the required work through to completion and verify that the required standards were achieved.
2. **Remove the barrier of complexity:** The complexities of upgrading a home to a ‘net-zero standard’ are as much of a barrier to getting the work done as the cost is. The Building Decarbonization Program will establish an Energy Advisor Service that will relieve the homeowner of that complexity. Energy advisors will work with homeowners and educate them throughout the process, while ensuring the work meets the required standards and achieves the program’s goals.
Between 2025 and 2030, the Energy Advisor service will provide a total of 9,850 residents with energy audits, building assessments, customized Decarbonization Pathways for their homes, and a Funding Plan listing the available funding sources they can take advantage to get the work done. 1,500 of these service packages will be provided to non-income qualified residents, to help catalyze decarbonization of their homes. The remaining 8,350 households receiving this service will be low-income households. For these people, the Energy Advisor Service will be more comprehensive:
 - The decarbonization pathways will include repairs and improvements to make the homes durable, livable and resilient in addition to reducing emissions and energy use.
 - The work will ensure homeowners can have lower total energy costs after the retrofits.

- The advisor will act as a project manager and carry out as much as possible of the decarbonization work identified for each home. They will schedule and coordinate each home's repairs, upgrades, fuel switches, renewable energy installations and tree plantings.
- Advisors will draw on the support of staff within county administrations and utilities who already provide weatherization and energy services for residents.
- The advisor will also be responsible for maximizing the potential to leverage existing resources and funds to complete the work, and then supplementing this with CPRG funds to achieve deep reductions in emissions, energy use and costs.

3. Optimize use of current funding, and supplement with CPRG funds: Wherever possible, the program will leverage what is already available to make CPRG funds go further and achieve more. This will include:

- Drawing from over 30 existing funding sources before drawing from CPRG funds.
- Where possible, leveraging existing programs and labor to complete repairs, weatherization, energy efficiency measures, electrical upgrades, appliance replacements, and renewable energy installation.
- Ensuring Categorical Eligibility with other major funding programs to allow programs to easily stack funding, reduce administration, speed up scheduling, and support the dignity of participants.
- Mentoring existing county staff in decarbonization work to increase the size of the workforce able to complete building decarbonization work.
- Participating in region-wide initiatives to increase the decarbonization workforce sufficiently to meet climate goals.
- Purchase equipment such as rooftop solar PV systems and heat pumps through bulk purchase agreements or wholesale agreements already in place with coalition members and supporters.

Over the five years of the program, key performance indicators will be diligently monitored and recorded, and the services will be improved. This data will demonstrate to utilities, municipalities and counties that they all benefit from changes catalyzed by the program. Beyond 2030, it is hoped that organizations like these will recognize the financial, social and resilience benefits of the program's various components, and provide funding for them to continue and expand.

2. Impact of GHG Reduction Measures

The greenhouse gases eliminated as a result of these measures include carbon dioxide, methane, and nitrous oxide. Perfluorocarbons and sulfur hexafluoride are not reduced by these actions.

2a-b. Magnitude of GHG Reductions

Table 4 summarizes the total emissions reductions that will occur as a result of the CPRG funds for each of the five measures in this program from 2025 -2030 and from 2025 -2050.

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Table 4: Magnitude of GHG Reductions from 2025-2030 and 2025-2050

Application Measure	GHG Reductions (metric tons CO ₂ e)	
	2025 - 2030	2025 - 2050
Measure 1: Residential Retrofits and Fuel Switching	7,383	51,725
Measure 2: Residential Renewable Electricity	30,773	119,042
Measure 3: Energy Advisor Service	10,061	58,197
Measure 4: Climate Resilient Trees	155	1,242
Measure 5: Municipal Retrofits	2,697	52,237
Total	51,069	282,443

Durability: The reductions from Measures 1 - 3 and 5 are expected to be durable until at least 2050. This is because the lifespans of most technologies used (e.g. insulation, solar systems, heat pumps) extend until at least 2050, and the work will be carried out only by qualified contractors.

Measure 4 is the planting of 9,850 trees. The species of trees suggested for these plantings have average lifespans of between 180 and 600 years, making them likely to continue sequestering carbon long after 2050. The program also includes measures to reduce the risk of trees dying prematurely. (See Measure 4 in the Description of GHG Reduction Measures.) Finally, while 9,850 trees will be planted, the total emissions sequestered by these trees incorporates the assumption that approximately 1% of the trees will die annually, such that only 8,056 will still be alive in 2050.

2c. Cost Effectiveness of GHG Reductions

The cost per metric ton of emissions eliminated is also referred to as the marginal abatement cost (MAC) of each action, which is summarized below in Table 5.

As per the NOFO guidance materials, the costs used to calculate the cost effectiveness only include the CPRG funds, and no other financial sources that will also be drawn upon. Similarly, the emissions included in these calculations include only the emissions that were eliminated as a result of CPRG funding. For Measures 1 and 3, this calculation includes emissions eliminated by the combined impact of the coordinated set of retrofit actions, even though some of the work will be paid for by other funding sources. The reason that all emissions are included is because the depth of emissions reductions that are achieved in these homes will be a direct result of the comprehensive planning and organization work from the CPRG-funded Energy Advisor Service. If the other programs had provided funding for piecemeal improvements made haphazardly rather than in a logical sequence, the emissions reductions would be much smaller than they would be with the Energy Adviser overseeing the work. For this reason, the MAC calculations for Measures 1 and 3 will include the total emissions reductions achieved in the dwellings.

Between 2025 and 2030, Measures 1 and 2 combined will provide total energy savings to homeowners of approximately \$15 million. Between 2025 and 2050, these savings will amount to a cumulative total of \$129 million, or over \$15,000 per household. For Measures 1 and 2 in this application, the costs/ savings per Mton of emissions eliminated are provided in two ways: a) Including only the CPRG investment cost, and b) the net value of the CPRG investment and the savings in energy costs realized by homeowners. The cost effectiveness of Measures 1 and 2 are provided as a combined measure first, because they are being implemented together. They are then also provided separately.

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The costs associated with Measure 3 consist of providing basic Energy Advisor Services to 1,500 non-income residents. For the purposes of this application, this calculation included only the costs of the energy auditors' salaries to complete 5 hours of work for each of these residents. This amounts to 23.5 months of work for two people, for an estimated total cost of \$332,000.

Table 5: Marginal Abatement Costs for Proposed Measures

Measures Implemented	Funding Included in the MAC Calculation	Cost (or Savings if Negative) 2025-2030	Cost (or Savings if Negative) 2025-2050	Total Emissions Eliminated 2025-2030	Total Emissions Eliminated 2025-2050	MAC (\$ / MTon CO2e eliminated) 2025-2030	MAC (\$ / MTon CO2e eliminated) 2025-2050
Measures 1 & 2: Combined Residential Retrofits and Emissions-Free Power	CPRG Funds	\$123,150,750		38,156	170,767	Costs \$3,228 / MT	Costs \$721 / MT
	CPRG Funds + Savings	\$108,154,745	-\$5,867,052			Costs \$2,834 / MT	Saves \$34 / MT
Measure 1: Residential Retrofits	CPRG Funds	\$61,272,500		7,383	51,725	Costs \$8,299 / MT	Costs \$1,185 / MT
	CPRG Funds + Savings	\$59,883,341	\$51,472,076			Costs \$8,111/ MT	Costs \$995 / MT
Measure 2: Residential Emissions-Free Power	CPRG Funds	\$61,878,250		30,773	119,042	Costs \$2011 / MT	Costs \$520 / MT
	CPRG Funds + Savings	-\$48,271,979	-\$57,338,535			Costs \$1,569 / MT	Saves \$482 / MT
Measure 3: Energy Advisor Service	CPRG Funds	\$332,000		10,061	58,197	Costs \$33 / MT	Costs \$6 / MT
	CPRG Funds + Savings	-\$2,365,965	-\$18,497,183			Saves \$235 / MT	Saves \$318 / MT
Measure 4: Climate Resilient Tree Planting	CPRG Funds	\$1,293,000		155	1,242	Costs \$8,342 / MT	Costs \$1,041 / MT
Measure 5: Municipal Retrofits	CPRG Funds	\$32,309,000		1,697	52,237	Costs \$19,039 / MT	Costs \$619 / MT
	CPRG Funds + Savings	\$31,346,411	\$23,558,287			Costs \$18,471 / MT	Costs \$451 / MT

2d. Documentation of GHG Reduction Assumptions

The documentation of these calculations and assumptions are included as a Technical Appendix and attached to the application.

3. Environmental Results

3a. Expected Outputs and Outcomes

The measures laid out in this application support EPA’s Fiscal Year (FY) 2022-2026 Strategic Plan, specifically Goal 1, “Tackle the Climate Crisis”; Objective 1.1, “Reduce Emissions that Cause Climate Change.” This program aggressively reduces or avoids the emissions of GHG emissions from the stationary energy sectors while providing substantial LIDAC benefits through reduced energy burden and improvements to indoor air quality and comfort.

Measure 1: Residential Retrofits and Fuel Switching

The expected outputs and outcomes of the Residential Retrofits and Fuel Switching measure will all occur in LIDAC communities across the coalition counties. These impacts will include:

1. Greenhouse Gas emissions will be reduced by 7,383 MTons between 2025 and 2030, and by 51,725 MTons between 2025 and 2050.
2. Outdoor air pollutants will be reduced by the amounts in Tables 6 and 7 in the communities where the retrofits are completed.
3. Indoor air pollution will be significantly reduced by the removal in particular of natural gas furnaces, water heaters, stoves and clothes dryers. Specific amounts of reductions are difficult to estimate and depend on unique factors in each home. As a result, a quantification of this benefit was not attempted for this application.

Measure 2: Residential Renewable Electricity

The following outputs and outcomes of the Residential Renewable Electricity measure will occur in the vicinity of the utility power generation facilities, where power generation will decrease in proportion to the amount of solar PV capacity installed.

1. Greenhouse Gas emissions will be reduced by 30,773 MTons between 2025 and 2030, and by 119,042 MTons between 2025 and 2050.
2. Outdoor air pollution will be reduced. The specific pollutants that are reduced will depend on the fuel being used in the generation facility/ies impacted. Overall, the reduction will be in proportion to the amount of solar PV capacity that is installed on homes. Reductions in air pollutants near the generation facility/ies were not quantified for this application.
3. Between 2025 and 2030, Measures 1 and 2 combined will provide total energy savings to low-income households of approximately \$15 million. Between 2025 and 2050, these savings will amount to a cumulative total of \$129 million, or over \$15,000 per household.

Measure 3: Energy Advisor Service

The immediate outcomes of the Measure 3 Energy Advisor Service will be realized primarily in non-LIDAC communities, as the recipients of this service will not be income-qualified residents. The expected immediate outcomes in these communities will include:

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1. A reduction in greenhouse gas emissions of 10,061 MTons between 2025 and 2030, and 58,197 MTons between 2025 and 2050.
2. A reduction in outdoor air pollutants by the amounts in Tables 6 and 7. These benefits will be distributed among the communities where recipients of the Service choose to make 'decarbonization' improvements to their homes.

After these homes are upgraded, and before the Federal Residential Clean Energy Credit and High Efficiency Electric Home Rebate Program end, it is expected that there will be a significant increase in the decarbonization changes that are funded by these programs. In the even longer term, it is expected that the combination of these Federal initiatives with this Southeast Michigan program will ensure these become normalized in the region sooner than they otherwise would.

Measure 4: Climate-Resilient Trees

The expected outcomes of planting climate-resilient trees will be realized primarily in the immediate vicinity of where the trees are planted. Because approximately 80% of these trees will be planted at or near low-income residences in communities across the participating counties, the tangible outcomes described in item 2 will primarily benefit LIDAC households.

1. 100 MTons of greenhouse gas emissions will be sequestered by these trees between 2025 and 2030. 1,242 MTons of CO₂ will be sequestered between 2025 and 2050.
2. Between 2025 and 2050, the following benefits will be realized in the areas where the trees are planted.
 - a) 87,138,600 gallons of rainfall will be intercepted and prevented from entering stormwater drainage infrastructure during rain events.
 - b) 2,443,253 square feet of canopy cover will be added.
 - c) Outdoor air pollutants will be reduced by the amounts shown in Tables 6 and 7.

Measure 5: Municipal Retrofits

The expected outputs and outcomes of the municipal retrofits action will be realized near the facilities in which retrofits are completed. Because this action will focus on municipal buildings in LIDAC communities, the tangible outcomes described in #2 will primarily benefit LIDAC residents. The benefits include:

1. Greenhouse gas emissions will be reduced by 2,697 MTons of CO₂e between 2025 and 2030; between 2025 and 2050, and 52,238 MTons will be eliminated between 2025 and 2050.
2. Outdoor air pollutants will be reduced by the amounts in Table 6 and 7 near the facilities in which the retrofits are completed.

Table 6: Reductions in Air Pollutants from 2025-2030

Air Pollutant	Measure 1	Measure 3	Measure 5	Total
CO (lbs)	27,411	34,933	48,280	110,624
NOx (lbs)	64,415	83,094	57,476	204,985
PM2.5 (lbs)	295	376	247	918
SO2 (lbs)	411	524	345	1,280
HC/VOC (lbs)	3,769	4,803	3,161	11,733

Table 7: Reductions in Air Pollutants from 2025-2050

Air Pollutant	Measure 1	Measure 3	Measure 4	Measure 5	Total
CO (lbs)	27,411	34,933	-	209,214	271,558
NOx (lbs)	64,415	83,094	-	249,064	396,573
PM2.5 (lbs)	295	376	5,225	1,071	6,967
SO2 (lbs)	411	524	4,227	1,494	6,656
HC/VOC (lbs)	3,769	4,803	-	13,699	22,271
Ozone	-	-	53,869	-	53,869
NO2 (lbs)	-	-	10,514	-	10,514

3b. Performance Measures and Plan

The following key performance indicators will be tracked, measured and reported on, to ensure the program achieves its goals.

- All residents and municipalities who participate in any portion of the Program will be contacted during and after their participation to determine their satisfaction with the program and the work done. This will include evaluations of the Energy Advisor program, home project timelines, household disruption, contractors, and technologies used. The results will be used to improve the Program in subsequent years.
- Demographic information including addresses will be captured for all participating households.
- For income-qualified measures (Measures 1 and 2), the criteria by which the household was eligible to participate will be captured.
- For any building deemed ineligible to participate, the reason for the deferral will be captured and if possible, the homeowner will be helped to find other assistance.

Measure 1: Residential Retrofits and Fuel Switching

Measure 1 will be implemented under the direction of the Energy Advisor Service who will monitor and report on information including (but not limited to):

- Multi vs single-family home.
- All data gathered during the energy audit and building assessment - such as Energy Use Intensity (EUI), repairs required, Total annual household energy consumption by fuel type, fuel sources, annual energy costs by fuel type.
- Calculated greenhouse gas emissions before and after the project is completed, including in cases of partial completion.
- Work proposed, completed, and dates of expected and actual completion for each residence.
- Existing programs or funding leveraged for each work item completed.
- The estimated dollar value (labor and materials) of each work item completed.
- Whether each item was completed and/ or paid for by an existing program or CPRG funds.
- The number of homes in each stage of the program and associated dates.
- In at least 50% of homes, full-year verification of home energy performance after the work is completed, and documentation of actions required if performance has deteriorated.

Measure 2: Residential Renewable Electricity

Measure 2 will be also implemented under the direction of the Energy Advisor Service who will monitor and report on information including (but not limited to):

- Single vs. multi-family home.
- Selected approach: Rooftop Solar PV, community solar, or green electricity purchase.

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- Total electricity consumption at time of renewable power provisioning.
- Amount of renewable power (Kwh) provided.
- The number of dwellings in each stage of receiving renewable electricity at any time.
- The start date for the household's renewable electricity.
- Calculated greenhouse gases eliminated as a result of renewable electricity provided.
- Total household energy and electricity costs are before and after renewable electricity is provided.
- Period of green electricity to be provided.
- Whether the renewable electricity was provided using CPRG or other existing program funds.

Measure 3: Energy Advisor Service

The Energy Advisor Service will monitor and report on information about residents participating in this measure including (but not limited to):

- The results of the energy audit and building assessment.
- Work items recommended for the home and estimated costs.
- Funding sources suggested.
- The homeowner's goals; measures they intend to implement or not implement and why.
- At six- and twelve-month follow-ups, completed work, as reported by the owner.
- Referrals to other programs.

Measure 4: Climate-Resilient Trees

The Energy Advisor Service will monitor and report on the climate-resilient trees planted including but not limited to:

- The species, height or caliper, date and location of each tree planted.
- Additional measures (e.g. watering bag, staking, etc.) taken at the time of planting.
- The cost of each tree, watering bag, and planting assistance, and whether it was provided and/ or paid for by an existing program or by CPRG funds.

Measure 5: Municipal Retrofits

Municipalities applying for funding from SEMCOG's Regional Review Committee to make major energy efficiency improvements on a facility will need to provide the following as part of their application:

- Locally supported and professionally developed plans of the work they intend to complete.
- An ASHRAE energy audit (minimum Level 2) for the facility, containing recommendations that align with work that will be included in the plans;
- The facility's current and expected post-retrofit energy consumption and emissions.
- Calculations of the avoided costs that will be realized from the work and how the municipality plans to redirect the savings.

After the work is complete, grant winners will be required to provide:

- The total cost to complete the work; and,
- Energy consumption data and calculated emissions reductions based on actual post-retrofit data within six months of recommissioning the building or completing the work, and again after a full year of operations. The expectation will be that a minimum proportion of the expected emissions reductions will have been achieved.

3c. Authorities, Implementation Timeline, and Milestones

Figure 4 lays out the implementation timeline and milestones for the measures included. As the lead application, SEMCOG is responsible for overall grant oversight, funding allocation to coalition members (subawardees), and procurement of third-party contractors that will support implementation through the subawardees. Coalition members as subawardees are responsible for implementation within their jurisdictions with support from the third-party contractors and the Steering Committee.

Coalition members have the authority to implement the measures included in this program. SEMCOG has authority to oversee and contract with third party contractors that will support coalition implementation. Coalition members will oversee all construction contracting through their procurement processes. The third-party contractor will coordinate with subawardees and assist with preparation of construction documents, specifications, and ensuring consistency and quality across the program.

Participation and cooperation are required from a range of other programs discussed in the Demonstration of Funding Need. These entities helped shape this application to complement the programs they are currently running or expecting to roll out during this grant.

Figure 4: Implementation Timeline

		Year	'24	2025					2026					2027					2028					2029				
		Quarter	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3						
Grant Review, Oversight, and Compliance																												
Semi-Annual and Final Reporting				⊗		⊗		⊗		⊗		⊗		⊗		⊗		⊗		⊗		⊗						
Residential	Program Design																											
	Establish Steering Committee	⊗																										
	Consultant Selection																											
	Establish Energy Advisor Team		⊗																									
	Measures 1, 2, 4: Phase 1																											
	Program Review																											
	Measures 1, 2, 4: Phase 2																											
	Measure 3																											
Municipal	Program Design and Promotion																											
	Phase 1 Application & Award																											
	Phase 1 Implementation																											
	Phase 2 Application & Award																											
	Phase 2 Implementation																											

4. Low-Income and Disadvantaged Communities

Southeast Michigan is home to a diverse population with residents of all ages and abilities, who represent various races and ethnicities, and who speak a number of languages. This diversity makes our region strong, with thousands of neighborhoods, each geographically, demographically, and economically unique. Many neighborhoods present both challenges and opportunities for residents, especially when it comes to community-level environmental justice concerns. The region's history of rapid industrialization and urbanization has left lasting disparities for residents today, creating demographic divides, legacy pollution challenges, and financial burdens.

These underserved communities in the region are defined using the EPA definition, “populations sharing a particular characteristic, as well as geographic communities, which have been systematically denied a full opportunity to participate in aspects of economic, social, and civic life, and experience one or more variables which impact human health and the environment.” According to this EPA definition, approximately 28% of Southeast Michigan’s population is identified as being within a Justice40 Census tract, and therefore qualify as an underserved community. This represents approximately 1,351,094 people, and 487 census tracts across the 7-county coalition area. These census tracts are identified in excel table ‘Areas_SEMCOG,’ included as an attachment to this application.

In order to participate in Measures 1 and 2 of this Program, applicants’ household incomes will need to be less than 80% of AMI. This aligns this Program with the IRA 25C initiatives and will allow these residents to have ‘categorical eligibility’ across several programs including EGLE’s Home Energy Rebate program (Michigan’s implementation of IRA 24C), EGLE’s Solar for All Program, and County level weatherization programs.

4a. Community Benefits

The benefits that LIDAC communities will receive from this program include the following:

Measure 1: Residential Retrofits and Fuel Switching

- Energy efficient homes are less expensive to heat and cool.
- Well-insulated homes are better able to maintain livable temperatures during power outages.
- Heat pumps provide both heating and cooling. This will be a particular benefit to residents who were previously unable to afford air conditioning.
- Energy efficient homes have more comfortable internal building conditions with less temperature variation. This also makes them less likely to have mold growth.
- Homes without natural gas, fuel oil, propane or wood heating systems have better air quality, and healthier living conditions. These conditions are particularly helpful for the elderly and people with significant health problems.
- Investing in improving existing homes avoids the need to consume and ship more raw materials to build new homes.
- Removing combustion-based heating systems eliminates the risk of carbon monoxide poisoning.
- Increased property values.

Measure 2: Residential Renewable Electricity

All residents who install solar systems on their homes realize financial savings from avoided electricity costs. In Southeast Michigan electricity costs are relatively high, making the benefits of an on-site solar system even greater. On average, households receiving renewable electricity and retrofits from this Program will save \$632 a year in energy costs, and this benefit will continue for an average of 25 years, which is the lifetime of the solar system. For low-income residents, this savings translates directly into consistently having more money available each month.

Measure 4: Climate Resilient Tree Planting

As the impacts of climate change increase, Southeast Michigan will experience more hot days. For example, by 2050, Wayne County is expected to experience approximately 42 days when temperatures exceed 90 degrees Fahrenheit, which contrasts with the period of 1961 and 1990 when only an average of 9.3 days got this hot each year. This will present greater challenges for communities with little tree

cover, and these communities are often home to low-income residents. For example, in Romulus, Wayne County, 66% of residents live in a Justice40 tract, and the tree canopy is 2.8%. Planting trees in these communities will provide shade which increases as the trees grow. Even if only 8,056 of the trees planted by this program survive until 2050, in that year they will provide an additional 1,973,396 square feet of canopy cover. This will cool both outdoor areas and indoor spaces, reducing energy consumed for cooling, and reducing the incidence of heat stroke and other heat-related health incidents.

Trees also intercept rain and absorb runoff. Between 2030 and 2050, the trees planted through this program will intercept 87,138,600 gallons of rainfall, and avoid a further 29,456,553 gallons of runoff, reducing and slowing the water volumes that reach stormwater infrastructure. In turn this will reduce the frequency of stormwater infrastructure being overwhelmed during storms, as well as sewer backups.

Measure 5: Municipal Building Retrofits

Reducing energy consumption and emissions in municipal facilities will allow the operational savings to be redirected into other community services, programs or capital projects, which will be particularly beneficial in LIDAC communities. Participating in this program will also allow municipalities to show leadership in the transition to clean energy.

4b. Community Engagement

In order for the Building Decarbonization Program to be successful, it is critical that we comprehensively engage with low-income and disadvantaged communities throughout the process. As with the development of SEMCOG's Healthy Climate Plan, this grant program will be firmly rooted in the principles of the International Association for Public Participation (IAP2) framework, which emphasizes inclusive and democratic participation, ensuring that all voices are heard and respected in the engagement process. Working with these communities holistically will enable a deeper understanding of their needs and ensure that the program is inclusive, equitable and effective.

SEMCOG has demonstrated successful community engagement in the development of the Southeast Michigan Priority Climate Action Plan. This plan was shaped by extensive outreach with a diverse group of stakeholders, including SEMCOG's Healthy Climate Task Force, topic-based focus groups, and individual meetings with local organizations. Equity and Environmental justice was a priority focus area for these groups, and projects selected for the PCAP centered around how projects could provide value to those communities, particularly in the context of the area's burdens and vulnerabilities.

In developing this application, SEMCOG engaged with many of the stakeholders listed above, to form the Southeast Michigan Coalition for the grant. The coalition met frequently from November 2023 – March 2024, with conversations centering community and residential needs for energy retrofits and weatherization, gaps in existing programs, and how to best shape the program to fit the needs of low-income and disadvantaged communities.

If awarded funding, the coalition will ensure that low-income and disadvantaged communities are involved in both the development and execution of the program, as well as the focus for funding distribution. The program will be transparent and inclusive in engagement and outreach, ensuring that data and materials can be easily accessed, language barriers for engagement are removed, and ways to engage are numerous and easily accessible. Trusted community leaders and organizations will be essential partners in reaching populations who vary by characteristics such as age, social and climate vulnerability, culture and language. Updates and announcements regarding the program will be

channeled through SEMCOG’s newsletters, meetings, social media, and email blasts, which reach a wide and important audience.

5. Job Quality

This program will generate an estimated 1,900 ‘job years’ in low-carbon construction, renewable energy, horticulture, and civic services. Many other climate change initiatives are also ramping up that will require laborers with many of the same skill sets as this Program. Organizations across the State recognize that more skilled workers are going to be required to get all this work done.

Coalition members considered whether to develop a workforce training program specifically to support the work required by this Project. However instead, they decided to begin by helping prepare the entire State for the growing need for ‘low carbon economy’ laborers.

The Michigan Public Service Commission is assembling a State-wide Energy Workforce and Electrification Needs Assessment to determine where the ‘clean energy’ labor needs are and what specific skills are needed. By October 2024, they will be issuing a report that will guide the creation and expansion of job training programs to meet these needs. The Coalition is participating in this initiative to provide input to ensure that the jobs created by this Project and others like it:

1. Will be not just ‘clean energy jobs’ but ‘clean energy careers’ that will last for decades, provide long-term job security, career progression, and fair salaries and benefits; and,
2. Will provide employment to BIPOC people, those living in poverty, or otherwise disadvantaged.

Once the Needs Assessment is complete, there are several funding sources for workforce development (including the 50123 IRA training provision) that can be drawn upon, and organizations already skilled at providing this type of training. The Coalition will look to and support organizations like Michigan Technological University and Miller Walker Energy as they expand their programs. This collaborative approach will ensure that the new workforce will be ready, and that workers who make Michigan’s buildings more resilient, will themselves become more resilient.

6. Programmatic Capability and Past Performance

6a-b. Past Performance and Reporting Requirements

This section contains details on five federally funded assistance agreements that SEMCOG is performing or has successfully performed in the last three years. SEMCOG has a strong history of management of large grants with technical, financial, and planning staff successfully managing applications, draws, and reporting requirements.

Project 1: Climate Pollution Reduction Grant Phase 1: Planning Grant for Detroit – Dearborn – Warren Metropolitan Statistical Area

- Assistance agreement number: 00E03475
- Federal funding agency and CFDA number: US-EPA, 66.046 - Climate Pollution Reduction Grants

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- Brief description of the agreement: The agreement provides funding under the Inflation Reduction Act (IRA) to SEMCOG to develop existing regional climate mitigation plans to address GHG emissions and reduction measures throughout the entire metropolitan area and to conduct meaningful engagement with low- income and disadvantaged communities.
- Agency Contact: Camden Ogletree
- SEMCOG has submitted timely and acceptable progress reports and deliverables including the Priority Climate Action Plan.

Project 2: Nutrient Reduction with Green Infrastructure

- Assistance agreement number: 00E02433
- Federal funding agency and CFDA number: US-EPA; 66.469 - Great Lakes Program
- Brief Description: This agreement provides assistance to the Southeast Michigan Council of Governments to implement its project to support the Great Lakes Restoration Initiative (GLRI) to protect and restore the chemical, physical and biological integrity of the Great Lakes Basin ecosystem. Specifically, the recipient will develop and implement a subgrant program to allocate funds to green infrastructure projects that reduce nutrient loading into Lake Erie.
- Agency Contact: Danielle Green
- SEMCOG successfully implemented the subgrant program on budget with timely reporting, allocating funding to 5 projects that reduce stormwater runoff by 4 million gallons annually.

Project 3: Southeast Michigan Green Infrastructure Partnerships

- Assistance agreement number: 00E03231
- Federal funding agency and CFDA number: US-EPA; 66.469 - Great Lakes Program
- Brief description: The Southeast Michigan Council of Governments (SEMCOG) administered a Competitive Sub-award Grant program to implement Green Infrastructure projects that specifically reduce stormwater runoff volume into Lake Erie with emphasis on locating Green Infrastructure projects in underserved Communities. This program will award between 8 to 12 Green Infrastructure projects towards with an emphasis on selecting projects in underserved Communities and in areas with a more direct benefit to the Great Lakes
- Agency contact: Danielle Green
- SEMCOG awarded 9 green infrastructure projects in total, including 4 awards to underserved communities, and continues to work with them on the implementation of their projects, providing technical and administrative assistance as well as timely and adequate reporting.

Project 4: Green Infrastructure Assessments for Coastal Resilience in Southeast Michigan

- Assistance agreement number: NA20NOS4190200
- Federal or non-federal funding agency and assistance listing number (or CFDA number): National Oceanic and Atmospheric Administration; 11.419 - Coastal Zone Management Administration Awards
- Brief description: SEMCOG and Center for Watershed Protection (CWP) coordinated with communities to identify high-priority, publicly-owned properties and assess feasibility for GI.
- Agency contact: Melissa Letosky
- SEMCOG and CWP successfully completed this project with timely and adequate reporting, identifying 48 feasible green infrastructure projects within Southeast Michigan's coastal communities and developing concept plans for these 48 sites.

Project 5: Project title: SEMCOG FY 2023-2024 Consolidated Planning Grant

- Assistance agreement number: 23A0650

- Federal or non-federal funding agency and assistance listing number (or CFDA number): Federal Highway Administration; 20.205 - Highway Planning and Construction
- Brief description: SEMCOG Consolidated Planning Grant for transportation planning activities.
- Agency contact: Meredith Fryer
- SEMCOG has used this funding for successful region-wide transportation planning work. SEMCOG has provided timely and adequate reporting under this grant.

6c. Staff Expertise

SEMCOG's network of partnerships provides significant experience and capacity to engage local governments and communities throughout the duration of the program. SEMCOG has extensive experience in providing subaward programs to local agencies throughout Southeast Michigan. The learnings of the participating counties and cities will continue to shape the program design, rollout, and coordination, ultimately achieving greater emissions reductions and energy cost savings in a very short period of time. Participating counties will share the benefits of community outreach networks, existing communication channels, solar panel bulk purchasing agreements, and lists of potential participating households. SEMCOG will hire a qualified Project Manager with expertise in building decarbonization to lead this program.

- The Coalition Partners are essential to ensuring this program interacts effectively with their existing initiatives and meets the needs of their low-income residents. They have identified existing funding sources as well as unmet community needs and gaps in existing programming.
- Ann Arbor is providing critical guidance on the Energy Advisor component of this program and drawing from their work to decarbonize a community of 262 low-income households with geothermal heating and cooling, rooftop solar and battery storage.
- Detroit has helped shape the development of a 'pipeline' of homes that have already undergone improvements and that would be good candidates to participate in this program.
- Michigan Saves (the State's green bank) is contributing budget and financial administration guidance.
- Program efficiency insights have been provided by DTE's Home Energy Program, the City of Detroit, and county-based energy efficiency initiatives.

7. Budget

7a-b. Budget Detail and Expenditure of Awarded Funds

A detailed Budget Narrative that includes procedures for timely and efficient grant spending is provided as an attachment to the application.

7c. Reasonableness of Costs

The costs that were used in this application were based on costs being used by other, related programs in Southeast Michigan or on industry-standard costs as published by recognized sources such as the U.S. Energy Information Administration's Annual Energy Outlook and the National Renewable Energy Laboratory's Public ResStock dataset. For a complete list of the data sources used, please see the Technical Appendix. Further details on cost categories are available in the Budget Narrative.