

WORKPLAN

1. OVERALL PROJECT SUMMARY AND APPROACH 1.a./1.a.i. Project Summary. Led by Central Upper Peninsula Planning and Development Regional Commission (CUPPAD) as grant applicant and administrator, a partnership of regional planning organizations, local nonprofits, and Tribes will collaborate with residents of Michigan's Upper Peninsula (UP) to assess, repair, weatherize, and/or electrify a minimum of 500 homes to power prioritized homes with solar energy. In doing so, our project will focus on low- and moderate-income households that use propane or other delivered fuels for their heat. The project is expected to deliver an annual average of 1,087.92 mtCO₂e of GHG emissions reductions from 2025 through 2030. In addition to driving significant per-dollar climate pollution reductions, our project will deliver major utility savings for low- and moderate-income families; improve resident health, comfort, and quality of life; and create good-paying jobs and career paths, as well as enhanced generational wealth through increased property values. In the process, our project will play a catalytic role in statewide efforts to decarbonize residential properties by spurring development of the supply chains, workforce, and programmatic/financing models to make electrification cost effective and scalable across the state (and for homes on all types of fuel sources).

Importantly, our team believes that rapid, widespread residential electrification in a rural, remote geography like the UP will not happen without a strong on-the-ground organizing force to recruit homeowners and guide them through the sometimes-complicated process of transforming their homes. In addition to serving as the only grant program we have identified that is generous enough to fund such an organizing force at a level that will make a publicly noticeable impact and change attitudes about residential electrification in our communities, the flexibility of the CPRG opportunity makes it the ideal source to fund necessary (or pre-requisite) home investments that most other assistance programs will not (i.e., roof repairs). In fact, we believe that the State's residential decarbonization goals will be difficult to meet in the UP—and uptake of vital programs like the federal electrification rebates, Solar for All funding, utility incentives, and others will not occur at desire scale and pace—without funding for the purposes we propose. A project like ours is necessary to unlock those exciting programs in our region. In doing so, our proposed CPRG grant will make a vital contribution to the vision of the state's Priority Climate Action Plan (PCAP), which calls on Michigan to ensure that every “household has access to affordable energy sourced from reliable, clean energy,” “every worker has a good-paying, sustainable job to support their family,” and “every family lives in a healthy, sustainable, efficient home.”

1.a.ii. Project Context. The UP is home to approximately 300,000 residents—or 3% of Michigan's population—dispersed across one-third of the state's total land mass. Compared to Michigan's statewide average of 178 people per square mile, there are just 17 people per square mile in the significantly more rural, rugged, and remote UP. Connected to the Lower Peninsula (LP) by just a single four-mile roadway—the iconic Mackinac Bridge—the UP's energy system is also distinct and separated from the rest of the state. From a power grid perspective, the UP joins most of Wisconsin to form Zone 2 of the Midcontinent Independent System Operator (MISO), and its residents and businesses receive their electricity from a patchwork of 19 service providers, including three investor-owned utilities (IOUs), four electric cooperatives, and 12 municipal entities. While residential electricity rates vary somewhat dramatically across the peninsula, those charged by some of the 19 service providers rank among the highest in the nation, with rural residents more likely to pay steep prices than their neighbors in the region's small towns and cities.

As a further reflection of our region's rural and remote character, many less populous areas of the UP are not served by natural gas distribution infrastructure. While natural gas is still the fuel source for the majority of the peninsula's households, nearly 19% of UP households—roughly 23,000 total—use delivered propane for heat, compared to about 8% statewide and 5% nationally. In the state that

consumes the most propane for residential uses in the nation (Michigan), UP households are more than twice as likely to use propane for heat than their fellow Michiganders in the LP. Additionally, as an unfortunate byproduct of relying on delivered fuels, these households have not had access to decades of utility incentive programs that our state's regulated natural gas providers have been legally required to provide their customers for investments such as HVAC equipment replacement, insulation, air sealing, and other such measures to improve building energy performance. Thus, many UP households on propane are using a more expensive fuel to heat homes that are less efficient than they should be—all in a very cold climate. In its analysis of National Weather Service data for its "Analysis of Propane Supply Alternatives for Michigan," which was developed for the UP Energy Task Force described below, Public Sector Consultants noted that the UP's two geographic climate divisions "reported 29.9 percent and 35.7 percent more HDDs (heat degree days)" from 2010 to 2019 than the statewide average, which itself was the 13th highest average in the nation. (Each degree that the daily average temperature is below 65 degrees Fahrenheit equals one HDD).

The combination of cold temperatures, expensive fuel, and inefficient buildings is exacerbated by the fact that most of the propane delivered to the UP travels through a single pipeline—the controversial Line 5 running along the bottomlands of the Mackinac Straits which connect two Great Lakes (Huron and Michigan). This leaves UP residents who use propane highly vulnerable to price shocks when supplies are disrupted or demand spikes. Those dynamics caused particularly disruptive and painful challenges during the severe polar vortex of 2019, which, in part, spurred Governor Gretchen Whitmer to form the UP Energy Task Force to "assess the UP's overall energy needs and how they are currently being met" and "formulate alternative solutions...with a focus on security, reliability, affordability, and environmental soundness." With leadership from several partners to this application, the Task Force recommended that the state pursue a comprehensive suite of strategies, including our proposed GHG reduction measures of energy waste reduction, building electrification, and accelerated renewable energy deployment.

Against this backdrop, a high percentage of UP families are members of low-income and disadvantaged communities (LIDAC). When households living below the federal poverty line are combined with those who do not earn enough to cover basic costs (the latter identified through the Asset Limited, Income Constrained, Employed or ALICE Project), nearly half of all UP households live with insufficient resources to meet key financial necessities. Energy costs are a big factor in that equation. As the State of Michigan's PCAP explains, "Michigan households with an income below the Federal Poverty Line spend 18% of their income on energy, compared to an average of 3% for the overall population." Recognizing the urgency of addressing this "energy burden," the State has set ambitious goals to alleviate the strain on low-income families and limit energy burden from powering and heating homes to not more than 6% of annual income (the percentage generally considered high). That will require a major intervention in the UP. Per the Climate and Economic Justice Screening Tool (CEJST), nearly one third of all UP census tracts are above the 90th percentile nationally for energy burden, including at least one tract in each of our 15 counties. The fact that so many UP families allocate such a substantial portion of their earnings to energy needs contributes to cycles of poverty in our communities and limits resources available for healthcare, education, housing, and other essential needs.

1.a.iii. Proposed GHG reduction measures defined. To meet state, federal and international climate pollution reduction goals, we must electrify and decarbonize residential buildings at a massive scale nationwide. That will be challenging in all environments, but it is particularly true in the UP with its significant population of rural low-income families who live in aging, under-maintained housing; lack the capital or financial assistance to make longstanding repairs and upgrades, and are often hesitant to adapt to new electric heating technologies—despite the costly status quo—due to their concern about how they will perform in the region's frigid winters. In this context, electrifying homes will require the

additional financial boost of significant grant funding which will make the home-by-home financial case for participation too good to pass up, while also backing a robust public education and community engagement campaign with compelling information from trusted sources to overcome skepticism. With generous CPRG funding, our project team will build on UP weatherization and building performance programs led by project partners, including Superior Watershed Partnership (SWP), the UP's three regional planning and development organizations, and their contractor networks, service providers and other allies. In addition to dramatically increasing the number of homes addressed per year, our project team will leverage CPRG funds and rebates, utility incentives and other "braided" resources to combine residential electrification technologies and on-site solar energy systems at-scale for the first time ever in the UP.

Whole-home approach. Reflecting our project team's values and commitment to ensuring we leave participating households with high-performing, healthy homes that are more affordable, comfortable, and durable, our GHG reductions will take a holistic approach that addresses each property's needs on the pathway to efficiency, electrification, and decarbonization. As described in more detail below, that approach will take participating homes through the following phases: **Assessment and planning.** Based on a thorough assessment, each house will receive a DOE Energy Score and a plan for moving it through subsequent phases. **Required Repairs.** Our project will manage contractors to make repairs and upgrades that are "prerequisite" to electrification (i.e., roof, window, door jamb repairs or electric service/wiring improvements). **Weatherization/energy waste reduction (EWR).** SWP team members and contractors will implement various strategies to reduce the home's energy load—and increase comfort and performance—including insulation, air sealing and ventilation. **Electrification.** Borrowing the list of covered expenses from the Home Electrification and Appliance Rebates (50122 or HEAR) program, the project will install some or all of the following equipment in collaboration with each homeowner and according to the home assessment/plan: "Heat pump water heater, heat pump for space heating or cooling; and electric stove, cooktop, range, oven or heat pump clothes dryer." (Note: Some electrical upgrades and EWR are also covered by HEAR.) **Solar energy systems.** Leveraging State of Michigan's prospective Solar for All investments and other resources, the project will work with local renewable energy contractors to install Solar PV arrays at participating homes where the site is conducive for solar and homeowners request it. In doing so, we will borrow from the prospective program design of the Michigan Solar for All program, which "aims to install systems to deliver at least 20% savings in electricity consumption to each household served."

Number and location of homes. During our five-year grant period, we expect to repair, weatherize, and electrify **500 UP homes**, and install on-site **solar energy systems on 170** or 34% of those properties. Assuming a ramp-up period—as we set up programmatic, administrative, and financial systems for our grant, recruit households, and build a pipeline of homes with DOE energy scores and corresponding improvement plans—we estimate that we will complete 10% of our five-year goal in Year 1 of our grant period (50 homes), 15% in Year 2 (75 homes), and 25% in each of the final three years of our grant period (125 homes). While we will adjust our geographic targeting annually—based on the project's cumulative experience at the end of each grant year—our initial goal for our UP-wide project is to address homes across the UP's three regions according to the relative population of each: **16% in the Western UP** (80 total homes), **55% in the Central UP** (275 total homes), and **29% in the Eastern UP** (145 total homes). **Housing type.** To streamline and simplify our programmatic model—and ensure that our target population of low- and moderate-income UP residents fully and directly enjoy the benefits of our project (rather than their landlords)—our project will focus on **owner-occupied, single-family detached homes**. Reflecting our goals to use CPRG funds to drive significant per-dollar GHG reductions, scale-up the UP's residential decarbonization sector, and reach a critical mass of households to spur attitude change about

electrification in the region, we decided against including mobile homes and duplexes because of the greater expense and complexity of retrofitting those building types and heating/cooling them with heat pump technologies. **Fuel Source.** Our project will exclusively focus on switching **homes currently heated by delivered fuels** to highly efficient electric technologies for space and water heating (and other end uses per the summary provided below). Since 2013, 35% of the residential properties that Superior Watershed Partnership's energy programs have addressed through its energy office programs have been on delivered fuels. Of that share, 54% were on propane, 29% on wood, and 17% on fuel oil. These figures largely reflect the UP-wide averages on which the UP Energy Task Force based its deliberations. As mentioned above, the UP's reliance on propane plays a major role in its high energy costs/burden, price instability, and vulnerability. Recognizing that, our project will aim to put a slightly disproportionate emphasis on propane relative to SWP's historic experience. In terms of the current primary fuel of the homes we will address, we will target a distribution of **70% propane, 15% wood, and 15% fuel oil**. Our Technical Appendix discusses how our GHG reduction and other modeling accounted for this mix of fuel sources. **Income qualification.** Because electrification is our primary end goal for participating households, our project will use the income categories for the Home Electrical and Appliance Rebate (HEAR)—the Section 50122 program—to qualify households for inclusion in our project. We will define low-income households as those with incomes of less than 80% AMI, and moderate-income households as those with 80%-150% AMI. Per our financial braiding strategy described below, our project will cover 100% of the home improvement investments for low-income households through CPRG and other grant funds (i.e., WAP, Solar for All), rebates, and utility incentives. Through a partnership with Michigan Saves and the State of Michigan, we will provide low-interest loans to moderate-income households to help them cover a 25% share of the investment of CPRG funds in their homes (which they can pay back, plus profit, out of the utility savings our project will deliver). Of the 500 homes we plan to address over five years, we expect a roughly equal distribution of **250 low-income and 250 moderate-income households**.

Financial braiding. SWP's Great Lakes Climate Corps Energy Technicians will collaborate with participating homeowners to maximize the non-PRG financial assistance available to each house. Among others, that will include WAP funding in partnership with Community Action Agencies (CAAs) for certain weatherization investments, federal HEAR and HOMES rebates for electrification technologies and related expenses, and Solar for All support for on-site solar energy systems (please see our letter of support from the State of Michigan for more on the latter two programs). Building from our team's existing and strong relationships with UP electric utilities, we will also make full use of the incentives that offer customers, which will vary for each provider. As noted in Section 3.c.i. Authorities, Michigan recently adopted energy policy reforms that increase its energy waste reduction (EWR) standard, re-establish the application of EWR standards to municipal utilities and cooperatives, and allows those latter service providers to count building electrification investments toward their EWR compliance. These policy changes will strongly incent UP utilities to support our project work. **Per-household CPRG caps and averages.** In addition to providing our project team the underlying programmatic and organizational capacity to scale up low-income residential decarbonization in the UP, we will invest CPRG grant dollars in the expenses called for in each home's individual electrification plan that cannot be covered by the braided assistance programs described above. While there are some resources available for deferred maintenance or repairs that we consider "pre-requisite" to implementing our broader electrification strategies, we anticipate using a significant share of CPRG grant dollars on those items that are necessary to unlock many assistance resources for low- and moderate-income families. Per our attached Proposal Budget, we project that we will spend an average of \$13,125 of CPRG dollars per household (\$15,000 for low-income households and \$11,250 for moderate-income households who will be required to cover/borrow 25% of the CPRG funds investment in their homes as described above). We will start with a \$20,000 per-house cap on CPRG dollars invested, and then adjust that cap annually to ensure we reach

our targeted per-household over the five-year grant period. Again, as mentioned above and confirmed in attached letters of support, Michigan Saves and the State of Michigan will combine to offer loans to these participating moderate-income households with exceptionally low interest rates.

Tasks. The following provides a general, high-level summary of key project task “areas” and how they will ensure the success of our project in implementing proposed GHG reduction measures and achieving the projected climate pollution reductions (and community co-benefits). **Grant administration.** As lead applicant, CUPPAD will serve as our liaison to EPA and fulfill all grant management, accounting, and reporting responsibilities, while also establishing and executing the subcontract agreements that will constitute much of our project budget; SWP will assist with admin. **Participant recruitment, community engagement, and public education: Referrals.** We will make our project known to entities who can refer households to our project. For example, WUPPDR is currently administering low-income residential weatherization and efficiency programming with funding from the Michigan Department of Health and Human Services (DHHS) through the Michigan Housing Opportunities Promoting Energy Efficiency (MI-HOPE) program.¹ WUPPDR will connect us to Western UP households that are on the waiting list for that oversubscribed effort. Additionally, our team enjoys strong working relationships with the utilities, CAAs, and other such stakeholders who regularly engage low-income UP residents. We will create a user-friendly referral process through these networks—and expand upon SWP’s existing household referral process through the Michigan Energy Assistance Program. **Contractors.** While also implementing key on-site project measures itself, SWP will marshal its existing home-performance-improvement contractor networks—and work to expand those networks—to complete direct household work that is not part of its offerings. We will educate members of those contractor networks about all aspects of our project and encourage them to recruit households to participate as a business development opportunity for their companies. **Trusted messengers.** The Inter-Tribal Council of Michigan (ITCMI) and Tribal supporters are active members of the UP Clean Energy Coalition, and our project team has worked closely with various UP tribes over many years (see letters of support). Our budget includes a line-item for subcontracting with tribal partners to engage their members in our project and electrify homes in their communities.² SWP’s Earth Keeper (EK) faith network is another opportunity to engage low-income UP residents in our project through trusted voices. With a presence in all 15 UP counties, some 200 congregations representing 10 faiths—and serving an estimated 1/3 of the UP population—are members of EK. It has proven a highly effective vehicle for spreading the word, and many of its active leaders will be eager to cultivate relationships between low-income members of their communities and our project team. **Communications and engagement.** Complementing the above “retail” strategies for recruiting qualified households to participate in our project, Michigan Energy Options (MEO) and the Michigan Environmental Council (MEC) will lead a comprehensive earned and social media campaign to inform UP residents about this project and drive traffic to our project website where residents can learn more about our GHG reduction measures, take an online quiz for project eligibility, and express their interest in participating. The three regional planning agencies will expand the reach of this campaign by sharing project communications with their member communities. In addition to developing all the electronic and print materials for this work, MEO and MEC will also publicize our project’s willingness to give presentations at local meetings, table at relevant community events, and even host small “resource

¹ DHHS provided a \$500,000 MI-HOPE grant to the Western UP for home efficiency improvements, including roof and windows, and repair or replacement of heating systems. This program has demonstrated the strong UP demand for these services, and helped identify some challenges that our project will address, such as the need for workforce development and public/contractor education.

² ITCMI is seeking grant funding to do related work at tribes statewide, and if multiple sources materialize for investments in residential buildings, we will be careful to segregate resources and activities.

fairs” in places where there is strong interest. (For more detail, please see Section 4.b. Community Engagement). SWP’s Energy Technicians provide in-person, onsite, education and communication through the Michigan Energy Assistance Program; these technicians will utilize this face-to-face opportunity to engage with households that might qualify for CPRG funded projects.

Home electrification advising. Once participants have been identified, SWP will serve as the de facto site-by-site general contractor and an ongoing home-improvement advisor to each household. With subcontractor support through this grant, it will expand its team of energy service technicians by a minimum of 2 certified and trained individuals and 2 energy office administrative/intake coordinators. The energy technician professionals conduct home assessments, develop DOE Energy Scores for the property, and collaborate with residents to set and implement individualized home performance improvement plans. The energy technicians are currently backed by a team of 10 highly-trained caseworkers who take calls from homeowners participating in SWP energy assistance programs and ensure that their questions are answered and their requests for assistance are filled. This team includes members of SWP Great Lakes Climate Corps, who like AmericaCorps members, are mission-driven, civic-minded individuals who have selected this community service opportunity to gain professional experience and explore future career paths. Between the energy technicians and those on the phones in its call center, SWP will have a minimum of 16 people working together to fulfill the following responsibilities: **Income and project qualification.** Walking prospective participants through an intake process in which their eligibility for inclusion in our project and qualification for various assistance programs is assessed (expanding on existing service). **Assessment and planning.** For eligible households, a service tech will conduct an onsite assessment of their home, input the resulting data to develop a DOE Energy Score, and create a home-specific plan following our proposed GHG reduction measures (described above). That tech will carefully review the plan and budget with the homeowner, laying out rebates, incentives, and other available assistance and their expected energy savings. According to the homeowner’s wishes, the tech will then revise the plan. **Contractor scheduling and oversight.** From there, the energy services tech will identify and schedule the work from the household plan that the SWP team will complete, recruit and engage qualified contractors to complete the elements of the plan not covered by SWP, and otherwise manage the ongoing implementation, adjustment and completion of the household plan. **Financial assistance services.** Throughout this process, SWP’s team of energy service technicians and SWP’s Office of Climate and Energy will work with participating homeowners and contractors to complete required paperwork and other administrative tasks related to securing the braided resources for which the household qualifies, including WAP funds, HEAR and HOMES rebates, utility incentives, Solar for All support, etc. **Quality assurance.** Project partners will assemble a small team of qualified contractors to tour completed properties with their homeowners, review the project work that was implemented, and administer a short anonymous survey to gather homeowner opinions on their experience with the project and their suggestions for improvement. Data from this work will be synthesized and presented to the project leadership team on a quarterly basis as a centerpiece of the project’s continuous improvement program. The strategies developed in those discussions will be implemented immediately.

Loan and financing program. Project partners (SWP, MEC, MEO) will coordinate with Michigan Saves to set up a program for **moderate-income** participants to borrow their required 25% share of the CPRG grant dollars invested in their home (see *Per Household CPRG Caps and Averages* above). If funded, we will seek support from the State of Michigan’s \$350 million Competitiveness Fund, which was established to support Michigan stakeholders in securing and maximizing the impact of federal IRA and other funding, to buy down or eliminate the interest on these loans so that the borrower’s monthly payments are significantly lower than the projected utility savings from the clean energy measures implemented at

their home. Once that loan program is established and effectively running, MEC will serve as the project's ongoing liaison to Michigan Saves.

Stakeholder relations and project governance. This project's success will require ongoing timely decision-making among project partners, consistent internal communications to ensure individuals and organizations playing various roles have all the information they need to do their jobs well (and without delay), and the ability to take in real-time feedback and make rapid adjustments to address challenges that emerge. With many external players also positioned to impact our success—such as state and local agencies, utilities, contractors, etc. SWP's Office of Climate and Energy will lead our project team in these areas, facilitating regular meetings of a small project executive committee that we will establish, providing updates as needed to various parties, and ensuring that external stakeholders feel informed, heard, and respected.

Measurement and evaluation. Using participant bill reporting and the real-time record keeping of the SWP energy services techs who will lead project work at each home, SWP will maintain an updated dashboard of the total number of homes addressed through our project; the money invested and the EWR, electrification, and other measures implemented; the utility bills savings generated; and the corresponding GHG emissions reduced (along with the local and global community benefits delivered as modeled per the methods described in our Technical Appendix). Presented live and online, this dashboard will provide MEC and MEO with content for their public education and strategic communications work described above and in Section 4.b. Community Engagement.

Workforce Development. Recruiting and training the skilled workforce needed to scale up the residential decarbonization measures described in this application is a widely recognized challenge nationally, which is exacerbated in places like the UP because of our dispersed population and the long distances workers must travel for training/certification programs. Funding from this grant will allow SWP, contractors, and other partners to significantly expand their existing training programs to build up the crews of skilled workers we need to implement this program. For example, SWP's Office of Climate and Energy will hire, train, and certify a minimum of 2 additional energy technicians for their team—and an additional of 2 office administration/intake coordinators. Through our collaboration with the State of Michigan in implementing this project, our team also will leverage the significant available federal funding for clean energy workforce development, which the State of Michigan has been allocated or is now seeking. For example, this fall, Michigan will receive \$211 million for the DOE Home Energy Rebate Program, and its implementation plans will include developing a robust workforce to perform home efficiency improvements and electrify homes (consistent with our proposed GHG measures). Additionally, the State is now applying for DOE's Energy Auditor Training Program which, if funded, would support expanding the training and certifications of energy auditors across the state including in the UP. As part of its proposed Solar for All Program, it also plans to fund a solar market sector hub to engage industry stakeholders in identifying and addressing workforce recruitment and education gaps. SWP's energy technicians will receive certifications and training through the Building Performance Institute such as, but not limited to: Building Science Principles Certificate, Healthy Housing Principles Certificate, Building Analyst Technician, Building Analyst Professional, and Energy Auditor. While the plans for these programs are still being developed, we are in communications with the state agencies leading the efforts. CUPPAD and Invest UP, with support from the Michigan Economic Development Corporation, are working to ensure the UP is high on their list of priority regions for workforce development.

1.a.iv. Coalition members and allies. CUPPAD. CUPPAD is one of three planning agencies in the UP. CUPPAD serves a six-county region of UP communities with the mission of fostering cooperative analysis and planning for economic, social, and physical development, prosperity, and conservation. CUPPAD has a staff of dedicated planners, economic developers, and GIS professionals that provide technical

assistance to the communities we serve, while collaborating UP-wide. In addition to serving as the principal project spokes-organization in the Central UP and leveraging its strong reputation, relationships, and networks in the region to build community and stakeholder support for the project, CUPPAD is the applicant for this grant request and will fulfill all fiduciary and grant administration roles, including serving as the liaison to EPA and negotiator for our grant contract. **WUPPDR and EUPRPD:** The UP's other two regional planning and development agencies are also enthusiastic partners and supporters of this project. Like CUPPAD, they will promote the project through their members and community allies. They will also provide our project with steady eyes and ears in each UP region, gathering the feedback they are hearing in their part of the peninsula and bubbling up concerns and affirmations to the rest of the team. Each of the three regional agencies will hold a seat on our project leadership team described above.

Superior Watershed Partnership. SWP is an award-winning Great Lakes nonprofit organization that uses innovative, science-based programs to achieve documented, measurable results that align directly with the goals of federal funding initiatives to enhance climate resilience by reducing GHG emissions, restoring natural habitats, and improving water quality. Two central SWP programs are particularly relevant to our proposed project: the Great Lakes Climate Corps (GLCC) and the SWP Office of Climate and Energy (OCE) administration of the Michigan Energy Assistance Program (MEAP). Recognized with various honors over its 20-plus year history by the Michigan Governor's Office, the US Environmental Protection Agency, Environment Canada and the Lake Superior Bi-national Program, the GLCC is an independent, local workforce development program that offers passionate young people interested in environmental work with the opportunity to learn essential skills in the field. Working alongside the deeply experienced home-performance-improvement professionals who lead SWP's OCE, the GLCC's Energy Technician program has significantly expanded the capacity and impact of SWP's residential energy assistance efforts. The Energy Technician program provides participants with extensive experience working in low-income homes across the UP. SWP Energy Technicians secure Building Science Professionals Certificates and complete the Department of Energy's Home Energy Score Assessor training. They conduct the DOE Home Energy Score Assessments in income-qualified homes, completing an extensive home assessment of the home, documenting data, and developing energy performance recommendations for the homeowner. The Technicians also install energy efficiency materials such as door sweeps, caulk, and faucet aerators, and complete weatherization if it is warranted. This program gives SWP—and by extension, our project—a vehicle to rapidly scale up our capacity to assist low- and moderate-income UP households with home energy improvement measures. Between 2013 and 2023, SWP's highly trained Energy Technician workforce supported the organization in conducting 1,367 home energy assessments, supporting 166 low- and moderate-income households with energy performance upgrades, and installing residential solar energy systems at 26 of those households. Since 2013, the SWP also administered the Michigan Energy Assistance Program (MEAP) that has helped 9,708 UP households pay their energy bills. Among other roles described above, SWP will serve as this project's primary project subcontractor with frontline oversight responsibilities for home-by-home deployment of our proposed GHG reduction measures, including the household assessment and planning process, implementation of some weatherization/EWR strategies, coordination and scheduling of third-party contractors, homeowner education and financial "braiding" assistance, and more. It will also mobilize its Earth Keepers' network of UP faith institutions to serve as "trusted messengers" in recruiting their low- and moderate-income members to participate in the project. SWP will assist CUPPAD with project administration.

Michigan Energy Options. Since its founding in 1978, MEO has promoted results-driven energy efficiency and renewable energy programs in Michigan communities through unbiased research, technical expertise, and a commitment to collaborating with local governments, businesses, and community leaders. Since 2005, MEO has maintained a full-time, staffed presence in the UP where it has partnered

with a diverse array of stakeholders to advance clean energy, GHG reduction, climate resilience, and other sustainability solutions across the peninsula's 15 counties. In coordination with MEC, it will co-lead the project's public education, strategic communications, and community engagement work to recruit low-income homeowners to participate in our project and build strong UP-wide support for residential electrification and decarbonization. MEO will also assist with contractor coordination.

Michigan Environmental Council. MEC is a coalition of more than 100 environmental organizations scattered across the state. Since 1980, it has been "movement building" and has achieved enduring and equitable policies that protect Michigan's land, air and water. The Environmental Council's full-time staff member in the UP will engage its four member organizations in the region to support all aspects of our proposed project. It will also collaborate with MEO to lead the project's public education, strategic communications, and community engagement initiatives. With its headquarters and long-standing, respected presence in the State Capital, the Environmental Council will also ensure that officials at all levels of state government remain aware of our project and enlist support from relevant state agencies as needed to accomplish our goals. MEC will also assist with contractor coordination.

Inter-Tribal Council of Michigan/Tribal Communities. A 501(c)(3) non-profit, based in Sault Ste. Marie, ITCMI represents and serves twelve federally recognized tribes in Michigan. It acts as a forum for member tribes; advocates for programs and policies which will improve the economy, education, and quality of life for Michigan's Native Americans; and provides technical assistance to support the development of tribal regulations, ordinances, and policies related to health and human services. It will coordinate the participation of UP tribes in our project, supporting them in educating their members about this opportunity, inspiring them to participate, and assisting them throughout the process of implementing proposed GHG reduction measures on their residences.

1.a.v. Underlying assumptions and potential risks. This project builds on low-income home energy performance programs that SWP has been implementing for many years, as well as the MI-HOPE program which regional planning agencies and their partners are administering with recent State of Michigan support. Our project team's collective experience in these areas gives us strong confidence that we can scale up existing models sufficiently to achieve our projected milestones on our proposed timeline (please see Section 3.c). We expect greater challenges in implementing the electrification and solar energy aspects of our project, because they will require deployment of those technologies on an entirely unprecedented scale for the UP. Our project team has identified two primary risks that we will need to overcome. **Resident skepticism.** There are promising signs that UP residents will embrace residential electrification and the energy independence that comes with owning their own solar power. Cold weather heat pump success stories are starting to spread. To take one example, there was relatively significant media coverage of the installation of heat pumps at a 60-unit affordable housing development in Ontonagon Village—coverage which emphasized that residents remained comfortable without having to deploy backup heat sources, even when temperatures sunk to -25 degrees F. On the solar front, the Michigan Public Service Commission recently reported that customer participation in Michigan's distributed generation (DG) increased 37% from 2020 to 2023, and just this March, the electricity provider for much of the Central and Western UP—UPPCO—announced that it will raise its DG cap from 3% to 4.5% of its load (in part, responding to demand). Meeting our ambitious residential electrification goals will require our project to overcome misinformation concerns and build trust in the new technologies. To that end, our proposed project plan and budget calls for strategic investments in UP-wide public and subcontractor education by trusted messengers who can engage their constituents and inspire their enthusiastic participation in our project (i.e., the tribes). In shaping that campaign, we will further research and borrow best practices from fellow cold-weather states like Maine, Vermont, and Alaska, where public and contractor education coupled with financial incentives and robust programs to assist homeowners are proving an effective recipe for rapid adoption of weatherization and

electrification. Our project will also build momentum over the course of our grant period by carefully tracking the financial, health, and comfort benefits that our project is delivering to UP residents and sharing those success stories through comprehensive, layered traditional and social media strategies. **Contractor and workforce limitations.** According to the contractors we have engaged, the certainty of significant federal funding in the UP over the coming five years and the clarity of our programmatic model (its straightforward scope of work and administrative approach) will enable them to scale up their work crews and other capacities to support our project in meeting its proposed milestones. In our words, the strong and stable market that our project will create with CPRG funding will inspire private contractors to find workforce solutions that will enable them to capitalize on that demand and help us succeed in the process. Still, until we can prove in practice that rapidly ramping up the necessary workforce—given the remoteness of the UP and the workforce training and deployment challenges our geography presents—some level of doubt and risk will persist. As described above, we plan to mitigate that risk by leveraging current workforce development programs and new opportunities that are coming to the State of Michigan through federal clean energy workforce programs and resources. In the end, of course, we cannot let this lingering risk deter us if Michigan is to achieve its goal of “reducing emissions related to heating homes and buildings by 17% by 2030.” In our view, this project’s willingness to proactively face and address this unavoidable risk—in collaboration with the State and other allies—represents a compelling reason to fund our proposal.

1.a.vi. Relation of GHG measure to established PCAP and CPRG program goals. This project’s GHG reduction measures (described above) align directly with two of the 10 measures in the State of Michigan’s [Priority Climate Action Plan](#) or PCAP. *“Drive building electrification and fuel-switching in existing buildings including an emphasis on LIDACs and electrifying households that currently rely on delivered fuels such as propane and home heating oil” (Measure #3); and “Reduce household fossil energy use through home repairs, electrical upgrades for building and vehicle electrification, weatherization, and other energy waste reduction investments with an emphasis on ensuring equitable access” (Measure #4).*

According to the State’s PCAP, residential buildings accounted for 14% of CO2 emissions from fossil fuel combustion in Michigan—the third highest sector in that respect behind electric utilities (35%) and transportation (32%). To meet the State’s immediate term decarbonization targets, the Plan calls for Michigan to “reduc(e) emissions related to heating homes and buildings by 17% by 2030,” which equates to “reducing heating emissions in buildings by 2-3% each year” over this decade. As covered in the PCAP’s discussion of Measure #3, building electrification for households “that currently rely on delivered fuels” is a priority in pursuing those targets, because of the greater GHG reductions, added end-user cost benefits from fuel-switching, and positive health impacts of electrifying homes that currently combust fuels. It is also a measure uniquely tailored to our state as Michigan “ranks first in residential sector consumption of propane,” according to EPA. The State PCAP also projected the significant environmental, public health, and economic benefits that implementation of Measures #3 and #4 will deliver. In addition to the GHG emissions reductions, it quantified the reductions in co-pollutants and the corresponding health benefits, including avoided deaths, hospital admissions, lost workdays, minor restricted activity days, and respiratory symptoms/bronchitis. It also addressed the jobs and income that will be created and the energy/utility bill savings that will be enjoyed by households participating in these measures. In the later respect, the PCAP shared a Rewiring America analysis that Michigan households would save an average of \$460 per year on their energy bills “if they were using modern heat pump space heaters and heat pump water heaters instead of their current appliances, which use electric resistance, fuel oil, or propane.” It also noted that “half of the households with immediate savings potential are considered low- and moderate-income.” The GHG reduction measures proposed here were

“selected as a priority” for this application by the UP Clean Energy Coalition. Participants in that selection process included all three of the UP’s regional planning organizations (including CUPPAD, the applicant for this proposal), municipal sustainability leaders (i.e., Marquette County Climate Adaptation Task Force or CATF), nonprofits (i.e., SWP, MEO, and MEC), individual UP-based Tribes and the Inter-Tribal Council of Michigan, and various sustainability leaders at UP colleges and universities. While project partners did not so deliberately, the reasons that our selected measures rose to the top of our priority list when deciding to submit this CPRG implementation application mirrored the program’s stated goals:

Implement ambitious measures that will achieve significant cumulative GHG reductions by 2030 and beyond. In addition to our bold GHG reduction targets, project partners consider it highly “ambitious” to decarbonize hundreds of residential buildings dispersed across a massive geographic area, where people are acutely vulnerable to extreme weather and skeptical about adopting new heating technologies whose performance they cannot directly validate. On the spectrum of measures that will be required to achieve economy-wide carbon neutrality, our project reflects a collective will in the UP to do one of the very hardest parts first.

Pursue measures that will achieve substantial community benefits...particularly in low-income and disadvantaged communities. As a group, we quickly identified investments in low-income housing as the most powerful GHG reduction strategy for providing cost savings, health benefits, and economic opportunities—and enhanced climate resilience—for low-income UP residents. Per the “Project Context” discussion above, the combination of a rural and remote landscape, cold climate, high energy costs/burden, patchwork utility service, and housing impacted by historic underinvestment is front of mind for UP community leaders and public servants when we consider challenges and priorities that we need to address as a region.

Complement other funding sources to maximize these GHG reductions and community benefits. We view CPRG funding—for programmatic capacity, public education and community engagement, and investment in whole-home improvement measures not covered by other resources—as the missing financial puzzle piece that will allow us to fully integrate and leverage other once-in-a-generation funding opportunities to drive deep residential decarbonization in the UP. Those braided resources include federal electrification rebates, Solar for All, soon-to-expand utility incentives, and others.

Pursue innovative policies and programs that are replicable and can be “scaled up” across multiple jurisdictions. In transitioning low-income to electrification and solar power in a rural, remote, and cold-weather environment, our project will demonstrate that the most vexing barriers to progress on building electrification can be overcome with the catalytic public resources available today and a strong commitment from community leaders.

As detailed throughout this application, our project will primarily serve LIDAC populations in the UP, thus contributing to the objectives of the Justice40 Initiative and reflecting EPA’s strong EJ commitment (as well as the “Committing to Environmental Justice/Pursuing a Just Transition” pillar of the State PCAP). Finally, our project will advance the goals of other strategic frameworks for building a more prosperous, sustainable, and equitable future for the UP. As mentioned above, the UP Energy Task Force included building EWR and electrification and accelerated renewable energy deployment in its recommendations to the State of Michigan. And, within the UP itself, the [Marquette Economic Recovery and Resilience Strategy](#) 3.11, the [Delta County Economic Recovery and Resilience Strategy](#) 3.8, the [Dickinson County Economic Recovery and Resilience Strategy](#) 3.5 and 3.9.7, and the [Schoolcraft County Economic Recovery and Resilience Strategy](#) 3.5 all state that the generation, affordability, and reliability of renewable energy resources are key strategies to economic resiliency. In addition, the proposed project’s regional collaboration directly aligns with the [Dibaginjigaadeg Anishinaabe Ezhitwaad: A Tribal Climate](#)

[Adaptation Menu](#) (GLIFWC, 2019), which calls for participation in local- and landscape-level management decisions and involving Tribal nations early in the decision-making process.

1.b. Demonstration of Funding Need. To speed up the UP's clean energy transformation while addressing the above-described challenges and improving quality-of-life for our low-income communities, our project is intentionally designed to maximize the current federal funding flowing into the UP and strategically layering those resources to support ambitious and necessary state and federal GHG reduction goals. When it comes to driving GHG emissions, the core strength of the project lies in our plans to "braid" together a range of federal, state, and utility resources to significantly stretch CPRG funds and drive transformational investments in energy performance, electrification, and renewable power for many low-income UP households. By funding necessary repairs and other measures in our whole-home approach that are not covered by other funding programs and supporting our project's underlying programmatic capacity, technical assistance, and community/stakeholder engagement, CPRG grant funds will unlock those cascading resources and dramatically expand the low-income residents we can serve and homes we can address.

Federal programs that the State of Michigan is preparing to administer will allow our project to dramatically reduce the amount of CPRG funds that are needed per home to achieve our desired outcome of efficient, electric, and solar powered buildings. As reinforced in our letter of support from the State of Michigan, we expect to maximize use of state-administered federal home energy rebates that will provide up to \$22,000 per low-income household—and a percentage of that for moderate-income households—to fund various elements of our GHG reduction measures (as much as \$14,000 through the Home Electrification and Appliance Rebate program or HEAR and as much as \$8,000 through the Home Efficiency Rebates Program or HOMES). Additionally, our project will play a vital role in driving uptake of Michigan's prospective/requested \$250 million Solar for All program which state leaders will largely use to expand access to renewable energy for the low-income residents that we intend to serve. In fact, the design of the solar energy component of our project reflects the proposed parameters of Michigan's Solar for All program, including its benchmark of funding solar systems that cover 20% of a home's electricity load. Additionally, through SWP's ongoing relationships with UP utilities, Community Action Agencies, and others—and the successful MI-HOPE model that WUPPDR is administering—our project team has years of experience combining and maximizing resources like Weatherization Assistance Program (WAP) funds and utility incentives to deliver energy savings and health benefits to UP families while minimizing their out-of-pocket expense. As the State's PCAP notes, "the Michigan Department of Health and Human Services (MDHHS) received \$183 million for the WAP" as part of a 2023 program expansion. For income-qualified homes, WAP funds cover expenses like "weather-stripping, caulking, general air sealing, attic," "foundation, wall, or sill box insulation," and "furnace or water heater...replacement"—all measures that our project plans to implement as part of our whole-home approach. Additionally, state energy policy reforms adopted last year incentivize UP utilities to support our project work.

Proposed CPRG funds will fund home investments not covered by the above mentioned (or other) programs, based on our assessment of each home's unique needs and the unique mix of assistance for which each participating household qualifies. Our proposed grant will also support the programmatic capacity that the UP needs to scale up residential building decarbonization. In other words, it will fund pre-requisite measures to the deployment of electrification and renewable energy technologies/resources and provide resources to engage, inspire, and support residents on their journey to home decarbonization. While members of our project team intend to partner on applications for Community Change and other such grant opportunities, we can think of no other available grant opportunity to meet the need for which we are seeking CPRPG support. While our program will focus on low-income and moderate-income households, it is also our goal to catalyze interest in home decarbonization and electrification among households in higher income brackets through our outreach.

While they will not qualify for our program or the home energy rebates, there are significant tax incentives for efficiency, electrification, and solar, as well as some utility rebates. We also have had discussions with Michigan Saves, the first green bank in the country, about providing low interest financing packages to homes and businesses in the UP if there is strong demand.

1.c. Transformative Impact. This project will deliver significant benefits to participating households, such as utility bill savings, home health and comfort improvements, and enhanced resilience to extreme weather, and positive social or societal impacts, such as jobs and other economic opportunities and air quality and public health improvements. Consistent with the core purpose of the CPRG program, the proposed project also has “the potential to create transformative...impacts that can lead to significant additional GHG emissions reductions.” It will do so by:

- 1). Providing a powerful “proof of concept” demonstration that residential electrification technologies and on-site renewables, along with more traditional weatherization/efficiency measures, can become an embraced climate-resilience and energy-independence strategy—even a cultural norm—among low-income Americans in rural, remote, cold-climate places like the UP.
- 2). Establishing a collaborative, multi-stakeholder programmatic implementation and financing model for scaling up residential decarbonization that can be replicated in other parts of the country with low population density, relatively decentralized energy systems and utility service providers, and a high percentage of homes that are heated by delivered fuels and/or not fully connected to modern energy infrastructure. This aligns directly with the NOFO’s example of addressing “hard-to-abate sectors where GHG emission reduction measures are not widely adopted.”
- 3). Playing an important part in spurring development of the supply chains, contractor networks, workforce/talent, and community engagement, financing, and other strategies that will support Michigan and the Great Lakes region in rapidly ramping up its progress in curbing residential building GHG emissions.

Our project will cultivate these impacts through effective and strategic communications about our project, rooted in real-time tracking and sharing of the climate, equity, health, and economic benefits that our project is generating and compelling storytelling that will engage the families we serve as the most effective messengers for adoption of our measures with their neighbors, fellow UP residents, and families across the country who share similar life experiences and worldviews.

2. IMPACT OF GHG REDUCTION MEASURES. The figures provided in this section for estimated GHG reductions—and those provided in Sections 3 and 4 for the environmental, health, economic, and other benefits/outcomes that our proposed CPRG-funded measure will deliver—are based on the modeling detailed in the Technical Appendix. The following provides some of the key assumptions that underpin that modeling. First and foremost, our team assumes that residential electrification and solar deployment at the scale we envision in this application will not occur in the UP without CPRG funding for this project. We will deploy CPRG funding to: 1). Build the programmatic, administrative, community engagement, and communications capacity to reach low- and moderate-income UP residents, inspire them to participate, and support them through the extensive process of transitioning their homes from the status quo to a repaired, weatherized, and electrified future; and 2). Fill funding gaps that will not be covered by various other programs, including weatherization assistance, federal electrification rebates, and utility incentives (based on the unique needs of the home and the income-levels of the household). Our project will strategically invest CPRG funds on the prerequisite (otherwise missing) programmatic and home expenses necessary to unlock those braided resources.

With that overarching assumption in mind, our project is treating the various elements of our multi-faceted home electrification and decarbonization GHG reduction measure as parts of a holistic

package. Each of the 500 homes we intend to address will require a different set of investments, and households of various incomes—located in different UP regions and served by varied utility providers—will have access to different mixes and amounts of financial assistance. For modeling and budgeting purposes, we necessarily smoothed out that variety to create an “average” home. Based on our collective experience in this field and our knowledge of forthcoming assistance programs, we estimate that CPRG grant funds will account for 41.3% of our total direct investment in home electrification/decarbonization (see table below). To model the projected GHG emissions reductions associated with CPRG dollars, we calculated the prospective impacts of our full package of investments and multiplied the results by that factor.

	Low-Income (250 Homes)	Mod-Income (250 Homes)	Average across incomes (500 Homes)	Project Totals (with braided \$)
Homeowner contribution (paid or financed)	\$ -	\$ 7,000.00	\$ 3,500.00	\$ 1,750,000.00
CPRG grant investment in homes	\$ 13,125.00	\$ 13,125.00	\$ 13,125.00	\$ 6,562,500.00
Rebates (conservatively based solely on HEAR/project will seek HEAR and HOMES)	\$ 14,000.00	\$ 7,000.00	\$ 10,500.00	\$ 5,250,000.00
WAP and utility incentives (highly location dependent)	\$ 2,000.00	\$ 2,000.00	\$ 2,000.00	\$ 1,000,000.00
Solar for All (\$15,000 average per home on 85 of 250 low-income homes and 85 of 250 moderate-income homes)	\$ 5,100.00	\$ 5,100.00	\$ 5,100.00	\$ 2,550,000.00
Project programmatic and administrative costs @ \$9,441,939 CPRG request amt.	\$ -	\$ -	\$ -	\$ 2,879,439.00
TOTAL	\$ 34,225.00	\$ 34,225.00	\$ 34,225.00	\$ 19,991,939.00
CPRG % of Total (at \$9,441,468 requested grant amount):				41.3%

Key modeling assumptions and methods include the following (see Technical Appendix for more):

- 500 homes were modeled using NREL ResStock Single Family Detached building type and the NREL ResStock hourly profile data for all 15 UP counties in the aggregate.
- Our model applied three measures—installation of air source heat pump (ASHP), heat pump water heater (HPWH), and building envelope improvements—to all 500 dwellings (actual project investments will be more varied and complex, but we consider this a fair representation).
- We modeled a solar system sized to meet 30% of building electric load on 170 of the 500 homes. To represent residential solar production, we used the NREL SAM PV Watts tool to generate one year of hourly energy production.
- We modeled the project’s target ratio of current fuel sources to be “switched” via electrification strategies—70% switched from propane, 15% switched from wood, and 15% switched from fuel oil.
- To reflect the UP’s varied utility tariffs, we used the primary service provider for each region: UPPCO for the Western and Central UP and Cloverland Electric Cooperative for the Eastern UP. The 500 homes were distributed by relative population across the regions.
- Global warming potentials in the IPCC’s Fifth Assessment Report were used in our GHG emissions reductions modeling. While the guidelines suggest estimating reductions for seven different GHGs, the three on which we report—CO₂, N₂O, and CH₄—are the only GHGs that our

proposed measures will reduce in significant amounts. They are also the gasses for which the tools described throughout the Technical Appendix provide reduction estimates for our measure.

The following table below provides our projections of GHG emissions reductions in metric tons for both required periods: 2025-2030 and 2025-2050. It also provides an absolute annual GHG reduction figure per the Technical Appendix guidelines from the first year of the project’s production, and the required cost-effectiveness calculation described below in Section 2c.

GHG Emissions Reductions - For share of total project cost funded with CPRG grant (41.3%)	CUMULATIVE 2025-2030	CUMULATIVE 2025-2050	ESTIMATED ANNUAL 2025-2050
Change in CO2 Emissions (metric tons)	6,527.52	37,625.89	1,447.15
Change in CH4 Emissions (metric tons)	0.35	2.10	0.08
Change in N2O Emissions (metric tons)	0.12	0.67	0.03
Change in CO2e Emissions (metric tons)	6,569.59	37,863.44	1,456.29
Cost Effectiveness (CPRG grant dollars/metric ton)	\$ 1,437.22	\$ 249.37	

2.a. Magnitude of GHG Reductions from 2025 through 2030. As mentioned earlier, we anticipate a programmatic ramp up period and estimate that we will address 10% of the 500 total homes in Year 1 of our grant, 15% in Year 2, and 25% in each of the final three years of our grant period. With that progression modeled (per the Technical Appendix), our proposed CPRG implementation project is estimated to cumulatively reduce GHGs from 2025 through 2030 as follows: **6,569.59 mt of CO2e; 6,528.52 mt of CO2; 0.35 mt of CH4; 0.12 mt of N2O.**

The project is expected to deliver an annual average of 1,087.92 mtCO2e of GHG emissions reductions from 2025 through 2030. In terms of the “durability” and “permanence” of these emissions reductions during this time frame, our project is deploying time-tested strategies with significant data to back up their projected performance (which we modeled using well-established datasets and tools like NREL’s ResStock and EPA’s SAM PV Watts). With our project’s strong emphasis on quality assurance, there is little reason to doubt that our proposed combination of building envelope improvements, electrification of key building energy end uses, and residential solar deployment will generate the strong GHG emissions reductions that we estimate. While the expected lifespans of installed materials and equipment are given more attention below in Section 2.b., all of the core physical elements of our project—ASHPs, HPWHs, and other electric equipment; insulation and other repair/efficiency technologies; and solar arrays—are projected to perform optimally and last well beyond this initial six-year period.

2.b. Magnitude of GHG Reductions from 2025 through 2050. Once again estimating that 41.3% of our project’s total projected 2025-2050 GHG reductions will be associated specifically with our proposed CPRG funding, the following shows our projected grant-specific reductions through Mid Century: **37,863.44 mt of CO2e; 37,625.89 mt of CO2; 2.10 mt of CH4; 0.67 mt of N2O.**

On average over the 26-year period from 2025 through 2050, the project is expected to deliver an annual average of 1,456.29 mtCO2e of GHG emissions reductions. As described in the Technical Appendix, the modeling on which these figures are based assumes that Michigan’s new aggressive renewable and clean energy standards or mandates, which ramp up through 2040, are fully implemented. With the grid becoming “cleaner” over time in our modeling approach, the “cost” in added GHG emissions associated with the increased power consumption that comes with implementing our building electrification strategies becomes lower over time (because the project ASHPs, HPWHs, etc. will be powered by increasingly clean energy). Meanwhile, the GHG benefits of significantly reducing resident combustion of

delivered fossil fuels remains relatively steady through 2050 (by the numbers). These dynamics provide a strong level of “durability” to our proposed GHG reduction measure. The building envelope improvements (and related efficiency/weatherization investments) and the residential solar energy systems are expected by industry standards to last and function properly through 2050, if recommended operations and maintenance practices are followed and component parts are replaced on aging schedules. In fact, a 25-year lifespan is now a conservative estimate for a solar array. However, ASHPs and HPWHs currently have expected useful lifespans of less than 25 years, so our modeling assumes they will have to be replaced before 2050 (our approach for addressing that in our calculations is described in the Technical Appendix). Of course, the equipment currently serving those purposes in UP homes has similar expected lifespans of roughly 15 years and must be replaced periodically. As electric technologies gain a greater foothold in the marketplace—spurred by rebates and legal requirements—it is reasonable to expect that they will become more efficient and cost effective. As such, it is likely that homeowners will make a like-for-like replacement of their project-installed technologies when they reach the end of their lifespan. For these reasons, we expect the project strategies that our project team will implement with CPRG support to have long-lasting positive impacts.

2.c. Cost Effectiveness of GHG Reductions. Given our requested CPRG grant amount of \$9,441,468, the above figures translate to the following cost-effectiveness results for the 2025-30 period.

- **\$9,441,468 CPRG grant dollars / 6,569.59 mt of CO₂e = \$1,437 CPRG grant dollars/mtCO₂e**
- \$9,441,468 CPRG grant dollars / 6,527.52 mt of CO₂ = \$1,446 CPRG grant dollars/mtCO₂
- \$9,441,468 CPRG grant dollars / .35 mt of CH₄ = \$27,340,514 CPRG grant dollars/mtCH₄
- \$9,441,468 CPRG grant dollars / 0.12 mt of N₂O = \$77,225,213 CPRG grant dollars/mtCH₄

Reflecting the strong performance of our proposed GHG measure over the longer term, the cost per mtCO₂e drops to \$249.37 over the period from 2025 to 2050.

2.d. Documentation of GHG Reduction Assumptions. *See the Technical Appendix* for a detailed description of our modeling assumptions, methods, and results.

3. ENVIRONMENTAL RESULTS. 3.a. Expected Outputs and Outcomes. Our proposed project will support three goals in the EPA Strategic Plan: Tackle the Climate Crisis (1), Take Decisive Action to Advance Environmental Justice and Civil Rights (2), and Ensure Clean and Healthy Air for All Communities (4). The table below summarizes the outputs and outcomes that will contribute to those goals, quantifying our outcomes where possible using the modeling described in the Technical Appendix. The figures in Section 3 and 4 are based on our total project investment (CPRG grant funds and braided resources).

Measure: Implement electrification and other decarbonization strategies at 500 low- and moderate-income homes currently heated by delivered fossil fuels in Michigan’s UP (UP).	
Outputs	Outcomes
<ul style="list-style-type: none"> ● A minimum of 850 energy assessments completed for low- and moderate-income UP homes (figure estimates more, as not all assessments will lead to household implementation). ● 500 DOE Home Energy Score Reports produced with recommendations and plans for implementation. ● 500 homes receiving “perquisite” repairs and 	<ul style="list-style-type: none"> ● Net GHG emissions reductions. MtCO₂e figures provided above; average annual social benefit of reduction through 2050 valued at \$399,989 (see Tech. Appendix). ● Net outdoor air quality and associated public-health benefits through reduced emissions of PM_{2.5}, SO₂, NO_x, NH₃, and VOCs; average annual social benefit of reduction through 2050 projected via EPA’s COBRA at \$2,509,688.

<p>improvements necessary to implement other project measures (i.e., roof repairs, electric panel/wiring upgrades)</p> <ul style="list-style-type: none"> • 500 homes receiving building envelope improvements as indicated for home electrification (i.e., insulation, ventilation, air sealing). • 500 air source heat pump (ASHP) and heat pump water heater (HPWH) installed, plus other electric technologies covered by HEAR rebates deployed case-by-case where appropriate (i.e., electric stove, cooktop, range, oven or heat pump clothes dryer). • 170 residential solar energy systems deployed at homes addressed by this project, sized to generate clean energy to meet 20% of the building's projected electricity load. 	<ul style="list-style-type: none"> • Indoor air quality improvements from weatherization, ventilation, and fuel-switching to reduce in-home fossil-fuel combustion (Not quantified by our technical analysis, but research indicates reduced incidences of certain cancers, asthma, and other ailments (see Section 4. a.). • Net benefit in energy savings for 500 participating low-to-moderate income households; valued at \$452,914 per year through 2050 for a household annual average of \$905.83. • Approximately 150 net jobs created and \$8,399,764 net income generated during the five-year implementation period (see Sec 4). • Improved resilience to extreme weather and other climate impacts (including the addition of air cooling to many homes without it, and decreased dependence on unstable UP fuel markets, particularly propane which is subject to UP-specific price shocks).
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3.bi. Performance Measures and Plan. Progress in pursuing and achieving the milestones described below—and delivering the outputs in the above table—will be assessed in each of our semi-annual (and final) reports to EPA. In addition to tracking nominal milestones described below in Section 3.c.iii (e.g., launching a webpage), our performance measurement process and plan will include two primary pillars. Importantly, the project may leverage our strong relationship with UP-based universities to create an expert evaluation team to provide third-party validation of the following processes. **Online project dashboard.** We will maintain a dashboard on our project webpage. Based on data gathered and recorded by SWP Energy Techs through their sustained engagement with participating households (see above), the dashboard will provide an ongoing record of our progress in achieving key metrics, such as the number of homes receiving DOE Home Energy Scores (500), prerequisite repairs (500), building envelopment improvements (500), ASHPs and HPWHs (500), and residential solar energy systems (170). It will also report the number of electric appliances installed, in addition to the ASHPs and HPWHs. Using the methods described in the Technical Appendix, we will model the estimated GHG reductions and other proposed outcomes (see table above) that the project has delivered based on our progress in implementing proposed measures. Additionally, to the extent possible, we will collect pre- and post-measure utility bill data from participating households, so we can compare actual energy savings to our projected energy savings (along with the corresponding projected GHG reduction and other beneficial outcomes). As mentioned in Section 1, our project leadership team will monitor our progress against our project targets on a regular basis and make immediate project adjustments to remain on track. **Resident surveying.** With potential support from university partners (TBD)—and, again, leveraging the relationships between the SWP team and participating households—we plan to survey those we have served annually over the course of our grant period (and hopefully beyond). This standardized survey will ask questions about the participant's experience collaborating with our project, the comfort and heating/cooling performance of their home across different seasons and weather conditions, their satisfaction level with the performance of equipment that our project installed, and the extent to which they have benefited from project-related utility bill savings. This annual survey will also provide us an opportunity to gather actual energy savings data through a request for the latest monthly utility bills.

3.c. Authorities, Implementation Timeline, and Milestones. 3.c.i. Authorities. There are no existing legal barriers that will prevent any parties expected to participate in our project from taking the

actions proposed in this application. However, in addition to the non-binding MI Healthy Climate Plan and State of Michigan PCAP, State of Michigan law provides strong incentives for UP utilities to support our site-by-site residential weatherization, electrification, and decarbonization work, both programmatically and financially. Amendments to the State of Michigan's Public Act 229, which were adopted late last year, explicitly authorize utilities to develop and implement building electrification programs. Additionally, the 2023 clean energy reforms increased Michigan's Energy Waste Reduction (EWR) standard to 1.5% of annual energy savings (from 1.0%) with a goal of 2% for electric utilities. The amendments also reestablished EWR standards for municipal and cooperative utilities, which make up 16 of the UP's 19 electric service providers. Importantly, at the direct request of the state's munis and cooperatives, State law was also changed last year to allow those entities to count site-level energy savings from the adoption of electrification technologies toward meeting their EWR obligations. Under those provisions, switching from delivered fuels to highly efficient heat pumps—the foundation and ultimate goal of our project's GHG reduction measure—will provide UP utilities a powerful lever for reducing their customers' energy use and meeting their EWR requirements (while also increasing their electricity sales). Our project team intends to fully maximize that dynamic and encourage/collaborate with UP utilities to embrace residential electrification as a primary EWR strategy.

3.c.ii. Timeline and Milestones. The following summarizes the key milestones, timelines, and responsible parties for the project tasks described in Section 1. The project timeline is January 1, 2025 - December 31st, 2029.

Grant administration and project governance. As the grant applicant, CUPPAD will lead our team in achieving the following milestones with support and participation from all other partners.

Grant Year 1 (2025)

- CPRG award intake into CUPPAD grant administration processes, including accounting and project management systems (implementation of these systems begins).
- Agreements with subcontractors negotiated and executed (SWP, MEC, MEO, and others).
- Project leadership team named, formed, and convened for ongoing quarterly meetings (WUPPDR, EUPPRD, and others).
- Semi-annual reporting to EPA completed.

Grant Years 2-5 (2026-2029)

- Grant accounting and project management systems implemented and monitored/overseen by CUPPAD leadership.
- Subcontractor agreements reviewed, continued, modified (SWP, MEC, MEO, and others).
- Project leadership team led and facilitated.
- Semi-annual (and final) reporting to EPA continued.

Household recruitment, community engagement, and public education. As described in Sections 1 and 4, SWP, MEC, and MEO will lead the following work with support from the regional planning agencies.

Grant Year 1 (2025)

- Project website designed and launched. (SWP, MEC, MEO)
- Educational materials developed for homeowners and the contractors, utilities, faith and tribal leaders, and other "trusted messengers" we plan to engage for referrals (MEO, MEC).
- One community/contractor/worker "resource fair" held per region (SWP, MEC, MEO).
- Targeted outreach to local governments launched (CUPPAD, WUPPDR, EUPPRD).
- Social and traditional media campaigns designed and launched (MEC, MEO).
- Press releases issued and events held in coordination with EPA to celebrate project launch.

Grant Years 2-5 (2026-2029)

- First public “annual report” on project impact developed and promoted (SWP, MEC, MEO).
- Project website updated and maintained. (SWP, MEC, MEO)
- Two resource fairs per year held to increase local uptake in key locations (SWP, MEC, MEO).
- Targeted outreach to local governments continues (CUPPAD, WUPPDR, EUPPRD).
- Social and traditional media campaigns continue (MEC, MEO).
- Earned media strategies implemented with EPA coordination to celebrate milestones.

Site work, financing, and quality assurance. With support and engagement from partners and other stakeholders (i.e, contractors, utilities, the State), SWP will lead the following (unless otherwise noted):

Grant Year 1 (2025)

- Recruit/hire/train expanded project management/energy tech team per budget.
- Expand DEO Home Energy Score programming to incorporate electrification.
- Design and launch “authorized contractor” program described in Sections 1 and 5.
- Provide home energy advisor services, including income-qualification, scheduling support, administration of financial braiding strategies,
- Establish financing program for participating mod-income households with Michigan Saves.
- Conduct 100 home energy assessments (and complete corresponding evaluations/plans).
- Implement repair, building envelope improvement, and electrification plans at 50 homes.

Grant Years 2 (2026)

- Continue implementation of key Grant Year 1 tasks (e.g., home advising/financial braiding).
- Conduct 150 home energy assessments (and complete corresponding evaluations/plans).
- Implement repair, building envelope improvement, and electrification plans at 75 homes.
- Oversee installation of solar energy systems at 20 homes addressed in Grant Years 1 & 2.

Grant Years 3-5 (2027-2029)

- Continue implementation of key Grant Year 1 tasks (e.g., home advising/financial braiding).
- Conduct 200 home energy assessments per year.
- Implement repair, envelope improvement, and electrification plans at 125 homes/year.
- Oversee installation of solar energy systems at 50 homes/year.

Measurement and evaluation (EPA reporting covered under Grant Administration/Project Leadership)

Grant Year 1 (2025)

- Develop/launch dashboard and data management/upkeep procedures (SWP, MEC, MEO).
- Create resident feedback and satisfaction survey (SWP, MEC, MEO with university partners).

Grant Years 2-5 (2026-2029)

- Implement dashboard/survey plans (SWP, MEC, MEO with university partners).
- Produce and promote public annual “impact” reports.

4. LOW-INCOME AND DISADVANTAGED COMMUNITIES. The Climate and Economic Justice Screening Tool (CEJST) identifies 40 disadvantaged communities spread across the UP (See CEJST Census tract list in appendix). The UP’s 15 counties are home to some of Michigan’s highest concentrations of Asset Limited Income Constrained Employed (ALICE) households, with nine counties at approximately 50%. As reported by the University of Michigan’s Poverty Solutions initiative, “the median income in the UP is significantly lower than the state average – \$51,950 versus \$63,202 – and none of the counties has a median income above \$57,500.” That report also noted the unique financial challenges of living in a very rural, remote environment (again, the UP accounts for one-third of Michigan’s land mass but just 3% of its population). For example, in most counties, residents “are located more than 10 miles from a

supermarket.” Because food, jobs, and other necessities are often far away, transportation costs eat up 30% or more of household income in all but two counties.

More directly relevant to our proposed project, and as mentioned in Section 1, nearly one third of all census tracts in the UP are above the 90th percentile nationally for energy burden (per CEJST). As prices for fuels like propane, wood, and fuel oil climb, low-to-moderate income rural households are struggling financially to heat their homes through the UP’s intense winters. Moreover, deliverable fuel companies rarely offer energy waste reduction incentives like those available through larger, grid-based utility companies. For asset limited households already experiencing extremely high energy burden, the cost of upgrading from delivered fuels to electric heat without help is generally prohibitive, especially given contractor price premiums for travel time and conditions. In addition to reducing GHG emissions and improving environmental and public health outcomes, addressing the energy burden and vulnerability of low- and moderate-income UP residents is a primary impetus for this project.

4.a. Community Benefits. Beyond the significant reductions in GHG emissions reductions forecasted in Section 2, our project will help hundreds of asset limited households overcome the challenges described above, while improving their finances, health, quality of life, and resilience.

Household finance. According to our modeling, as described in the Technical Appendix, the 500 households participating in our project will enjoy an average annual net utility bill savings of \$905.83 through 2050 for a total net project-wide savings across all households of \$11,775,757. These estimated net gains are driven by \$25,224,501 in savings on household delivered fuel costs and offset by \$11,698,744 in increased electricity bills from adoption of ASHPs/HPWHs (and the \$1,750,000 aggregate share of project capital expenses to be covered by homeowners). These figures square with Michigan Public Service Commission reports indicating that for every \$1 invested in energy improvements like we propose, households save more than \$3.20 in future energy bills (and solar arrays that reduce energy bills by 20-30% per month save “the average home” an estimated \$400-600 each year).

Indoor air quality. In addition to the indoor air quality improvements that will accompany the insulation, ventilation, and air sealing measures our project will implement (i.e., reduced exposure to mold, etc.), replacing fuel burning appliances and heaters with highly efficient modern electric models will reduce exposures to pollutants like carbon monoxide and particulate matter that impact the health of residents, especially children and other vulnerable populations, according to the American Lung Association. Due to the large amounts of time that residents spend indoors during cold UP winters, indoor air pollution has a significant impact on health, contributing to heart disease, asthma, stroke, and other diseases. Considering the impacts of switching the fuel source of stoves as one illustration of these impacts—and recognizing we will address homes using propane rather than natural gas—an EPA and Duke University meta-analysis conducted in 1992 found that nitrogen dioxide exposure comparable to that of using a gas stove increases the odds of childhood respiratory illness by 20%. More recent studies have shown that 12.7% of childhood asthma can be attributed to residential gas-stove use. Long term exposure to NO₂ through gas-stove use has also been shown to increase the risk and impacts of heart-disease, lung infections, respiratory problems, learning deficits, and allergies. And it is not just children who are at risk. There is a correlation between gas stove use and women’s respiratory issues. Installing clean electric alternatives will reduce these health impacts.

Outdoor air quality. The byproducts of burning propane, fuel oil, and wood for heating and cooking indoors are eventually released outdoors and can contribute significantly to air quality impacts from hazardous air pollutants and GHG emissions. Indoor wood burning is especially problematic, responsible for up to 90% of local particulate matter pollution in some areas. In fact, the very high co-pollutant emissions factors associated with burning wood drive the massive estimated health benefits of this project documented in our Technical Appendix. After netting out the increased health costs associated with increased electricity consumption from the adoption of ASHPs and HPWHs, the project will deliver

\$65,251,882 in estimated social health benefits—in the form of avoided deaths/disease/illness and related impacts—through 2050 (per use of EPA’s COBRA tool). That is an estimated average annual benefit of \$2,509,688. These estimated health cost savings are the primary force behind the project’s 3.58 societal benefit-to-cost ratio (see Technical Appendix).

Housing comfort, value, and resilience. The housing stock in the UP is aging, with approximately 60% of the homes in our most populous county (Marquette) built pre-WWII. As mentioned above, homes heated by delivered fuels are more likely to have gone without basic repairs or the adoption of basic weatherization strategies over time, because they have largely been left behind by required EWR programs run by regulated utilities for their customers served by natural-gas infrastructure. In addition to making the 500 homes addressed by our project healthier, investments in envelope improvements, electrical upgrades, and new HVAC and other equipment will enhance home comfort, temperature control, durability, and long-term value (thus improving quality-of-life immediately and building generational wealth for the low- and moderate-income families we will serve). Additionally, the installation of ASHPs will equip many of the 500 homes covered by our project with air cooling capabilities for the first time, thus adding to resident comfort and safety when temperatures do rise in the UP. And, with homes that are more efficient and equipped with properly sized, modern heating systems, residents will be less hesitant to bring their homes to safe temperature levels during extreme cold snaps, which currently force many families to choose between safety and paying high utility bills.

Jobs and economic opportunity. Michigan leads the Midwest in clean energy jobs. Since 2022 alone, more than \$20 billion has been invested in clean energy projects in our state, which has resulted in the creation of more than 13,500 jobs. Aligned with our proposed project, the largest clean energy sector is efficiency, making up some 60% of Michigan’s clean energy workforce (according to the State of Michigan’s PCAP). In addition to the direct jobs our CPRG grant will create at partner organizations, our modeling indicates that our project will add 150 net jobs to the UP economy during our implementation period and generate \$8,399,764 in net income. Supported by the workforce development programs that we will engage through our project, these new jobs will turn into high-quality career paths for many UP residents as the sectors our project will jumpstart continue to grow to meet climate imperatives.

4.b. Community Engagement. Michigan Environmental Council (MEC) and Michigan Energy Options (MEO) have strong 40-year-plus strong track records of coalition and movement building, as well as energy efficiency research and program delivery. The two organizations also played leading roles in convening the partnership that led to this proposal. Alongside other allies, they formed the UP Clean Energy Coalition to implement the energy supply and security recommendations developed by Governor Whitmer’s UP Energy Task Force in the first two years of this decade (described in Section 1). Participants in that new coalition have included all three UP regional planning organizations, university and municipal sustainability leaders, nonprofits, and UP-based Tribes. Collectively, this coalition gives our project the organizational capacity to reach residents and communities throughout the UP. In designing our community engagement strategies, including those summarized below, MEC and MEO will thoroughly study best practices from successful electrification programs in other northern climate states, specifically Efficiency Maine and Efficiency Vermont. Maine, with a population of 1.4 million people, has installed more than 100,000 heat pumps, and Vermont has installed 97 heat pumps for every 1,000 residents. With climates and population characteristics like the U.P., those states will likely offer blueprints for successful community engagement strategies that can drive adoption of our GHG reduction measures at scale. With lessons from those and other states shaping our messaging and delivery, engagement strategies we plan to implement include the following. It is also important to reiterate that the ongoing relationship between participating households and the SWP Energy Technician, who will help them plan, finance, schedule, and coordinate work on their homes, will serve as our project’s most important and consequential form of interaction and engagement.

Trusted messengers. Word of mouth support from “trusted messengers” will be paramount in inspiring low- and moderate-income UP residents to participate in our project. To put that powerful force into action, we will recruit motivated organization leaders and other volunteers—and equip them with effective public education materials. For example, SWP will mobilize the 200 faith institutions which are part of its Earth Keepers program and collectively serve one-third of the UP population, and our budget includes subcontractor resources to support Tribes and others in engaging their members. And partners like MEC and the regional planning agencies—with their member groups and other constituencies—will enable us to reach UP communities quickly through voices known to the low- and moderate-income residents we plan to serve. Referrals to our program will also come from the contractors and utility representatives who our team will consistently involve in project activities.

Community Events. Members of our project team will seek and respond to opportunities to speak to community groups and distribute informational materials at local events. We will also proactively host—or co-host with interested local allies—community events to promote our project. Regular regional “resource fairs” will serve as the backbone for this effort. These events will provide opportunities for homeowners, contractors, utilities, and prospective worker to gather, learn about the opportunities that our project offers, sign up to participate (homeowners), share information about their own programs (contractors and utilities), and even hand out/receive free “swag” (i.e., LED bulbs).

Earned media. In the first year of our grant period, we will develop and launch a project page devoted to providing program information, including the dynamic dashboard of project metrics described in our Section 3 “measurement plan.” With that online repository of information providing a place to direct interested people, MEC and MEO will work to strategically place opinion pieces and inspire news stories in a variety of UP media outlets to publicize the opportunity for residents to participate, educate them about our project, share stories of UP homeowners who are enjoying the benefits of residential efficiency, electrification, and renewable energy, and celebrate project milestones. At key project moments, like the announcement of our grant award, we will issue press releases in coordination with EPA (and State of Michigan leaders). All of the above efforts will be amplified by project partners via their social media platforms.

5. JOB QUALITY. The project team shares EPA’s commitment to using federal funding to support “high road” labor practices and create “high-quality, family-sustaining jobs with the free and fair choice to join a union.” As our attached proposal budget indicates, each member of our core project team will receive direct support or subcontractor funds through our CPRG grant. A portion of those funds will be used to cover portions of existing positions and/or entirely new positions. Each organization that is part of our team pays highly competitive salaries for the UP’s public service and nonprofit sectors; offers comprehensive benefits, including paid vacation, medical insurance, and retirement savings programs; and maintains a strong commitment to behaving as an equal opportunity employer. Beyond SWP, which will employ a significant share of the workers who will provide direct services to participating households (i.e., energy assessments, weatherization, etc.), a significant share of the labor force that will drive our project outputs and outcomes will be hired and managed by private home-performance-improvement, HVAC, and solar contractors. Particularly when the braided financial resources described throughout this workplan are considered, our proposed investment of CPRG funds will represent an unprecedented economic opportunity for existing and prospective UP contractors in those fields. These dynamics will equip our project team with significant leverage to shape the labor practices of contractors who wish to do business with our program. To fully exercise that leverage, our project will develop an “authorized vendors” process in the first year of our grant to reward contractors who adopt Good Jobs Principles with priority access to household-level project work.

To ensure it complies with all state and federal laws, at a minimum, we will expect all contractors hired through our project to pay their workers prevailing wages and participate in relevant State of

Michigan apprenticeship programs. We will also look to give preference to contractors who partner with labor unions and employ workers covered by collective bargaining agreements. From a job quality and career opportunity perspective, the project's investment of CPRG funds in the SWP Great Lakes Climate Corps (GLCC)—introduced earlier in this application—is also worth noting. An independent, local, grassroots workforce development program, the GLCC offers passionate young people interested in environmental work the opportunity to learn essential skills in the field. Of particular relevance to this project, the GLCC includes an Energy Technician program in which participants have extensive experience working in low-income homes across the UP. These Energy Technicians secure Building Science Professionals Certificates and successfully complete the Department of Energy's Home Energy Score Assessor training. This program gives SWP—and by extension, our project—a vehicle to rapidly scale up our capacity to assist low- and moderate-income UP households with home energy improvement measures.

6. PROGRAMMATIC CAPABILITY AND PAST PERFORMANCE.

CUPPAD is well positioned to lead the project and has a proven track record of managing the Central UP's Economic Development Agency (EDA) Partnership Planning program, as well as the Community Development Block Grant (CDBG) administration. CUPPAD has been the direct recipient of multiple federal and state financial awards (see below) and has assisted numerous UP communities obtain crucial funding for environmental, community, and economic projects. CUPPAD is the applicant for this grant request and will fulfill all fiduciary and grant administration roles, including serving as the liaison to EPA and negotiator for the grant contractor. Regarding financial management, CUPPAD may also utilize a formal partnership (contractual agreement) with U.P. Michigan Works! which includes the support of their chief financial officer in the administration of grants. Michigan Works! commonly manages large state and federal grants with accuracy and success. The Superior Watershed Partnership (SWP) will serve as the primary project subcontractor on this project with primary frontline oversight over the home-by-home deployment of the project's GHG reductions measures. SWP will also assist CUPPAD with project administration. The SWP has over 20 years of experience successfully implementing federal and non-federal agreements—including consistent (Quarterly, Interim, and Annual) financial and programmatic reports as detailed by the grant agreement.

CUPPAD's Past Performance Includes:

1. **EDA Partnership Planning.** Assistance agreement: ED23CHI3020021
CDFA: 11.302 -- Economic Development Support for Planning Organizations
Description: A three-year grant to regional organizations to facilitate the development, implementation, revision, or replacement of Comprehensive Economic Development Strategies (CEDs), which articulate and prioritize the strategic economic goals of the region. This grant also supports the region as it engages in technical assistance to communities and organizations for implementing the strategy.
2. **EDA Economic Adjustment Assistance (Coal Communities).** Assistance agreement: ED23CHI0G0098
CDFA: 11.307 -- Economic Adjustment Assistance
Description: A program to support planning regions' efforts to foster regional economic ecosystems and globally competitive regions as they adapt from their reliance on coal-based energy. This grant is intended to develop an outdoor recreation industry growth strategy that will guide future investments into the outdoor recreation sector and encourage private sector growth in the industry.
3. **MSHDA Regional Housing Partnership.** Assistance agreement: HDF-424
Non-Federal Agency: Michigan State Housing Development Authority
Description: Grant to fund the organization and facilitation of a regional housing partnership and creation of a regional action plan that aligns with Michigan's Statewide Housing Plan. Provide assistance to regional housing ecosystem partners with data collection and outreach.

4. **EGLE Coastal Management.** Assistance agreement number: 2023-306-008

Non-Federal Agency: Michigan Department of Environment, Great Lakes, and Energy

Description: The Central UP Planning and Development Regional Commission will utilize the assistance of Land Information Access Association to work with Burt Township to address coastal resiliency by incorporating coastal management principles into the Burt Township Master Plan.

5. **DNR Spark Grant.** Assistance agreement number: None

Non-Federal Agency: Michigan Department of Natural Resources

Description: The purpose of this Agreement is to provide funding in exchange for providing administrative, programmatic, and technical assistance that includes evaluation of applications, project implementation, and reporting of Michigan Spark Grants for public recreation projects in historically under-funded, low-capacity, low-resourced Michigan communities.

6.b. Reporting Requirements. For each of the agreements listed above, CUPPAD adequately and timely met all reporting requirements, including financial and programmatic reports (Quarterly, Interim, and Annual). As noted in the NOFO for this proposed CPRG project, CUPPAD and project partners will follow the reporting requirements for the semi-annual progress reports and a detailed final report (within 120 calendar days of project completion). Semi-annual reports will summarize technical progress, accomplishments, and milestones achieved including a description of outputs and outcomes, planned activities, and a summary of expenditures to date. One year after the grant award, a detailed report including benefits to low-income and disadvantaged communities will be provided.

6.c. Staff Expertise. CUPPAD, SWP, MEO, and MEC (main project partners) have extensive experience planning, implementing, and sustaining climate-related, community-driven projects with fidelity. CUPPAD (resumes attached) has a technical staff of certified planners, geographic information specialists, and data analysts. For over 20 years, SWP (lead project partner) has collaborated with community partners to implement science-driven, climate-focused projects throughout all 15 counties and Tribal communities of the UP. SWP's technical, year-round staff include natural resource specialists, field scientists, biologists, planners, accountants, educators, and certified energy technicians. SWP has successfully implemented greenhouse gas reduction projects with federal funding through the Environmental Protection Agency, the United States Fish and Wildlife Service, the United States Forest Service, and the National Fish and Wildlife Foundation, including a \$2.5 million dollar grant to restore a section of the City of Marquette's lakeshore (largest city in the UP) to a natural living shoreline. SWP also has a long, successful relationship with Michigan's Department of Environment, Great Lakes, and Energy (EGLE) to implement Michigan's Priority Climate Action Plan that includes being the recipient of funding to recycle scrap tires, electronic waste, and household hazardous waste; through EGLE, SWP has also received funding through the Michigan Coastal Management Program, the Charge-Up Michigan electric vehicle charging station program, and the non-point source pollution reduction program. Through the Michigan Energy Assistance Program, SWP's Office of Climate and Energy (OCE) has a staff of trained and certified energy technicians that implement crucial energy efficiency work for low-income households throughout the UP, while working directly with utilities and households to lower energy consumption, providing energy-and budget-education and financial assistance to lower utility bills. SWP's OCE's low-income solar program has installed solar arrays for 25 low-income UP households. SWP's OCE program manager, Tonya Swenor, was appointed to the State of Michigan's UP Energy Task Force.

Other project partners also have extensive experience related to the proposed project including the Michigan Environmental Council's (MEC) CEO, Conan Smith. Under Smith, MEC launched and led the Southeast Michigan Regional Energy Office which helped 35 communities conduct more than \$5M worth of municipal EE/RE projects. SEMREO implemented \$3 million of MPSC-funded renewable energy and

energy efficiency projects on municipal buildings and facilitated \$30 million in residential energy efficiency projects through the DOE-funded BetterBuildings program. Smith has served as a gubernatorial appointee to the state's Utility Consumer Participation Board for a decade, helping low income communities and environmental advocates intervene in utility rate cases. Smith is the founding Board Chair of Michigan Saves, which is the nation's largest nonprofit green bank and he has guided MEC's deep track record of working successfully with utilities to exceed the state's renewable energy portfolio standard and the acceleration of solar energy deployment in rural communities. Michigan Energy Options (MEO) Assistant Director, Michael Larson is a clean energy consultant that provides oversight of utility energy waste reduction programs and oversees utility energy waste reduction programs. MEO administers utility efficiency programs ranging from a la carte appliance recycling and income qualified programs, to full suite programs that include incentives for beneficial electrification, HVAC, renewable energy, energy audits, lighting, and more. Using MEO's significant corporate experience of completing energy efficiency projects in all 83 Michigan Counties, Larson leads MEO community engagement efforts on UP energy issues while being a member of the Sault Tribe of the Chippewa Indians (based in the UP) and serving as Commissioner for the UP's largest city, Marquette. Funding through the EPA's CPRG program will expand upon these successful partnerships and existing programs to increase the capacity of the existing workforce while lowering greenhouse gas emissions—aligned to the measures of the State of Michigan's Priority Climate Action Plan.

7. BUDGET AND TIMELY EXPENDITURE OF GRANT FUNDS. *See Budget Narrative for specific details.*

7.a. Budget Detail.

BUDGET BY YEAR							
COST-TYPE	CATEGORY	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	TOTAL
Direct Costs	TOTAL PERSONNEL	\$35,675	\$35,675	\$35,675	\$35,675	\$35,675	\$178,375
	TOTAL FRINGE BENEFITS	\$14,496	\$14,496	\$14,496	\$14,496	\$14,496	\$72,479
	TOTAL TRAVEL	\$1,200	\$1,200	\$1,200	\$1,200	\$1,200	\$6,000
	TOTAL EQUIPMENT	\$0	\$0	\$0	\$0	\$0	\$0
	TOTAL SUPPLIES	\$0	\$0	\$0	\$0	\$0	\$0
	TOTAL CONTRACTUAL	\$1,500,000	\$1,500,000	\$1,500,000	\$1,500,000	\$1,500,000	\$7,500,000
	TOTAL OTHER	\$332,000	\$332,000	\$332,000	\$332,000	\$332,000	\$1,660,000
	TOTAL DIRECT	\$1,883,371	\$1,883,371	\$1,883,371	\$1,883,371	\$1,883,371	\$9,416,854
	TOTAL INDIRECT	\$5,017	\$5,017	\$5,017	\$5,017	\$5,017	\$25,085
TOTAL FUNDING		\$1,888,388	\$1,888,388	\$1,888,388	\$1,888,388	\$1,888,388	\$9,441,939

7.b. Expenditure of Awarded Funds. The approach, procedures, and controls described in the application will ensure that awarded grant funds will be expended in a timely and efficient manner, as outlined in the Budget Narrative for a year-year cost breakdown and in Section 3.c.ii. Timeline and Milestones.

7.c. Reasonableness of Cost. The proposed grant expenditures are reasonable for accomplishing the proposed goals, objectives, and measurable environmental outcomes described in the application above. Specifically, the \$9,441,939 requested from the CPRG funding will reduce 15,907.00 mt CO₂e cumulatively for the period from 2025 through 2030. As our co-benefit analysis indicates, 5LE's modeling estimates the value to society of the project's net GHG emission reductions at \$10,399,717 through 2050.