Landscape Equipment Electrification Program (LEEP)

Workplan and Narrative

Climate Pollution Reduction Grants – Implementation Grant Proposal

# Overall Project Summary and Approach

Gasoline and diesel-powered landscape equipment is a ubiquitous source of tailpipe emissions including carbon dioxide, criteria air pollutants, hazardous air pollutants, and noise pollution, across the Chicago Metropolitan Statistical Area. In the commercial landscape industry, equipment operators are typically low-income persons of color who bear disproportionate harmful effects of prolonged exposure from gasoline-powered equipment.

The Landscape Equipment Electrification Program (LEEP) will accelerate adoption of electric zero emission equipment (ZEE) in both the residential and commercial landscape sectors. With Climate Pollution Reduction Grant funding, the Metropolitan Mayors Caucus (Caucus) will remove dirty gasoline and diesel-powered lawn and garden (LGE) equipment from service and replace them one-for-one with clean zero emission equipment through a strategic “buy-back” program. Old equipment will be collected, responsibly prepared for disposal, permanently disabled, and appropriately scrapped to assure and document emission reduction. Incentives will then be paid to program participants to purchase new, ZEE lawn and garden equipment. Two parallel programs will be designed to serve the unique needs of the residential equipment owners and the commercial landscape industry.

The Caucus will leverage strong partnerships to design and implement a program that achieves quantifiable and durable GHG emissions; primarily benefits low and disadvantaged communities (LIDAC); drives transformation of the landscape equipment market to ZEE; and provides significant reductions in criteria and hazardous air pollution. LEEP will succeed because of the region’s considerable momentum on climate action, robust and ongoing LIDAC community engagement, history of robust resident participation in recycling and sustainability programs, and growing community interest in phasing out gasoline LGE.

LEEP will maximize participation in the residential sector by utilizing familiar and popular drop-off events for hard-to-recycle household items. LEEP will maximize participation in the commercial sector by tailoring incentives to support the most practical and useful zero emissions technology and supportive services to accelerate electrification. Because 60%[[1]](#footnote-2) to 80%[[2]](#footnote-3) of the landscape workers in the Chicago region are estimated to be Latino, LEEP will improve working conditions and provide quantifiable, targeted health and economic benefit to members of LIDAC communities. To enhance the durability of emission reduction, LEEP will concurrently promote fair and enforceable local regulations to reduce the use of gasoline lawn and garden equipment permanently.

Implementation of LEEP will support EPA’s 2022-2026 Strategic Plan -Goal 1, “Tackle the Climate Crisis”; Objective 1.1, “Reduce Emissions that Cause Climate Change“ and address EPA’s objective to “aggressively reduce the emissions of greenhouse gases from all sectors while increasing energy and resource efficiency and the use of renewable energy.”

## A. Description of GHG Reduction Measures

LEEP will aim to eliminate 76,826 residential gasoline lawn mowers by simplifying safe and responsible disposal and incentivizing the purchase of new, electric, ZEE. LEEP will eliminate up to 1,003 gasoline or diesel commercial mowers, and 3,686 hand-held gasoline-powered LGE by educating landscape workers and company owners, facilitating safe disposal of old equipment, supporting electric upgrades for charging, incentivizing battery packs and chargers, and by incentivizing the purchase of electric ZEE. This one-for-one replacement of gasoline engines for ZEE creates the “buy back” model to drive rapid adoption of this clean technology. The emissions reduction will result from the retirement and destruction of gasoline-powered equipment. Incentives, community engagement, supportive services, and program administration enable this GHG reduction strategy to succeed.

### Foundation of LEEP Strategy

In the Chicago region, there is momentum towards climate pollution mitigation, electrification, and sustainability that creates fertile ground for the success of the LEEP program. At the state level, Illinois has enacted the Climate and Equitable Jobs Act (CEJA) that has created robust policies and funding mechanisms that are driving beneficial electrification of buildings and transportation. The region’s electric utility, ComEd, recently released its Beneficial Electrification Plan which will invest $92 million over 3 years in building electrification, EVs and EV charging infrastructure.

In 2021, the Caucus pioneered regional climate planning with the award-winning [Climate Action Plan for the Chicago Region](https://mayorscaucus.org/climate-change/) (CAP) which also recommended strategies for reducing greenhouse gas emissions (GHG) through fleet electrification. The CAP set a GHG reduction target of at least 80% emissions reduction (over 2005) levels by 2050. This award-winning plan set an aspirational goal of net zero emissions by 2050. These goals have been endorsed by the 33 of the Caucus’ member municipalities.

**As the CPRG lead for the Chicago MSA, the Caucus authored the Priority Climate Action Plan to include this authorizing priority strategy under the Decarbonize Transportation objective, (DT15) “*Transition landscaping equipment to low and zero-emission models.”***

This strategy was additionally prioritized by the Lake Michigan Air Directors Consortium (LADCO) which commissioned the study, Control of Ozone Precursor Emission in the Great Lakes Region in 2021.[[3]](#footnote-4) (See Section 4.3 Gasoline Small Off-Road (SORE) Equipment of this report, linked). The study evaluated control options based on feasibility, cost-effectiveness, public acceptance, durability, and verifiability. In the SORE category, LGE were shown to produce 73% of NOx emissions. The report recommends regulation of gasoline powered LGE and incentivizing electric LGE as strategies to reduce harmful ozone precursors. These recommendations are incorporated into LEEP.

### Program Design

This buy-back program model has been demonstrated by the [Diesel Emission Reduction Act Rebate Program](https://www.epa.gov/dera/rebates) for equipment and buses The [California Clean Off-Road Equipment (CORE)](https://californiacore.org/resources-professional-landscape/) program has successfully replaced 27,000 gas-powered landscape tools with electric ZEE. While the program model is proven, there has never been a buy-back program for LGE in Illinois. Two local governments, the [City of Naperville](https://www.naperville.il.us/government/environmental-sustainability-in-naperville/sustainability-incentives-and-rebates/) and the [City of Elgin](https://www.cityofelgin.org/2542/Rebate-Programs), have both operated limited, successful programs providing $50 incentives to residents who show proof of purchase of an electric lawn mower. Under the U.S.EPA-funded Clean Air Counts program in 2007-2009, the Caucus successfully operated both residential-scale gas can and lawn mower exchange program, and a DERA-funded school bus rebate program.

The reliance on tax credits in the IRA, and on rebates thorough the IRA, state, and utility programs, is the foundation of our assumption that financial incentives will drive consumers to purchase new zero emissions LGE. Market research underscores this assumption.[[4]](#footnote-5) We therefore propose to use rebates/incentives to drive ZEE adoption to replace gas LGE to achieve GHG reductions.

The Caucus partnered with LADCO to estimate LGE activity and GHG, CAP, and HAP emissions by county for the Chicago area using the U.S. EPA Office of Transportation and Air Quality Motor Vehicle Emission Simulator: MOVES4 (See Section 2A of this proposal and the Technical Appendix).

Through this analysis, the project team prioritized residential mowers [*4-Str Lawn mowers (res) and 4-Str Lawn & Garden Tractors (res)*] which account for 82.04% of all CO2 emissions, 52.69% of VOC emissions, and 79.20% of NOx emissions from residential LGE. Across all categories there are 5.5x more residential LGE units than commercial units.

Through consultation with five solid waste agencies and the Illinois Sustainable Technology Center who have expertise in household hazardous waste (HHW) disposal and residential drop-off recycling events, we propose to collect residential gas mowers through one-day buy back/take back events to be operated periodically throughout the region, with a focus on service to LIDAC. Program participants will be given a voucher or rebate to be used to purchase a replacement clean electric mower.

LADCO’s analysis also found that across all equipment categories commercial LGE has 3.6x more use hours than residential units. The high duty cycles of commercial equipment result in 5.3x, 7.1x, and 4.8x the emissions for CO2, NOx, and VOC respectively, relative to residential.

This analysis identified commercial riding mowers and tractors [*4-Str Commercial Turf Equipment (com) and 4-Str Lawn & Garden Tractors (com)*] as the source of the greatest emissions in the commercial LGE category. These categories account for 50.89 % of CO2 emissions, 37.88% of VOC emissions, and 21.72% of NOx emissions in the commercial LGE category.

However, selecting from the diversity of LGE equipment in the commercial sector must also be based on equipment performance, availability, charging needs, power equivalencies, noise, ease of use and feasibility in the commercial setting. Due to the community pressure to ban or phase out gas-powered leaf blowers, adoption of electric leaf blowers may be the most rapid among “hand-held” or smaller types of LGE. The HAP emissions just from commercial leaf blowers is significant, too. The proportion of emissions from gasoline leaf blowers is 2.06% of CO2 emissions, 1.73% of VOC emissions, 10.90% of NOx emissions, and 10.90% of HAP emissions in the commercial LGE category. However, ILCA also advises that current models of commercial electric leaf blowers do not perform well with heavy spring and fall workloads. Contractors may still require supplemental seasonal use of gasoline powered leaf blowers. Commercial electric chainsaws perform well and are likely to be adopted.

Though consultation with the [American Green Zone Alliance](https://agza.net/) (AGZA), a national organization with deep expertise in landscape equipment electrification, ILCA, and Farmworkers and Landscape Advocacy Project (FLAP) we propose to operate commercial equipment buy-back events in conjunction with specialized industry events for professional landscaping companies, and community-focused events for small, Latino-owned landscape companies. Equipment manufacturers and their distributors will be invited to support point-of-sale rebates and onsite equipment take back, though those relationships and processes that will be established in the LEEP planning phase. Buy-back may occur at events or on a continuous basis through equipment distributors.

### LEEP Partners

The Caucus will convene partners and stakeholders to plan the details of LEEP upon receiving the CPRG grant, to design program details and assign roles to subrecipients and manage subawards. These partners below have participated in the development of this LEEP proposal and will be involved in implementation. Some will provide in-kind services and others will be subrecipients. See attached letters of commitment, partner resumes, bios, and CVs, and the budget for details.

**Partner and their associated expertise:**

**Emissions:** Lake Michigan Air Directors Consortium (LADCO)

**Electrification:** ComEd, Power Forward DuPage

**Public Health:** Respiratory Health Association, American Lung Association

**Collection, Disposal, and Scrappage:** Illinois Sustainable Technology Center (ISTC), DuPage County, Solid Waste Agency of Lake County (SWALCO), Solid Waste Agency of Northern Cook County (SWANNC), South Suburban College’s Center for Hard to Recycle Material (CHaRM), Cook County, other solid waste agencies

**Program Design:** Illinois Alliance for Clean Transportation (IACT), Regional Leaf Blower Working Group (City of Highland Park), Go Green Illinois

**Landscape Industry:** Illinois Landscape Contractors Association (ILCA), Farmworkers and Landscape Advocacy Project (FLAP)

**Policy Advisors:** ILCA, FLAP, Regional Leaf Blower Working Group

**LIDAC:** FLAP, Metropolitan Mayors Caucus member municipalities and Environment Committee, SWANCC, SWALCO, CHaRM and other solid waste agencies

**Latino Worker Engagement:** FLAP

The Caucus will conduct a competitive, compliant bidding and procurement process to secure the services of a contractor with experience managing LGE electrification programs for both residential and commercial sectors. Expertise will be needed to incentive program design, landscaper education, electric LGE performance, specifications, and distribution.

### LEEP Residential

Working with solid waste agencies, including those with authority to collect, process and manage household hazardous waste (HHW), the Caucus will design effective residential lawn mower take-back events. Study and planning will be done to determine the best timing, site design, communications, staffing and logistics for local residential lawn mower collection. These events will be integrated into scheduled events occurring throughout the year, such as in the spring and fall. Facilities with year-round drop off capabilities may add lawn mower take-back services as practical. Partnerships with solid waste agencies throughout the region will provide wide access to community residents, inclusive of LIDAC.

With expert advisors, plans will be made for LGE collection, draining of gas and oil, collection of gas and oil, and disposal of metals and fluids. State and federal requirements for safe and compliant disposal will guide these plans. Plans for collecting, preparing, and scrapping LGE will be made, and contract specifications for scrappers and haulers will be drafted. Solid waste agencies will procure these services in a compliant process from local service providers, which will be funded through subawards.

All collected lawn mowers will be inspected and categorized by engine type, size, and performance characteristics so that emission reduction can be validated. A database of equipment types and emissions will be procured and standardized for all collection events. Collected equipment will be inventoried, documented, and emission reduction reports will be provided for each event. Contractors will be required to document compliant LGE destruction and scrappage of metals and waste materials.

Options for providing LEEP participant payments in the form of vouchers, rebates, or at the point of sale will be studied and evaluated. Some program models from California require participants to pay for electric mowers in advance and allow pick-up at the time the gas mower is collected. ComEd uses point of sale rebates for energy efficiency products with success. If arrangements can be made with cooperative retailers, LEEP will offer points of sale rebates. Other options for processing residential rebates include municipalities or qualified vendors. Online options will be preferred. Services for processing vouchers may be secured through subawards or through competitive procurement.

Outreach and education to encourage LEEP participation will be done by participating solid waste agencies and through the Caucus member municipalities, assuring LIDAC engagement. GoGreen Illinois, and municipal sustainability commissions will also assist with outreach and marketing.

### LEEP Commercial

Priority equipment types for commercial electrification well be riding/standing mowers and hand-held equipment including leaf blowers, chainsaw, and trimmers. LADCO analysis showed that multiple types of hand-held LGE should be targeted for replacement to meet emissions targets. Landscape companies and landscape workers will make choices for ZEE equipment that best suit their needs. Equipment targeted for incentives may adapt to these needs over LEEP’s 5-year performance period. Landscape industry partners also advised the inclusion of adequate batter and charging capability to realistically make one-to-one equipment replacement. Consideration for duty cycle, lack of access to mobile charging and the design of equipment trailers and operations is essential. Otherwise, zero emission LGE cannot be successfully used in commercial landscape operations. For these reasons, LEEP will include rebates for battery kits and spare batteries for hand-held and backpack leaf blower purchases.

With contracted expertise and the partnership of the ILCA and FLAP, a refined list of suitable equipment models and features will be made. It will be important to have the needs of landscape contractors prioritized to maximize LEEP program participation and deliver on proposed outputs and outcomes. These partners and experts will work with manufacturers and distributors to design LGE take-back and voucher/rebate payment processes. If possible, point of sale rebates/vouchers are preferred. If point of sale transactions are not possible, a partner would be retained as a subrecipient to process vouchers, or a qualified vendor would be competitively procured to do this job. CPRG funds would be used to reimburse distributors or other organization that processes vouchers/rebates.

Special consideration will be made to support the participation of small, Latino businesses. This may include developing cooperative relationships with local credit unions and lenders to support the unique financial needs of these small, disadvantaged businesses. Enhanced incentives may be made available to businesses operating from LIDAC. All materials will be available in both English and Spanish.

Collection of gasoline and diesel LGE will be tailored for the landscape industry. ILCA holds about 25 professional landscape industry events that are attended by 11,500 people annually. Event such as ILCA’s summer field days and off-season I-Landscape conference offer natural opportunities for equipment take back and immediate purchase, as equipment distributors are present with products and information. On-site equipment exchanges at points of sale may be possible. With expert advisors, plans will be made for LGE collection, draining and collection of gas and oil, and safe and compliant disposal of metals and fluids. The Caucus will procure these services contractually using EPA compliant processes. All collected LGE will be inspected and inventoried, as with the residential LEEP process above, so that emission reduction can be validated and reported.

Unique to the commercial program will be contractor and operator education. Since power, performance, safety, customer expectations, and return on investment are paramount to landscape business owners, expert training in both English and Spanish will be broadly offered to help them make decisions about LGE fleet electrification. Another unique feature of Commercial LEEP will be technical assistance and rebates for companies to assess electrical capacity and improve safety for large scale commercial LGE charging at their facilities. Limited rebates will be made to do “make-ready” electrical work, to be performed by union electricians. Small, Latino firms in LIDAC will be prioritized for this assistance. For landscape workers, performance, safety and comfort, job quality and operation are paramount. Extensive, tailored training will be offered in English and Spanish in both the classroom and in the field to assure adoption of and satisfaction with ZEE. FLAP will support extensive outreach to Spanish-speaking landscapers through their Community Navigator program.

ILCA will promote LEEP through their digital and print member communications broadly reaching 20,000 members and stakeholders. Eight hundred landscape companies are member of ILCA. Through bilingual Community Navigators, FLAP will drive deeper ZEE adoption by small Latino-owned landscape companies that are likely to possess older, potentially less efficient gasoline and diesel-powered LGE. FLAP will promote LEEP through dozens of Know-Your-Rights presentations designed to educate landscape workers in predominantly Latino LIDAC communities. FLAP will also secure Spanish radio and print media advertising to encourage Latino participation in LEEP.

See Section 3C, for key project milestones and LEEP Implementation Timeline relative to Outcomes and Outputs that are detailed in Section 3A.

### LEEP Risks and Risk Mitigation

LEEP could be delayed in reaching its objectives due to several unknowns in both the residential and commercial programs. For this transformative new program, LEEP partners will need to develop expertise in collecting LGE and processing for scrappage. A review of authority and processes to responsibly drain fluids from LGE and properly dispose of it will be needed for the program to begin. Partners from ISTC, hazardous waste facilities, and other solid waste agencies will do research to fully understand authorities, identify vendors, and establish guidance for scrappage practices.

Another unknown is how program participants will be paid their rebate or voucher. A review of LGE incentive programs nationwide show a variety of models that only pay incentives for purchase and do not require equipment destruction. Other program models put the responsibility for draining oil and gas and scrapping old equipment on the consumer. Program models from the energy efficiency sector show success with point of purchase rebates. However, this processing of vouchers/rebates/incentives needs further planning and capable partners need to be identified and brought on as subrecipients or subcontractors, following compliant procurement.

Finally, the commercial landscape industry may not be incentivized to make the switch at the LEEP rebate/incentive rates we propose. California programs offer 75-80% of the cost of new electric equipment. At this rate, our program cannot demonstrate cost effectiveness. We are proposing commercial incentives at 50% of the cost of new electric equipment and full cost for battery packs and chargers. The Caucus will work with partners to design a strategic rebate program and will adjust the rates to successfully deliver program outcomes and outputs.

## B. Demonstration of Funding Need

No other state, federal or electric utility funding source has yet been identified that could support region wide LGE electrification. Diesel Emissions Reduction Act (DERA) grants support decarbonization of school buses, agricultural and construction equipment and the Clean Ports Program supports freight equipment and processes. DERA does not support diesel landscape equipment.

Through the National Electric Vehicle Infrastructure program (NEVI) funding is available for electric vehicle (EV) charging infrastructure. [Illinois also funds EV rebates and grants](https://idot.illinois.gov/transportation-system/environment/drive-electric.html) for EV charging from sources including state fund, NEVI, and VW settlement funds. LGE is not eligible for these programs.

The Caucus has been actively monitoring funding opportunities to electrify LGE. In 2023, we pioneered the [EV Readiness Program](https://mayorscaucus.org/initiatives/environment/becoming-ev-ready/) to support local governments in adopting policies and practices to accelerate transportation electrification. This work complements our LEEP program design and establishes our partnerships. Funding of $200,000 for EV Readiness is provided by ComEd’s beneficial electrification investments, but funds cannot be used for the LGE electrification. We submitted a Charging and Fueling Infrastructure grant (NEVI) request in June 2023 for $15 million for EV charging infrastructure in 37 communities but our request was declined. The Caucus received a Congressionally Directed Spending award of $500,000 (Fiscal Year 2023 Omnibus Appropriations Act), for “Municipal EV Readiness” through FHWA, but funds have not yet been awarded. Again, LGE is not eligible.

Under the IRA (section 45W) credit for qualified commercial clean vehicles (QCCV) could provide a maximum tax credit of $7,500 for a QCCV with a gross vehicle weight rating of less than 14,000 pounds, such as commercial lawnmowers. However, IRA language was unclear about the definition “mobile machinery” and how commercial landscape equipment could comply, as they have no “VIN” numbers. As of December 2023, the IRS was accepting comments (Notice 2022-56) about section 45W rules. According to the National Association of Landscape Professionals[[5]](#footnote-6), this uncertainty about eligibility, will probably delay company owners from investing in ZEE. However, should commercial lawnmowers be confirmed eligible, electrification will accelerate, especially when stacked with rebates through LEEP.

The Illinois Climate and Equitable Jobs Act, signed into law in 2021 required electric utilities to prepare Beneficial Electrification (BE) plans to speed the transition to electric building and vehicles, especially for equity-eligible communities. ComEd’s BE Plan is now approved by the Illinois Commerce Commission and [new rebate programs are underway](https://www.comed.com/news/news-releases/2024-02-08). Of $63 million available for commercial and industrial electrification, including forklifts and industrial processes, nothing is allocated for LGE. Of the $15 million allocated for residential electrification, only home appliances, EVs and EV chargers are eligible. Nothing is offered for residential LGE either. While nothing is yet available, ComEd has expressed a willingness to consider LGE in future BE programming. See attached letter of commitment from ComEd.

The cost to electrify, including equipment, batteries, and electrical upgrades to support both mobile and onsite charging presents a significant economic barrier to the landscape industry. This is especially true for the small, sole proprietorships, the majority of which are Latino-owned. As markets and local regulations begin to pressure companies to use zero emission electric equipment, these small businesses will be left behind. On the other hand, investment in electric LGE will support the growth of both small and large landscape companies which contributes $7.2 billion to the IL economy.[[6]](#footnote-7)

The following costs for both commercial and electric equipment alternatives were provided by ILCA and AGZA in consultation with landscape equipment distributors.

## C. Transformative Impact

As noted in Section 1B, Demonstration of Funding Need, above, no grant funds are identifiable that could accelerate the transition of lawn and garden equipment to clean electric. Yet the potential significant benefits for this transformation are GHG reduction, CAP, HAP and noise pollution reduction, and health equity benefits to LIDAC. Seven percent of the region’s anthropogenic VOC emissions come from LGE.[[7]](#footnote-8) Investment of CPRG funds would create momentum and transform the LGE market to clean electric. As a novel program, environmental outcomes can be attributed to CPRG investment.

The Outdoor Power Equipment Institute (OPEI) estimates[[8]](#footnote-9) that ZEE currently makes up 37% of the residential market share nationally. Local information for the Chicago market is not available. Consumer Reports shows that electric LGE is often more reliable, cheaper to own, and less disruptive to communities and workers[[9]](#footnote-10). Therefore, a relatively modest investment in in electric LGE can spark rapid adoption. If sustained, gas-powered LGE could be driven out of the residential market by 2050.

In some communities that are well-served with recycling services, residents are highly motivated to participate in one-day recycling events that allow them to drop off items such as electronics, household chemicals, hazardous materials, scrap metals, foam plastics, and wood. Will County, home to 93 LIDAC areas, staff report that about 1,000 vehicles carrying materials for recycling and reuse are received at their annual Recyclepalooza. The SWALCO which serves 160 LIDAC areas, hosts 20-30 drop-off recycling events serving 4,000 – 5,000 households annually. We assume the popularity of drop-off recycling predicts strong participation in the residential LGE take back/buy back events.

In the commercial sector, utilization of ZEE is much more modest. The OPEI does not publish or share commercial market share information. Other industry sources estimate 5-7% or commercial LGE is currently electric.[[10]](#footnote-11) Customer demands and protection of worker health drives the interest in landscape equipment electrification, but investment and support is needed to spark market transformation. LEEP will offer commercial landscapers more strategic and generous incentives to accelerate this transition. LEEP will invest in batteries, charging, electrical work, training, and marketing for both landscape companies and their customers to make the transition to ZEE positive and effective. Peer experiences and outcomes, both through the ILCA and FLAP will be shared.

The assumption that financial incentives result in market transformation follows the premise of IRA consumer and business tax credits, including direct pay, to drive adoption of clean energy and decarbonization technologies. After the IRA EV tax credits took effect, companies have announced at least 31 new battery manufacturing projects in the U.S., which is enough to support the manufacture of 10 to 13 million EVs per year. The U.S. battery production pipeline is now growing faster than in Europe or China.[[11]](#footnote-12) Illinois is investing heavily in incentives and rebates to meet the clean energy goals of the Climate and Equitable Jobs Act (CEJA). Over a 10-year period, Illinois will invest $7.91 billion to reach the CEJA goal of 40% renewable energy by 2040 and $2.2 billion to reach the goal of 1,000,000 EVs by 2030.

# Impact of GHG Reduction Measures

**Of total emissions in the Chicago region, LGE accounts for 1.7% of all CO2, 2.4% of NOx, and 7.1% of VOC emissions**. With expert partners, the Caucus is designing LEEP to provide durable, quantifiable GHG reduction effectively and equitably. LEEP will reduce CO2 emission by 10,735 tons/year (9,738.63 metric tons/year). Annual Chicago region emissions reduction through LEEP will be 0.02% CO2, 0.02% NOx, and 0.1% VOC.

### Magnitude and Durability

Replacement of gasoline LGE with electric units is assumed to be a permanent shift in consumption habits for both residential and commercial equipment users. We assume that as users overcome the perception and cost barriers of adopting electric LGE, in part incentivized by LEEP rebates, that they will continue to use and purchase electric LGE in the future. We also assume that this change in LGE consumption and use habits will be highly durable with a low likelihood of users moving back to gasoline-powered equipment resulting in permanent market transformation. We base this durability assumption on data showing that electric LGE is often more reliable, cheaper to own, and less disruptive to communities and workers[[12]](#footnote-13).

The Caucus will also drive adoption and reinforce durable transformation by employing “trusted messengers” in the environmental justice community and within the landscape industry. Supporting FLAP’s bilingual Community Navigators will drive deeper adoption through networks of small Latino-owned landscape companies that are likely to possess older, potentially less efficient gasoline and diesel-powered LGE. The ILCA will support deeper adoption across the professional landscape companies with product demonstrations, peer learning and mentoring.

Both durability and magnitude will be enhanced with supportive services that will enhance LGE electrification. These include extensive professional education, demonstration, and support, including bilingual services. The paramount feature of LEEP is the permanent replacement of gasoline powered LGE through documented collection, destruction, and EPA-compliant disposal of old LGE. This permanent GHG, CAP and HAP reduction will occur as documented “buy-back” transactions in both the commercial and residential markets.

Another feature of LEEP will assure increasing and durable LGE electrification through local policies regulating gasoline leaf blowers. The Regional Leaf Blower Working Group, comprised of civic leaders and representatives of the landscape industry, analyzed existing and proposed local regulations from about 20 municipalities in the Chicago region. Some municipalities have imposed moderated and seasonal leaf blower regulations. Two communities have banned the use of gasoline powered leaf blowers with unintended and unequitable consequences on Latino landscape workers and company owners. The Working Group proposes compromise regulations that protect communities and allow landscape companies 3-5 years to transition to clean, quiet electric leaf blowers.

LEEP will ensure durable emissions reduction by promoting tailored, template local LGE ordinances that balance both community and landscape industry needs with market and enforcement constraints. LEEP buy-back incentives will dovetail with this permanent policy shift to create more impactful and permanent emissions reductions.

A. Methodology and Documentation of GHG Reduction Assumptions

The Lake Michigan Air Directors Consortium (LADCO) estimated LGE activity and GHG, CAP, and HAP emissions by county for the Chicago area using the U.S. EPA Office of Transportation and Air Quality Motor Vehicle Emission Simulator: MOVES4. Year 2020 activity data for the MOVES simulations came from U.S. EPA’s MOVES-Nonroad in default scale mode for county emissions. LADCO ran the emissions by source classification code (SCC) and equipment type with all activity data available. LADCO used the standard U.S. EPA post processing scripts to extract the results. Equipment categories (by SCC) were validated with assistance from ILCA.

To estimate the GHG emissions reductions from LEEP’s buy-back strategy we assumed that the replacement of a gasoline-powered LGE unit with an electric unit would reduce the GHG emissions to zero. The scenario is built around MOVES results that estimate LGE sources for commercial and residential units of different types.

Methodologies and assumptions for each target period are described below. See GHG Emission Reduction Calculations spreadsheet attached.

## B. Magnitude of GHG Reductions from 2025-2030

LEEP elements focus on LGE categories that have both emissions reduction potential and plausible implementation feasibility. **The cumulative impacts of the LGE buy-back program for the 2025-2030 period is 9,738.62 metric tons (10,735 tons) of CO2 reduced.** This impact will be realized across the entire period that the grant funding is available through LEEP to incentivize equipment replacement in the Chicago area. We can assume that the first year of the program will see less emissions reductions as LEEP is initiated, set-up, and publicized. Starting in year two, once the programmatic and logistical infrastructures are in place to run the buy-back program, we anticipate realizing steady emissions reductions as the grant funding is used to replace and scrap gas-powered LGE with ZEE.

All-residential equipment: we estimated the baseline emissions for residential LGE equipment by summing the GHG, CAP, HAP pollutant emissions across all equipment types identified as residential by MOVES. The table below shows the estimates of baseline 2020 residential LGE emissions, the cumulative 2025-2030 emissions reductions, and annual 2025-2030 emissions reductions for the seven Chicago area counties.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Residential** | Pollutant | Baseline 2020 tons | Cumulative tons | Annual tons |
|  | CO2 | 149,260 | 4,660 | 932 |
|  | NOx | 300 | 9 | 2 |
|  | VOCs | 1,970 | 60 | 12 |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Residential** | Pollutant | Baseline 2020 metric tons | Cumulative metric tons | Annual metric tons |
|  | CO2 | 135,407 | 4,227 | 845 |
|  | NOx | 272 | 9 | 2 |
|  | VOCs | 1,787 | 54 | 11 |

Commercial hand-held equipment: as with the all-residential equipment category, we summed the emissions for the units estimated by MOVES as commercial gasoline hand-held equipment. We defined hand-held equipment as the following MOVES equipment types: 2-Str Leaf blowers/Vacuums (com), 2-Str Trimmers/Edgers/Brush Cutter (com), 2-Str Chain Saws < 6 HP (com), 4-Str Leaf blowers/Vacuums (com). The table below shows the estimates of baseline 2020 commercial hand-held LGE emissions, the cumulative 2025-2030 emissions reductions, and annual 2025-2030 emissions reductions for the seven Chicago area counties.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Comm hand-held** | Pollutant | Baseline 2020 tons | Cumulative tons | Annual tons |
|  | CO2 | 102,830 | 2,570 | 514 |
|  | NOx | 220 | 6 | 1 |
|  | VOCs | 4,340 | 110 | 22 |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Comm hand-held** | Pollutant | Baseline 2020 metric tons | Cumulative metric tons | Annual metric tons |
|  | CO2 | 93,286 | 2,331 | 466 |
|  | NOx | 200 | 5 | 1 |
|  | VOCs | 3,937 | 100 | 20 |

Commercial mowers and tractors: as with the all-residential equipment category, we summed the emissions for the units estimated by MOVES as commercial gasoline mowers and tractors. We defined commercial mowers and tractors as the following MOVES equipment types: 4-Str Rear Engine Riding Mowers (com), 4-Str Front Mowers (com), 4-Str Lawn mowers (Com), 4-Str Lawn & Garden Tractors (com), 4-Str Commercial Turf Equipment (com). The table below shows the estimates of baseline 2020 commercial tractor mowers LGE emissions, the cumulative 2025-2030 emissions reductions, and annual 2025-2030 emissions reductions for the seven Chicago area counties.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Comm Tractor** | Pollutant | Baseline 2020 tons | Cumulative tons | Annual tons |
|  | CO2 | 479,450 | 3,500 | 700 |
|  | NOx | 1,190 | 9 | 2 |
|  | VOCs | 2,610 | 20 | 4 |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Comm Tractor** | Pollutant | Baseline 2020 metric tons | Cumulative metric tons | Annual metric tons |
|  | CO2 | 434,950 | 3,175 | 635 |
|  | NOx | 1,080 | 8 | 2 |
|  | VOCs | 2,368 | 20 | 4 |

**Cumulative all categories (SCC) of LGE targeted for replacement through LEEP.**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Cumulative** | Pollutant | Baseline 2020 tons | Cumulative tons | Annual tons |
|  | CO2 | 731,540 | 10,730 | 2,146 |
|  | NOx | 1,710 | 24 | 5 |
|  | VOCs | 8,920 | 190 | 38 |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Cumulative** | **Pollutant** | **Baseline 2020 metric tons** | **Cumulative metric tons** | **Annual metric tons** |
|  | **CO2** | **663,643** | **9,734** | **1,947** |
|  | **NOx** | **1,551** | **21** | **4** |
|  | **VOCs** | **8,092** | **172** | **38** |

## C. Magnitude of GHG Reductions from 2025-2050

The cumulative impacts of the LGE program for the 2025-2050 period can only be forecast qualitatively due to the uncertainty of funding and market forces that will prevail after the incentives from LEEP end in 2029. The market for electric LGE is already rapidly evolving. Representatives of the outdoor power equipment industry were unable to provide ZEE adoption forecasts for the period requested. But the Outdoor Power Equipment Institute (OPEI) reports new product shipments of hand-held equipment (leaf blowers, etc.) were 63% electric in 2021. According to OPEI U.S. shipments of 5-6 million units of residential walk-behind (push) lawn mowers, have transitioned from 11% ZEE in 2016 to 37% in 2021.[[13]](#footnote-14)

The stimulus that the LEEP buy-back program will bring to the Chicago area LGE market during 2025-2030 will likely have the effect of increasing the pace of adoption and demand in the region. We anticipate that the incentives from this program will motivate operators to change over their equipment more rapidly than without the available funding. This program will thus provide demand stimulus that will signal original equipment manufacturers (OEMs) and suppliers of both residential and commercial electric LGE to ensure that sufficient supply is available to meet the rising pace of demand. We can expect that a competitive supply market will extend into the 2030-2050 period, and that the competition for sales will drive down prices and make adoption of ZEE more appealing to buyers.

In addition to the demand stimulus, the gasoline equipment scrappage component of LEEP will produce CO2 emissions reduction impacts that extend beyond the end of the initial grant period by ensuring that old gasoline LGE is permanently taken out of service. A buy-back program without scrappage would likely lead to a secondary market for the used gasoline equipment. Keeping the old gasoline equipment in-service would offset the CO2 emissions reductions from the new electric LGE. The scrappage component of LEEP will eliminate the CO2 emissions from the old equipment, some of which would be in-service for many years after 2030.

Other factors to consider in forecasting LEEP emissions reduction impacts into 2050 are the long life of the lithium-ion phosphate batteries to be supplied through LEEP. Conservatively, these batteries are rated for approximately 4500 to 5000 charge cycles with an impressive 80% depth of charge. Batteries in seasonal use for landscape LGE can be expected to be charged 200 cycles year. Therefore, batteries purchased through LEEP can be expected to last 20 years. By comparison, gasoline powered commercial lawnmowers have median life expectancy of 2 years and residential mowers have a median life expectancy of 5.9 years. [[14]](#footnote-15)

Assuming that components of ZEE LGE purchased through LEEP will last for at least 15 years, cumulative emissions reductions expected through LEEP are projected below.

|  |  |  |  |
| --- | --- | --- | --- |
| Pollutant | Baseline 2020 | 2026-2050 Emissions Reductions (metric tons) | |
| Cumulative | Annual |
| CO2 | 9,954,641 | 146,012 | 29,202 |
| NOx | 23,269 | 321 | 64 |
| VOCs | 121,381 | 2,585 | 517 |

## D. Cost Effectiveness of GHG Reductions

LEEP will realize CO2 reduction cost effectiveness over the period of performance as follows:

**9,739.76 metric tons/$37,407,000 = $3,841.04/metric ton** **CO2 reduced**

**(10,735 tons/ $37,407,000 = $3,484.54/ton CO2 reduced)**

LEEP is designed for optimal ZEE adoption and maximum verifiable emissions reductions. Equipment rebates for contractors must include battery and charging equipment. These costs are the key barrier to adoption and battery costs can be up to 4x the cost of the equipment. The battery budget item is expensive and necessary. Costs for residential LEEP are much lower and this portion of the program is highly cost-effective. The Caucus is proposing a strategic mix of ZEE and market sector targets to optimize cost-effectiveness.

The Caucus will leverage considerable expertise of partners and contractors, as well as our own organizational resources to optimize LEEP cost-effectiveness. Using existing networks, expertise, and resources of HHW and drop-off recycling events, residential LEEP costs are relatively low. Partnerships with both ILCA and FLAP will keep outreach and operational costs for the commercial LEEP relatively low. The budget reflects a highly efficient overall administrative cost rate of 18%. Notably, an expected 65% of the LEEP budget is expected to directly benefit low-income persons and communities of color.

For comparison, the statewide $27 million California CORE program[[15]](#footnote-16) invested and replaced 27,000 tools and provided 30,000 batteries, but did not require verified, safe destruction of old gasoline equipment. LEEP aims to replace 81,515 gas-powered tools and provide 3,686 batteries for commercial hand-held ZEE for the total budget of $37,407,000. We are also proposing more modest rebates/incentives for LEEP than CORE did to improve cost effectives. We believe we can achieve results in the commercial sector with rebates at approximately 50% of the cost of equipment and 80-100% of the cost of batteries and charging. However, we will adjust LEEP rebate amounts to achieve targets.

# Environmental Results – Outputs, Outcomes, and Performance Measures

Outputs will be achieved by the conclusion of the 5-year CPRG grant period through LEEP. Outcomes will occur both within the CPRG grant period and beyond.

## A. Expected Outputs and Outcomes

**Outcome 1:** **Reduction of GHG, air and noise pollution in the Chicago region**

Output 1a: Cumulative reduction of CO2 emissions by 9,739.76 metric tons (10,735 tons)

Output 1b: Cumulative reduction of NOx emissions by 21 metric tons (24 tons) and VOCs by 172 metric tons (190 tons)

Output 1c: Reduction of noise pollution to participating landscape workers by at least 40%

Output 1d: Reduction of exposure to pollutants to members of LIDAC communities

Output 1e: Cumulative reduction of HAP as in chart below

|  |  |  |  |
| --- | --- | --- | --- |
|  |  | 2026-2050 Emissions Reductions (tons) | |
| **Species** | **2020 Emissions (tons)** | **Cumulative** | **Annual** |
| Acetaldehyde | 135 | 3 | 1 |
| Toluene | 15,933 | 339 | 68 |
| Xylene | 16,088 | 343 | 69 |
| Benzene | 16,942 | 361 | 72 |

**Outcome 2:** **Removal of gasoline and diesel-powered LGE from service**

Output 2a: Methodology for safe and compliant collection, destruction, and disposal of old LGE components established

Output 2b: Removal of 76,826 residential gasoline-powered lawn mowers from service

Output 2c: Removal of 1,003 commercial gasoline or diesel-powered lawn mowers from service

Output 2d: Removal of 3,686 commercial gasoline-powered hand-held LGE from service

Output 2e: Safe, compliant, documented disposal of 81,515 units of petroleum fueled LGE

**Outcome 3: Engagement of diverse community members in Landscape Equipment Electrification**

Output 3a: Education of to 400,000 Latino landscape company owners and workers and about health and safety benefits of ZEE

Output 3b: Education of up to 20,000 landscape professionals about LEEP and ZEE through print, digital and in-person educational events

Output 3c: Training of up to 1,000 landscape workers in the safe and effective operation of ZEE in classroom or in the field

Output 3d: Engagement of at least 85,000 residents in lawnmower buy back events region wide

**Outcome 4: Establishment of equitable and enforceable local policies to reduce air and noise pollution from gasoline powered leaf blowers and encourage adoption of ZEE**

Output 4a: Development and distribution of template municipal leaf blower regulations

Output 4b: Development of template local government procurement specifications for ZEE for landscape maintenance services

Output 4c: Adoption of policies to accelerate transition to landscape ZEE in at least 12 communities

**Output 5: Semi-annual progress reports and final reports submitted to U.S. EPA on time.**

B. Performance Measures and Plan

The Caucus will lead completing LEEP tasks to achieve expected outputs and outcomes. We will establish subaward agreements and lead subrecipients in completing tasks to achieve LEEP expected outputs and outcomes. We will secure contractual services through EPA compliant procurement processes to assist in achieving expected outputs and outcomes. The Caucus will monitor progress, oversee outputs, subaward and subcontract expenditures, and report results completely, and in timely manner as required by U.S. EPA. We will track metrics to measure progress towards these objectives and outputs. Metrics will be both tracked by Caucus staff and collected from subrecipient partners and subcontractors and maintained in databases and electronic files. Performance metrics will be shared with stakeholders and reported to the EPA in required semi-annual progress reports and final report.

### Plan for tracking performance metrics:

**Outcome 1:** **Reduction of GHG, air and noise pollution in the Chicago region**

Output 1a&b: Cumulative reduction of emissions

Plan: Document removal of gasoline LGE from service by number of units and specific characteristics. Create an emission profile for each type. Calculate emission reductions from emission database and collected equipment inventories.

Output 1c: Reduction of noise pollution

Plan: Calculate noise output ratings from ZEE and number of units in use.

Output 1d&e: Reduction of pollution risk to LIDAC

Plan: Monitor CAP and HAP emissions using the National Emissions Inventory. Include changes in emissions in second semi-annual progress report.

**Outcome 2:** **Removal of gasoline and diesel LGE from service**

Output 2a: Establish methodology for collection, destruction, and disposal of old LGE

Output 2b,c,d: Removal of gasoline or diesel-powered LGE from service

Plan: Inventory, evaluate, verify each unit of LGE received at buy back events.

Output 2e: Safe, compliant, documented disposal of old LGE

Plan: Reports from partners and contractors conducting collection events. Certificate of destruction and compliant disposal from contractors.

**Outcome 3: Engagement of diverse community members in LEEP**

Output 3a, b, c: Education and training of landscape business owners and landscape workers

Plan: Track and report registration and attendance at educational and training events. Track and report distribution of print materials, number of impressions of print, digital media, and Spanish radio advertisements.

Output 3d: Engagement of residents in lawnmower “buy back” events

Plan: Track and report online appointments for collection events. Track and report buy back participation numbers and metrics.

**Outcome 4: Establishment of local policies**

Output 4a &b: Development and distribution of template regulations and policies

Plan: Develop and distribute template ordinances and procurement specifications

Output 4c: Adoption of policies to accelerate ZEE in at least 12 communities

Plan: Ask municipalities to report adoption of policies to the Caucus. Monitor local news for policy deliberations and adoption.

Output 5: **Semi-annual progress reports and final reports submitted to EPA on time.**

C. Authorities, Implementation Timeline, and Milestones

Authorities

Overall, the Caucus will lead in developing and administering LEEP and will be responsible for the grant agreement with EPA. We will administer subawards and subcontracts under the authority of the Executive Board comprised of elected local government officials. We will be responsible for carrying out the LEEP program to reduce GHG and deliver outputs and outcomes as described above. The Caucus is the lead agency for CPRG for the Chicago MSA and the author of the PCAP. Therefore, we are overseeing subawards for the completion of Comprehensive Climate Action Plan and all deliverables for CPRG.

Partners will participate as subrecipients to achieve LEEP project outcomes and outputs. LADCO, a multi-jurisdictional organization will assist by tracking and monitoring emission reduction as described in Outcome 1. Solid Waste agencies and counties will be responsible for hosting collection events at which the collection and destruction of old LGE will occur as described in Outcome 2. These agencies are named under Section 1A, LEEP Partners, page 4. Solid waste agencies operate under the authority of counties or as intergovernmental agencies and have the authority to collect old LGE. Solid Waste Agency of Lake County (SWALCO) also has the authority to collect and manage HHW. Other agencies host Illinois EPA mobile HHW events. These agencies will also secure contractual services for hazardous waste management and scrappage.

Not-for-profit partner organizations including FLAP, ISTC and ILCA, named in Section 1A, LEEP Partners, page 4. have the authority to enter into subrecipient agreements with the Caucus under the authority of their respective Boards of Directors. These partners will be primarily responsible for Outcome 3. The Caucus will procure contractual services for program design, LGE and ZEE expertise, worker training, rebate/voucher processing.

Municipalities have authority to adopt ordinances and both municipalities and park districts have authority to adopt procurement policies for zero emissions landscape services, described in Outcome 4.

### Milestones

Key milestones needed for LEEP implementation are described here in more detail. These milestones relate to ongoing and straightforward tasks described in Outcomes and Outputs described in Section 3A and illustrated in the LEEP Implementation Timeline below. These are:

**Year 1**

* Complete U.S. EPA grant administrative tasks and secure grant agreement.
* Convene partners to establish scope of work and performance metrics for subawards
* Announce launch of LEEP
* Procure subcontractor for LEEP design and ZEE expertise.
* Design Residential LEEP buy back process
* Design Commercial LEEP buy back process
* Secure partner or subcontractor to process rebates/incentives
* Develop process for disposal of LGE at collection events.
* Develop process and procure subcontractor for commercial “make ready” electrical work
* Seek partnership with ZEE retailers, distributors, and manufacturers
* Begin Residential LEEP buy back to collect and replace 7,684 mowers (9% of target)
* Evaluate, measure, and report LEEP outputs

**Year 2**

* Outreach and ZEE training for landscape workers and landscape companies
* Public outreach for residential LEEP
* Operate 30 Residential LEEP buy back events to collect and replace 15,366 mowers (19%)
* Begin Commercial LEEP buy back to collect and replace 1,800 LGE units (2%)
* Evaluate, measure, and report LEEP outputs including LIDAC benefits

**Year 3**

* Ongoing outreach for commercial and residential LEEP
* Operate 40 Residential LEEP buy back events to collect and replace 23,045 mowers (28%)
* Operate Commercial LEEP buy back program to collect and replace 2,127 LGE units (2%)
* Draft and distribute template local ZEE policies
* Evaluate, measure, and report LEEP outputs

**Year 4**

* Ongoing outreach for commercial and residential LEEP
* Operate 50 Residential LEEP buy back events to collect and replace 23,045 mowers (28%)
* Operate Commercial LEEP buy back program to collect and replace 2,224 LGE units (3%)
* Evaluate, measure, and report LEEP outputs

**Year 5**

* Operate 15 Residential LEEP buy back events to collect and replace 7,686 mowers (9%)
* Operate Commercial LEEP buy back program to collect and replace 2,224 LGE units (3%)
* Outreach to landscape workers and landscape companies
* Evaluate, measure, and report LEEP outputs
* Submit final report and close-out documents to EPA

Implementation Timeline

**LEEP Implementation Timeline Related to Outputs and Outcomes**

The Caucus will lead partners and contractors to achieve LEEP outcomes and outputs according to this timeline. Reference Outcomes 1-5 and related Outputs in Section 3A, pages 14 -15.



# Low-Income and Disadvantaged Communities (LIDAC)

The Metropolitan Mayors Caucus is deeply committed to equity and serving low income and disadvantaged communities throughout the region. LEEP will enable the Caucus and its partners to focus resources to bring environmental, economic, and health benefits to serve vulnerable LIDAC populations. LEEP will bring significant benefits to residents of these communities who work in the landscape industry.

## A. Community Benefits

LEEP will offer benefits to 2820 census tracts and census block groups identified as LIDAC through the LIDAC analysis completed for the Chicago MSA PCAP. See LEEP Impacted LIDAC List, attached. The EPA-directed process to identify these LIDAC is described in the Chicago MSA PCAP, attached. LEEP will serve 7 Chicago metro counties plus communities of DeKalb and Rockford which is not part of Chicago MSA, for a total service area of 9 counties. This area has substantial LIDAC populations, and all will be invited to participate in LEEP. No disbenefits or harm to LIDAC are anticipated.

LEEP will provide community benefits directly to LIDAC in two substantial and verifiable pathways. First, reduction of GHG, CAP and HAP pollutants can be measured using the National Emissions Inventory (NEI) at county-level resolution. Section 2, Impact of GHG Reduction Measures and Section 3A and 3B Expected Output and Outcomes, of this proposal describe baseline and projected emissions for CO2, NOx, CAP, and HAP pollutants for the 7-county service area expected to benefit from LEEP. LADCO will provide interim and final reports measuring reductions in these pollutants over the period of the grant, as required. These data will be shared with municipal members, stakeholders and LIDAC.

Second, LEEP will directly benefit low income, disadvantaged community members, particularly the low-wage Latino landscape workforce throughout the Chicago region. There are an estimated 400,000 landscape workers of Latino heritage providing valuable services in the region. During the COVID pandemic, landscape workers were deemed essential. Through partnership with FLAP and ILCA, this LIDAC population will be broadly served with outreach and training. FLAP will publicize benefits of landscape electrification and LEEP benefits through Spanish-language radio, television, and print media. FLAP will incorporate information and health risks from gasoline powered LGE and promote ZEE into their extensive “Know Your Rights” and Community Navigator presentations in the Latino community throughout the region[[16]](#footnote-17). ILCA will further our reach to provide LIDAC benefits through engagement and education of their 20,000 members and stakeholders.

Finally, documentation of the buy-back exchange – one-for-one of gasoline powered LGE for ZEE provides clear attribution of LEEP benefits to members of LIDAC. For Residential LEEP, solid waste agencies will set up and publicize community LGE collection events which will both occur in LIDAC and equitably serve members of LIDAC. Many HHW events, especially for permanent locations like CHaRM (pending permit approval) and SWALCO (see Section 1, LEEP Partners p.4) require participation registration for appointment times to assure adequate staffing and resources. This process will allow LEEP to document benefits to LIDAC residents by address. Likewise, the necessary documentation of the incentive/rebate transaction will allow this same attribution of benefits to LIDAC.

Commercial LEEP will offer similar attribution of LEEP benefits to LIDAC, however LEEP incentives and services will be tracked to landscape businesses who will make ZEE purchasing and management decisions, rather than directly to landscape workers. The Caucus and partners will track commercial LEEP program participation including location of business operations and community of residence for their workforce, relative to LIDAC. As 60-80% of the landscape workforce in Illinois is Latino, substantial benefits from LEEP are expected to accrue to members of LIDAC. The landscape workforce will benefit from training in safe charging and operations of ZEE through partnership with IBEW, ILCA and an expert contractor. Again, the buy-back and exchange offers traceable attribution of LEEP benefits to the community of landscape workers. Benefits can then be measured as exposure to LGE tailpipe emissions are eliminated. With the help of a contractor and ISTC, the reduction of emissions by equipment type and duty cycle will be measured and documented. LEEP will be able to measure reductions in worker exposure to NOx, and VOCs including ALDX, TOL, XYLMN, and Benzene. Reduction in exposure to noise pollution will be measured with the assistance of a contractor, based on Db rating for gas LGE compared to ZEE, duty cycle and other factors[[17]](#footnote-18). By eliminating close range, prolonged exposure to high-emitting and noisy LGE, environmental and health benefits to landscape workers and members of LIDAC is expected to be substantial. Further, working conditions will be improved by using landscape ZEE, which is lighter, quieter and produces no odor while providing comparable or superior product performance.

## B. Community Engagement

The Metropolitan Mayors Caucus serves 275 municipalities in northeastern Illinois. Of these, 180 municipalities have been identified as LIDAC by the presence of qualifying census tracts or census block groups within their municipal jurisdiction. As a representative membership organization comprised of democratically elected public officials, we have exceptional engagement and connections to LIDAC community leaders and the constituents they serve.

The Caucus has led broader engagement with LIDAC in recent years, such as 2020 Census participation, COVID 19 response, and currently aids municipalities that are providing services to asylum seekers. We lead several committees that are open to elected officials, municipal staff, and designated civic leaders for ongoing, meaningful engagement of LIDAC leaders. These committees offer opportunities to work collaboratively towards consensus goals and innovative solutions to common community issues and challenges across the region. As previously described, the most relevant committees for LEEP are the Environment Committee, Energy Sub Committee, and the Diversity, Equity, and Inclusion Task Force.

Fifty-three Caucus member municipalities, of which 16 are LIDAC, and 122 other organizations were active in the development of the 2021 Climate Action Plan for the Chicago Region. That pioneering regional plan set goals for mitigation and adaptation that are rooted in equity. We conducted stakeholder engagement in the development of the Priority Climate Action for the Chicago MSA, as described the attached PCAP. Caucus members and additional stakeholders were engaged in setting Priority GHG Reduction Strategies, including this one that enables this proposal for LEEP, (DT15) “*Transition landscaping equipment to low and zero-emission models.”*

The Caucus developed consensus for this Priority Strategy many years before the PCAP was created. Our [Greenest Region Compact](https://mayorscaucus.org/initiatives/environment/rec/), the largest regional sustainability collaborative for municipalities in the US, creates formal consensus for sustainability goals including these goals – “*Maintain clean and healthful air*, and *Reduce greenhouse gas emissions”.* The Greenest Region Compact also articulates the strategy, “*Discourage the use of high-emitting small engines, such as for landscaping”.* These goals have formally been adopted through municipal resolution by 159+ municipalities and counties, 80 of which are LIDAC.

In addition, we engage with civic groups including Go Green Illinois which championed the Regional Leaf Blower Working Group referenced in this proposal. Our member municipalities also benefit from ongoing local engagement of community members through citizen commissions, groups of community residents who serve as formal, statutory advisors to local governments. The sustainability commissions are actively engaged in educating their fellow community members on sustainability and climate. They will be involved in promoting LEEP encouraging participation in residential lawn mower buy-back events and promoted local policies to encourage landscape ZEE adoption.

Engagement with low-income landscape workers will be new for the Caucus. Our partner, FLAP will provide expert, culturally sensitive community engagement in Spanish and English. FLAP staff and Community Navigators-Independent Contractors educate low-income workers about their rights in the workplace. They build upon relationships with churches, consulates, and organizations in the community to deliver “Know your Rights” presentations to groups of low-income workers. FLAP will connect directly with up to 400,000 Latino landscape workers to encourage engagement in LEEP. They will guide LEEP partners to understand the needs of these workers and help meet these needs.

# Job Quality

LEEP will create several high-quality, family-sustaining jobs for diverse individuals from LIDAC. LEEP will support union labor and workers’ rights. LEEP will also improve the working conditions for landscape workers across the region by reducing worker exposure to prolonged, close-range air pollution, notably HAPs occurring from the use of gasoline powered LGE. The Caucus will partner with FLAP, a non-profit organization that for 25 years has improved the working conditions for thousands of low-income workers in Illinois.

CPRG funding for LEEP will create approximately five Community Navigator jobs, which will pay $50 an hour. FLAP is known for hiring from within the diverse Latino communities it serves, which helps the organization to be more effective and responsive to communities’ needs. The jobs at FLAP offer competitive pay, including generous and comprehensive benefits, and career advancement opportunities. FLAP’s primary role as partner and subrecipient will be to engage Latino landscape company owners to access LEEP program benefits to improve working conditions for themselves and their employees. Latino landscape workers will be broadly educated, in the Spanish language, to learn about the health and job quality benefit of landscape ZEE and seek LEEP benefits through their employers to improve their working conditions.

The Caucus has an excellent relationship with the International Brotherhood of Electrical Workers (IBEW), who provides our EV Readiness Program cohort communities with specialized training and hosted our first cohort award ceremony. LEEP will provide incentives to landscape companies needing electrical “make-ready” work for large-scale equipment electrification. These LEEP incentives will support only union labor for this work.

There will be 2 positions created at the Caucus to support LEEP, as well as at multiple positions at one of our partner organizations or a contractor who will process vouchers/rebates. These jobs will comply with the Good Jobs Principles, including recruiting from underserved communities, providing a fair wage and benefits, and an organizational culture that values and respects employees.

# Programmatic Capability and Past Performance

## A. Past Performance

We have the ability to successfully complete and manage the CPRG implementation grant award. Staff have experience with SAM.gov, Grants.gov, and the Caucus has a UEI number. All required forms and attachments will be submitted as required. We have a history of meeting U.S. EPA reporting requirements. Below are federally funded assistance agreements that we have performed or are performing during the last three years:

1. CPR Planning Grant - Chicago MSA

Assistance agreement number: 00E03470

Federal funding agency: U.S. EPA, noncompetitive- no assistance listing number

Brief description: The Caucus created a Priority Climate Action Plan (PCAP) that incorporate a variety of measures to reduce GHG emissions in the Chicago MSA. A Comprehensive Climate Action Plan (PCAP) will be completed in 2025.

Contact from organization that funded the assistance agreement: Juan Morales

2. Chicago Metro REO Campaign

Assistance agreement number: pending (award letter received November 8, 2023.

Federal funding agency and opportunity number: U.S. EPA, EPA-I-OLEM-ORCR-23-02

Brief description: The Caucus is leading a collaborative recycling outreach and education campaign for northeastern Illinois, which includes 275 municipalities and seven counties. The campaign is leveraging expertise and knowledge of solid waste agencies, counties, and recycling organizations to educate and engage residents to increase collection and reduce contamination in the recycled materials stream.  
Contact from organization that funded the assistance agreement: Joshua Kotler

3. Building Capacity for Sustainability and Energy Literacy in Environmental Justice Communities

Assistance agreement number: 00E02867

Federal funding agency: U.S. EPA, noncompetitive (no assistance listing number)

Brief description: The project improved energy literacy, and built capacity for sustainability planning and programming in under-served communities throughout the Chicago region.

Contact from organization that funded the assistance agreement: Helen Mollsen

The Caucus has also received this non-federally funded assistance within the last three years:

4. EV Readiness Program

Brief description: The Caucus provides technical assistance and training to cohorts of communities to complete strategic actions to advance transportation electrification. These include streamlining codes and processes to address barriers to EV infrastructure installation, developing clear permitting processes for EV infrastructure, and engaging the community.

Organization that provided funding: ComEd

5. Optimizing Municipal Pathways to Engage Consumers in Smart Residential Energy Use

Brief Description: The Caucus educated consumers about energy through municipal communications channels, community events, the distribution of energy-saving products, and through work with utilities. We trained municipal staff and citizen commissioners to become energy efficiency ambassadors.

Organization that funded grant: Illinois Science & Energy Innovation Foundation (ISEIF)

The Caucus successfully managed the administrative requirements and funds for aforementioned grants. Progress reports, deliverables, and metrics were completed on time.

B. Reporting Requirements

We have a history of meeting reporting requirements for EPA grants and other grants and contracts.

For the grants mentioned in the previous Past Performance section, the Caucus completed required reporting on grant performance related to grant outputs and outcomes. Reports were submitted on time, including final technical reports. Some results from the projects follow.

1. For the CPR Planning Grant - Chicago MSA, we completed the PCAP by the March 1, 2024, deadline. All quarterly reports and administrative requirements were completed on time

2. The Chicago Metro REO Campaign was recently awarded though the grant agreement is not yet finalized. The Caucus and partners plan to submit performance reports related to grant outputs on time.

3. For the Building Capacity for Sustainability and Energy Literacy in Environmental Justice Communities grant, we accomplished four out of six tasks. The Greenest Region Corps members accomplished the following tasks for this grant: researching energy efficiency programs and compiling communications materials about these programs on a webpage, assisting municipalities in disseminating energy efficiency materials to residents, working with EJ residents to reduce energy usage, and assisting municipalities in conducting baseline sustainability assessments and in setting priorities.

4. The EV Readiness Program is 3 months behind schedule, but on track to meet our goal of designating 30 EV Readiness Program communities. Forty percent of the communities have finished the program and sixty percent are currently working toward designation.

5. For the Optimizing Municipal Pathways to Engage Consumers in Smart Residential Energy Use project, we exceeded 16 of our 18-performance metrics. Outputs from this 2022-2023 grant include reaching 6,400 low-income residents and seniors through municipal pathways, distributing over 1,600 energy efficiency products, and training 70 municipal officials in an Energy Academy course we created.

C. Staff Expertise

The Caucus is a nonprofit organization that has led and supported enduring powerful networks that have achieved local goals aligned with state and federal goals The Caucus is led by an inclusive Executive Board comprised of mayors representing every sub-region and 275 municipalities in the seven-county metro region. The 2024 operating budget is $45,551,354 including pass-through funds totaling $42,700,000. The Caucus also convenes committees to engage staff and other municipal officials in leadership. Relevant Committees include the Environment Committee, energy Sub Committee, and the Diversity, Equity and Inclusion Task Force which will be active in LEEP.

Edith Makra is the Director of Environmental Initiatives for the Caucus. She is the CPRG lead for the Chicago MSA. On March 1, she submitted the Priority Climate Action Plan (PCAP) for the Chicago MSA. She led meaningful stakeholder engagement and managed subrecipients to contribute to the PCAP. Makra is the co-author of the pioneering Climate Action Plan for the Chicago Region and coordinated input and contributions from 175 organizations in setting equitable climate mitigation and adaptation goals. She led the creation of the Greenest Region Compact and now supports the coalition’s 159 municipal and county members in achieving its consensus goals. She staffs the Environment Committee, which actively engages diverse communities in innovative environmental policy and programs. Makra designed the Caucus’ sub granting program and managed $12 million in federal and state funds to make subgrants for tree planting, energy efficiency, and public safety.

Neil James, Caucus Executive Director, previously served as the Executive Director of the West Cook County Solid Waste Agency (WCCSWA), where he ran the agency’s day-to-day operations, served the needs of 35 municipal members while also facilitating the Regional Disposal Project for 17 local government partners. Mr. James promoted and supported regional recycling initiatives such as Paint Exchanges, Electronics Recycling, and Household Hazardous Waste Collection. Mr. James served as Co-Chair of the Regional Recycling Contamination Task Force; Solid Waste Association of North America Illinois Chapter; and Keep Illinois Beautiful.

Cheryl Scott is the Sustainability Specialist for the Caucus. She led in the development of the EV Readiness Program, the nation’s first program to guide municipalities in preparing for transportation electrification. She serves on the Advisory Council for the national Charging Smart Program, a new program for municipalities that looked to the Caucus’ EV Readiness Program as a model. Scott assists with environmental initiatives at the Caucus, including creating energy efficiency resources and communications materials for communities, managing our residential community solar program, and working with municipalities on advanced building energy efficiency policies.

LEEP will succeed with the help of capable, expert partners named in Section 1A, LEEP Partners, on page 4 of this proposal. Resumes, bios, and CVs are attached.

# Budget

## A. Budget Detail

The total budget for this project is $37,407,000. The budget is detailed in the attached Budget Calcs Caucus LEEP (Excel spreadsheet) attached. More detailed description of costs and calculations are presented in the Budget Caucus LEEP (pdf) attached.

## B. Expenditure of Awarded Funds

The Caucus has extensive experience managing federal grant funds. The Caucus also maintains financial policies and procedures for managing grant funds and was pre-award certified by the U.S. EPA on Oct. 19, 2023, which is good for four years. The Caucus’ Executive Director and accounting firm will remit payment to sub awardees and contractors in a timely fashion after receiving an invoice. Checks are cut twice a month. Funds are tracked by the Caucus’ accounting firm, Seldon Fox, as well as by the staff managing the grant project.

Quarterly reports will be prepared to document expenditures, staff effort, project task-related activities, travel, collection events held, old equipment collected, new equipment distributed, and sub-award recipient activity. These quarterly reports will allow the U.S. EPA to review the approach to the project and ensure the funds are being expended in a timely and efficient manner that follows our expected outcomes, outputs, performance measures and implementation timeline.

We keep accurate and accessible records, to ensure the Caucus’ annual audit go smoothly. This organized record-keeping will also assist with an efficient Single Audit.

Some of the controls and procedures that will be in place include confirming that the old lawn and garden equipment will be destroyed by the scrap metal facility. The contract language that the solid waste agencies and the Caucus have with scrap metal facilities will include the requirement to conduct on-site visits and document the equipment destruction process, especially for the first few truckloads of equipment. We also reserve the right to request a certificate of destruction for the old equipment at any time, to ensure this process is being conducted appropriately. Similar controls and procedures will be in place at the buy-back events. Caucus staff will attend many of the events, especially at the start of the project, to ensure that the sub awardees are running the events smoothly and that vouchers are being distributed in an appropriate manner when old equipment is turned in.

## C. Reasonableness of Costs

The Caucus has made every effort to identify program elements, estimate costs, and prepare a budget that is reasonable and cost effective. As noted in Section 3A, Environmental Results – Outputs, Outcomes and Performance Measures, LEEP is designed to maximize five project outcomes. In alignment with the goals of CPRG Implementation Grants, LEEP Outcome 1 (Reduction of GHG, air and noise pollution in the Chicago region) and Outcome 2 (Removal of gasoline and diesel-powered LGE from service) are prioritized. Budget costs for rebates/incentives (program participants cost) and collection and disposal of old LGE make up most of the budget costs.

Rebates are reasonable at 50% relative to full cost of commercial ZEE, also detailed in Section 2D, and about 17-20% of the full cost of residential mowers. LEEP is cost-effective, when compared the statewide $27 million California CORE program which incentivized 27,000 tools and provided 30,000 batteries, but did not require the verified, safe destruction of old gasoline equipment. LEEP will replace 81,515 gas-powered tools and provide 3,686 batteries for commercial hand-held equipment for the total budget of $37,407,000. Our rebates are more modest than CORE’s rebates to improve cost-effectiveness and will achieve measurable environmental outcomes

Residential collection and buy back events will piggyback on events that will already be planned and supported by partner solid waste agencies. Grant costs only need to cover incremental costs for the additional collection and disposal of old LGE through reasonable subawards. Commercial LEEP leverages industry networks and organizational infrastructure to accomplish program tasks and outputs. Finally, the Caucus is a highly efficient, small non-profit organization with reasonable overhead. Notably, no indirect costs are claimed as all Caucus program costs are categorized in provided budget categories. The Caucus also leverages existing programmatic capacity for the related EV Readiness Program to operate LEEP within the proposed, reasonable, and appropriate budget. The total program administrative costs are a reasonable 18% of total budget.

1. Illinois Landscape Contractors Association estimate March 25, 2024 [↑](#footnote-ref-2)
2. Farmworker and Landscaper Advocacy Project estimate, March 22, 2024 [↑](#footnote-ref-3)
3. Control of Ozone Precursor Emission in the Great Lakes Region <https://www.ladco.org/wp-content/uploads/FinalReport_LADCO_Ozone_Emissions_Control_05Mar2021.pdf> [↑](#footnote-ref-4)
4. American Marketing Association, How to Shift Consumer Behaviors to be More Sustainable <https://journals.sagepub.com/doi/full/10.1177/0022242919825649> [↑](#footnote-ref-5)
5. NALP <https://blog.landscapeprofessionals.org/inflation-reduction-act-features-tax-credit-for-commercial-grade-electric-lawn-mowers/> March 28,2024 [↑](#footnote-ref-6)
6. IBISWorld [↑](#footnote-ref-7)
7. See technical appendix [↑](#footnote-ref-8)
8. OPEI March 27, 2024 <https://www.opei.org/zero-emission-equipment/> [↑](#footnote-ref-9)
9. <https://www.consumerreports.org/home-garden/is-now-the-time-to-switch-to-electric-outdoor-tools-a7816758525/> [↑](#footnote-ref-10)
10. Confidential industry interview, March 22, 2024 [↑](#footnote-ref-11)
11. The Week, <https://theweek.com/in-depth/1025685/6-ways-the-inflation-reduction-act-changed-america-and-the-world-in-1-year> [↑](#footnote-ref-12)
12. Consumer Report <https://www.consumerreports.org/home-garden/is-now-the-time-to-switch-to-electric-outdoor-tools-a7816758525/>, May 27, 2023 [↑](#footnote-ref-13)
13. Outdoor Power Equipment Institute <https://www.opei.org/zero-emission-equipment/> March 28, 2024 [↑](#footnote-ref-14)
14. USEPA [Median Life, Annual Activity, and Load Factor Values for Nonroad Engine Emissions Modeling NR-005c](https://nepis.epa.gov/Exe/ZyNET.exe/P10001T3.txt?ZyActionD=ZyDocument&Client=EPA&Index=2000%20Thru%202005&Docs=&Query=&Time=&EndTime=&SearchMethod=1&TocRestrict=n&Toc=&TocEntry=&QField=&QFieldYear=&QFieldMonth=&QFieldDay=&UseQField=&IntQFieldOp=0&ExtQFieldOp=0&XmlQuery=&File=D%3A%5CZYFILES%5CINDEX%20DATA%5C00THRU05%5CTXT%5C00000013%5CP10001T3.txt&User=ANONYMOUS&Password=anonymous&SortMethod=h%7C-&MaximumDocuments=1&FuzzyDegree=0&ImageQuality=r75g8/r75g8/x150y150g16/i425&Display=hpfr&DefSeekPage=x&SearchBack=ZyActionL&Back=ZyActionS&BackDesc=Results%20page&MaximumPages=1&ZyEntry=7&slide) [↑](#footnote-ref-15)
15. CA CORE <https://californiacore.org/resources-professional-landscape/> 3/39/2024 [↑](#footnote-ref-16)
16. FLAP services areas <https://www.flapillinois.org/> March 30, 2024 [↑](#footnote-ref-17)
17. Characteristics of Lawn and Garden Equipment Sounds: A Community Pilot Study, HHS <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6707732/pdf/nihms-925177.pdf> [↑](#footnote-ref-18)