Request for Proposal for:

Internal Decarbonization Project

Electrification/Energy Efficiencies

August 2025

City of Louisville
749 Main Street
Louisville CO 80027

Table of Contents

INTRODUCTION..3
OBJECTIVE..4
SCOPE OF SERVICES 5
STANDARD TERMS AND CONDITIONS 10
PROPOSAL REQUIREMENTS 11
ATTACHMENTS..16

INTRODUCTION

The City of Louisville (City) is inviting proposals from highly qualified Consultants for a phased, citywide decarbonization project.

- Phase 1 – Electrical Load Evaluation of City Facilities
- Phase 2 – Electrification/Energy Efficiency (E/EE) Implementation

This project is part of the City's larger Internal Decarbonization Plan (IDP). The high-level goals of this plan are to meet all of Louisville's municipal electrical needs with 100% carbon-free sources, to reduce emissions 60% by 2030, and to become carbon neutral by 2050.

PROJECT BACKGROUND

The City prepared an engineering mechanical and economic analysis for each of its municipal buildings and associated fleet and equipment. This strategic roadmap, Attachment A, outlines actions needed for the electrification and decarbonization of all City buildings, fleet equipment, and operations by 2030. Fleet electrification, electric vehicle (EV) charging infrastructure, and generator install/replacement are not part of the scope of this RFP, but are separate projects being carried out as part of the IDP. The selected consultant for this RFP must work with the awarded consultants, contractors, and vendors of the following projects through final engineering to ensure the cohesive delivery of the IDP:

- Emergency Backup Generator Implementation
- EV Charger (EVC) Installation

It should be noted that the EVCs to be installed at the City Services facility will be included on the backup generator, so they must be considered in the electrical load evaluation for this location. No other City facilities require EVCs on backup power.

To fund portions of this project, the City applied for and was awarded grants from the Colorado Department of Local Affairs (DOLA) and the Colorado Energy Office (CEO). The CEO grants are the High Efficiency Electric Heating and Appliances (HEEHA) grant and the Public Building Electrification (PBEG) grant. Grant documentation for DOLA, HEEHA, and PBEG can be found in Attachment B, Attachment C, and Attachment D respectively. A summary of the E/EE grant funding sources and match are detailed in Table 1.

Table 1. E/EE Grant Funding Sources

GRANT	FUNDING
DOLA	30% Match up to $2,500,000
CEO - HEEHA	50% Match up to $1,592,000
CEO - PBEG	50% Match up to $677,500

A summary of the IDP projects scope, location, and funding sources is detailed in Table 2.

Table 2. IDP Project Breakdown

	E/EE (PROJECT HEREIN)	EV CHARGERS	EMERGENCY BACKUP GENERATORS
SCOPE	Electrical load analysis, solar, electrification, and energy efficiency install	Fleet and public EVC install	Electrical load analysis, emergency backup generator install
LOCATIONS	• Art Center • Austin-Neihoff House • City Hall • City Services Facility • Howard Berry Water Treatment Plant (WTP) • Public Library (Solar) • Police and Municipal Building (Solar) • Recreation and Senior Center (Solar) • Sid Copeland Water Treatment Plant • Wastewater Treatment Plant (WWTP)	• Art Center • Austin Neihoff House • City Services Facility • Howard Berry WTP • Public Library • Police and Municipal Building • Recreation and Senior Center • Sid Copeland WTP • WWTP	Replace: • Police and Municipal Building • Howard Berry WTP Install New: • Recreation and Senior Center
FUNDING	DOLA HEEHA (CEO) PBEG (CEO)	Fleet-ZERO (CEO) Charge Ahead CO (CEO) EVSI/EVSE (Xcel)	Federal Emergency Management Agency (FEMA)

OBJECTIVE

Consultant services will consist of necessary work to perform the technical analysis, design, construction, and engineering services as identified in the scope of work for all engineering disciplines, including electrical, structural, mechanical, etc., as needed for each site. Services include, but are not limited to, design, permitting, and construction phase services. The project must meet Louisville design criteria and industry standards.

It is assumed that a majority of the electrical load analysis, Phase 1, will be completed in 2025. A majority of Phase 2, E/EE implementation, will be completed in 2026. Construction activities are anticipated to be completed in 2027.

Phase 1 of this project will be completed first as a separate task as this deliverable will inform the implementation of Phase 2.

SCOPE OF SERVICES

PHASE 1 – ELECTRICAL LOAD EVALUATION

The consultant shall evaluate the existing electrical systems at the City facilities listed in Table 3 to determine existing capacity and existing maximum load, and the future load needed to meet or exceed the electrical demand for all equipment installations from the City's strategic roadmap in Attachment A. Additionally, based on the electrification portion of the E/EE scope, the consultant will determine if these electrification upgrades require any electrical service improvements to support the new load.

Tasks

- Existing Backup System Assessment
    - Assess the performance and working conditions of the existing backup systems.
    - Meet with building maintenance staff for an overview of systems conditions
    - Review existing electrical system points of connection, meters, panels, and subpanels
    - Memorialize each facility's general building, power platform, and electrical distribution layout
    - Document the existing related mechanical, electrical, and plumbing (MEP) layout
    - Document any major deficiencies or remarks
- Power Needs Assessment
    - Review and document the inventory of current equipment and apparatus in-place which relies on electrical power.
    - Interview City staff responsible for management of the respective operations at each facility to determine current power needs.
    - Determine future power demands based on new equipment from E/EE scope or facility expansion.
    - Establish each facility's power needs based on a backup power system to meet the full power demands of the entire operational programs housed at each facility.
    - Develop probable cost at each facility and set up a meeting with the City Project Manager and other essential City staff to discuss probable costs.
    - Sizing recommendations based on existing and future power demands.

Deliverables

- Meeting minutes from each meeting and site visit
- Draft report detailing findings from backup system and power needs assessments
    - Include drawings of facilities, buildings, MEP systems, and generator layouts.
- Final report incorporating comments from the City
- Comment response matrix

Table 3. Electrical Load Evaluation Facilities

LOCATION[1]	ADDRESS
Art Center	801 Grant Ave Louisville, CO 80027
Austin-Neihoff House (White House)	717 Main St Louisville, CO 80027
City Hall[2]	749 Main St Louisville, CO 80027
City Services Facility[3]	739 104th St Louisville, CO 80027
Public Library	951 Spruce St Louisville, CO 80027
Sid Copeland Water Treatment Plant	1995 Washington Ave Louisville, CO 80027
Wastewater Treatment Plant	1601 Empire Rd Louisville, CO 80027

Notes:
1. The electrical load evaluations for the City's Police and Municipal Building, Recreation and Senior Center, and Howard Berry Water Treatment Plant are included in the scope of the Emergency Backup Generator RFP. Awarded consultant to coordinate with awarded party for generator project.
2. City Hall not included in Phase 2 E/EE scope.
3. EV chargers as part of EVC project to be included on generator power at City Services.

PHASE 2 – E/EE IMPLEMENTATION

The contractor shall prepare design documents for the implementation of solar arrays, electrification of equipment, and energy efficiency upgrades including building infrastructure upgrades as determined in Phase 1. A detailed breakdown of the E/EE scope is included in Table 4. Note that the scope in this table is preliminary and subject to change as the project progresses.

Table 4. E/EE Preliminary Scope

LOCATION	SOLAR SCOPE	ELECTRIFICATION SCOPE	ENERGY EFFICIENCY SCOPE
ART CENTER	-	-	Envelope Air Sealing Wall Insulation Window Replacement
AUSTIN NEIHOFF HOUSE	-	Infrastructure 300A Upgrade 2T Residential ASHP HVAC Ductwork and Piping	Window Sealing
CITY SERVICES FACILITY	-	-	Advanced Plug Load Reduction Compressed Air Leaks Controls Optimization/Retrocommissioning Envelope Air Sealing
HOWARD BERRY WTP	-	-	LED Replacement Lighting Light Controls/Vacancy Sensors
PUBLIC LIBRARY	128kW PV Array	(2) 50-ton Heat Pump RTU Electric DHW Associated Controls, Conduit, Piping, and Electrical	Advanced Plug Load Reduction Controls Optimization/Retrocommissioning Duct Air Sealing/Insulation Envelope Air Sealing Snow Melt System Recommissioning Variable Frequency Drives Light Controls/Vacancy Sensors
POLICE AND MUNICIPAL BUILDING	257kW PV Array	(2) 30-ton Heat Pump RTU Electric Unit Heater HVAC Electrical and Piping Associated Controls, Conduit, Piping, Electrical	Advanced Plug Load Reduction Controls Optimization/Retrocommissioning Duct Air Sealing/Insulation Envelope Air Sealing
RECREATION AND SENIOR CENTER	380kW PV Array	(2) 3-ton Heat Pump RTU (2) 4-ton Heat Pump RTU (2) 5-ton Heat Pump RTU (3) 6-ton Heat Pump RTU 7.5-ton Heat Pump RTU 10-ton Heat Pump RTU (2) 15-ton Heat Pump RTU (2) ERV Pool NDHU Associated Controls, Conduit, Piping, Electrical	Advanced Plug Load Reduction Controls Optimization/Retrocommissioning Envelope Air Sealing Light Controls/Vacancy Sensors Sauna Scheduling Window Replacement Weather Stripping Window Glazing Upgrades
SID COPELAND WTP	-	3-ton Heat Wheel RTU Associated Controls, Conduit, Piping, Electrical	Envelope Air Sealing Lighting Controls/Vacancy Sensors LED Replacement Lighting
WWTP	-	-	Envelope Air Sealing Lighting Controls/Vacancy Sensors

It should be noted that the E/EE scope at the following locations relies on the electrical load evaluation completed as part of the generator RFP. Design for these sites cannot begin until the evaluations are complete.

- Howard Berry WTP
- Police and Municipal Building
- Recreation and Senior Center

Tasks

- Solar Power Design
    - Develop design drawings for installation of solar arrays.
    - Develop specifications for solar arrays and related equipment including typical operating and maintenance procedures, layouts showing outside equipment access to transfer switches, required hardware, devices, and electrical/electronic connections.
    - Fine tune cost estimates including equipment, hardware, building modification, and installation and construction costs.
- E/EE Design
    - Develop design drawings for electrification and energy efficiency upgrades
    - Develop specifications for electrification and energy efficiency upgrades including typical operating and maintenance procedures, required hardware, devices, and electrical/electronic connections
    - Prepare cost estimates for electrification and energy efficiency upgrades including equipment, hardware, building modification, and installation and construction costs.
- Construction
    - Prepare a Construction Bid Package
    - Attend pre-bid meeting
    - Advise the City on the appropriate response to bidder's questions.
    - Log questions and responses to bidders' questions regarding the bid documents
    - Evaluate need for addendum to bid documents in response to bidders' questions and prepare an addendum if required.
    - Attend the pre-construction meeting, job walk, and site visits as required over the course of construction.
    - Respond to requests for information (RFI) and submittals regarding plans and specifications.
- External Party Management
    - Communicate and coordinate with Xcel for electrical service upgrades as needed
    - Grant management for DOLA, HEEHA, and PBEG including monthly status report summaries

Deliverables

- Conceptual Plans, Specifications List, Preliminary Cost Estimate in PDF format and Word and Excel format as applicable.
- 60% Construction Drawings, Specifications List, and Cost Estimate, Comment Response Matrix in PDF format and CAD, Word, and Excel format as applicable
- 90% Construction Drawings, Specifications, and Cost Estimate, Comment Response Matrix in PDF format and CAD, Word, and Excel format as applicable
- 100% Construction Drawings, Specifications, and Cost Estimate, Comment Response Matrix in PDF format and CAD, Word, and Excel format as applicable
- DOLA, HEEHA, and PBEG Grant reporting materials including monthly status updates.
- Construction Bid Package
- Construction Bid Addenda, as necessary
- Log of construction bidder inquiries
- Log RFIs and track submittal progress and reviews
- Field design recommendations

PERMITTING

The Consultant must produce plans and specifications that incorporate State and local building code requirements, air emission standards, and any other applicable code requirements. The Consultant shall fully manage and obtain all required plan checks, reviews and permits. This will include determining required environmental and safety equipment, and any operational procedures which may be required to be implemented.

Agencies and other 3rd parties that the design consultant needs to coordinate with and/or obtain approvals and permits from include City of Louisville Building Department/Building Official and City of Louisville Community Development Dept and Utility Company, City of Louisville Environmental Compliance Department and other applicable stakeholders.

Tasks

- Maintain a contacts log of agencies and 3rd parties that are contacted.
- Submit 90% plans for plan check to City of Louisville Building Department and other agencies as required for review and approval. Respond to comments and obtain final approvals.
- Keep a log attributing probable costs of any legally required equipment or operation procedures for each facility.

Deliverables

- Provide the City Project Manager with access to the contacts log on an ongoing basis during this task.
- Log of recommended hardware, safety equipment, and procedures to operate the new backup power systems.
- All required permits for construction.
- Once all tasks are completed, transmit logs and records to the City Project Manager which shall include relevant meeting minutes, relevant agency rosters, etc.

PROJECT MANAGEMENT

The Consultant Project Manager shall fully manage the development and coordination of the power systems needs assessment and subsequent development of engineering design and specification documents, including, but not limited to, ensuring coordination of all conceptual layouts, plans, estimated costs, coordination and ensuring conformance with the City of Louisville Building Department, Utility Companies, and State and local agencies.

Consultant shall supervise, coordinate, monitor and design review for conformance with City Standards, policies, and procedures. The Consultant shall be responsible for project administration and coordination efforts.

Tasks

- Maintain continuous communication with the City Project Manager and coordination of project design/layout development, meetings with City and all affected parties identified by City staff, utility coordination, State and outside agency coordination, cost estimation, quality control, and scheduling.

- Set-up and manage meetings for assessment of each facility's existing backup power generator system, establishing the power needs of each facility, clarifying legal requirements, restrictions, necessary code upgrades, etc.
- Communicate conceptual layouts as needed for the facility's building, utility rooms, general access, MEP layout and proposed changes needed.
- Communicate and substantiate MEP system required changes if any.
- Communicate and coordinate the design drawings and technical specifications for the equipment and backup power facilities.
- Coordinate development of cost estimates so that full backup power is provided.
- Provide a Monthly Project Status Report on the status of each project tasks development phase.
- Prepare an agenda and meeting minutes with an action item matrix to distribute to the City, and other attendees or organizations, before and after each meeting, respectively.
- Ensure project delivery progresses on schedule and within budget.
- Manage project schedules and project reporting for each sub-project.

Deliverables

- Detailed project schedule updated on a monthly basis
- Meeting agendas
- Meeting minutes including attendees, and action item matrix
- Monthly project reports

STANDARD TERMS AND CONDITIONS

When preparing a proposal for submission in response to this RFP, consultants should be aware of the following terms and conditions which have been established by the City of Louisville:

- This request for proposals is not an offer to contract. The provisions in this RFP and any purchasing policies or procedures of the City are solely for the fiscal responsibility of the City, and confer no rights, duties or entitlements to any party submitting proposals. The City of Louisville reserves the right to reject any and all proposals, to consider alternatives, to waive any informalities and irregularities, to abandon the project and this RFP at any time, and to re-solicit proposals.

- Consultant acknowledges that any potential expenditure incurred by selected firm outside the current fiscal year is contingent upon appropriation, budgeting, and availability of specific funds for such proposed expenditure. The project needs to estimate a timeline for each period – six to nine months. The project should have a determined starting date and end within a year.

- The City of Louisville reserves the right to conduct such investigations of and discussions with those who have submitted proposals or other entities, as they deem necessary or appropriate to assist in the evaluation of any proposal or to secure maximum clarification and completeness of any proposal.

- The successful proposer shall be required to sign a contract with the City in a form provided by and acceptable to the City. The consultant shall be an independent contractor of the City.

- The City of Louisville assumes no responsibility for payment of any expenses incurred by any proponent as part of the RFP process.

- The following criteria will be used to evaluate all proposals:
    - The consultant's interest in the services which are the subject of this RFP, as well as their understanding of the scope of such services and the specific requirements of the City of Louisville.
    - The reputation, experience, and efficiency of the consultant.
    - The ability of the consultant to provide quality services within time and funding constraints.
    - The general organization of the proposal: Special consideration will be given to submittals which are appropriate, address the goals; and provide in a clear and concise format the requested information.
    - Other selection factors within this RFP or the City's purchasing policies, or that City determines are relevant to consideration of the best interests of the City.

- All responses to this RFP become the property of the City upon receipt and regardless of selection or rejection, and will not be returned, except that the City may return late responses submitted after the response deadline. Any trade secrets or confidential commercial or financial information submitted with any response is subject to potential disclosure, and submitting it constitutes proposer's waiver of any recourse against the City in respect to disclosure and proposer's agreement to indemnify the City for any costs, legal fees or expenses incurred in relation to any proceeding concerning disclosure of such information. Any trade secrets or confidential commercial or financial information submitted with a response shall be clearly segregated and marked; provided; however, that neither cost information nor the total RFP will be considered proprietary. The City will notify the vendor of any request for disclosure of information so segregated and marked that may be subject to nondisclosure, and it will be the responsibility of the vendor to object and to pursue any legal actions pursuant to Colorado law. A vendor shall notify the City within 24 hours of notification by City of request for disclosure of the vendor's objections to disclosure and the vendor's intent to pursue lawful protection under Colorado law.

PROPOSAL REQUIREMENTS

The consultant is encouraged to follow the outline and page distribution, as outlined below. Difficulty in finding desired information may be considered as non-responsive with a corresponding score. Brevity and clarity in explaining your key concepts are encouraged.
It is recommended that the proposal be prepared in a 10 or 12 point font only. If a smaller font is used, it may reflect negatively on your scores. A page for the submittal is a standard 8 ½ x 11 inch sheet and printed on one side only. Bidders are encouraged to submit their proposal on two-sided format, rather than one-sided only.

Proposal should contain the following elements:

- Cover or Introductory Letter (two (2) pages – 8½ x 11 inch paper)
- Project Team (five (5) pages – 8½ x 11 inch paper)
- A Work Plan Section (eight (8) pages – 8½ x 11 inch paper)
- The Commendation Section (five (5) pages – 8½ x 11 inch paper)
- Fee Proposal (two (2) pages – 8½ x 11 inch paper)
- References (five (5) pages – 8½ x 11 inch paper)

This format is recommended, not required. Deviation that impairs clarity of proposal may impact selection score.

CONTENT

The following is a general description to aid you in preparing the proposal. The discussion of the specific elements should be determined by your interpretation of the specific project. The listed elements are presented to help you determine the discussion content. The selection committee will evaluate your interpretation of the most important factors to address for this project to arrive at its rating.

1. Cover Letter

- Include the project title.
- Include a certification that the information and data submitted is true and complete to the best knowledge of the individual signing the letter.
- Include the name, email address, telephone and fax number of the individual to contact regarding their proposal.
- City of Louisville requires an original signature signed in ink, by a representative of the firm fully authorized to submit proposals and sign contracts on the firm's behalf. The letter shall include a statement to that effect.

2. Project Team

- Identify your Project Principal, Project Manager, Key Staff and any Sub-consultants
- Present a brief discussion of the firm's size, team's qualifications and experience related to this project.
- Include the level of involvement and availability of key staff members with existing and upcoming project workloads.
- Include experience on similar projects as a team.
- Include a list of current and past projects completed within the past five years with the City of Louisville or other Local Agencies. Include a name, telephone number, and email address of the owner's Project Manager for every project listed and describe your firm's role for all the projects listed. Demonstrate your firm's ability to control costs, meet schedules, and provide quality work on the listed projects.
- Include unique knowledge of team members related to this project.
- Include length of time with the firm for each key team member.

3. Work Plan

- Describe a clear understanding of the project goals and briefly describe the actions you plan to take to achieve these goals.
- Include a list of deliverables required on the project.
- Describe issues you see as critical and possible solutions.

4. Commendation Section

Letters commendation or awards for similar previous work completed within the last five years. These letters should be of reasonable length and pertinent to the project.

5. Fee Proposal

- Provide breakdown of costs including all insurances, labor and incidentals required to complete the work. Fee proposal shall be divided into the tasks outlined in the Scope of Services. An hourly rate sheet is requested.

No Proposal may be withdrawn within a period of sixty (60) days after the proposal deadline. The City reserves the right to award the contract by sections, to reject any or all proposals, and to waive any informalities and irregularities therein.

Proposals should be prepared and submitted using the provided instructions which address the needs outlined herein. Proposals will be accepted until **5:00 PM Mountain Time on Friday, September 12th, 2025**. Late proposals will not be accepted. Proposals shall be submitted electronically via email to:

Taylor McCauley
Civil Engineer III
Office: 303-335-4616
Cell: 408-896-0370
tmccauley@louisvilleco.gov

A mandatory Pre-Proposal meeting will be held on **Monday, August 25th at 10:00 a.m. beginning at Louisville City Hall located at 749 Main Street, Louisville, CO 80027.** Please reserve a timeslot of 4 hours for this meeting.

In addition to the written electronic submission, the City reserves the right to request an interview with some or all of the proposers.

All costs incurred in preparing for, printing, and delivering a submittal, along with any costs associated with travel or time spent in interviews or negotiation with the City are solely the responsibility of the submitter. The City is not liable for any costs incurred prior to issuance of a legally executed contract and/or purchase order.

All submittals become the property of the City, a matter of public record, and will not be returned. Proprietary information included in submittals must be clearly identified and will be protected, if possible. Unit pricing and total cost information will not be considered proprietary.

All material submitted regarding this RFP becomes the property of the City of Louisville and will only be returned to the proposer at the City's option. The City of Louisville has the right to use any or all ideas presented in reply to this RFP. Disqualification of proposer does not eliminate this right.

TIMELINE

The City reserves the right to modify the proposal submittal and acceptance timeline outlined in Table 5 at any time at its sole discretion.

Table 5. Proposal Submittal and Acceptance Timeline

Milestone	Date
Publication of Advertisement	Monday, August 18th, 2025
Pre-Bid Meeting	Monday, August 25th, 2025 @ 10:00 a.m.
Inquiry Deadline	Friday, August 29th, 2025 @ 5:00 p.m.
Proposal Due Date	Friday, September 12th @ 5:00 p.m.
Notice of Award	Estimated October/November 2025

CONTRACT

A sample copy of the Agreement and exhibits is included in Attachment E. In addition, the following documents must be submitted with the proposal:

1. Schedule of Subcontractors/consultants (if any)

Prospective Consultants must meet the following minimum qualifications:

- Minimum Insurance Requirements: The Consultant must provide proof of insurance as required in the attached Professional Services Agreement.

INQUIRIES

Prospective submitters may make written inquiries by e-mail before the inquiry deadline concerning this Request for Proposal. Inquiries will also be accepted at the pre-proposal meeting. An addendum will be released to all pre-proposal meeting attendees with any required clarifications or revisions to this request or the associated construction documents within two days of the Inquiry Deadline. Prospective proposers are advised to contact the City prior to the inquiry deadline to ensure they are included in any addendum posting.

Inquires may be sent to:

Taylor McCauley
Civil Engineer III
Email address: tmccauley@louisvilleco.gov
Phone Office: 303-335-4616
Phone Cell: 408-896-0370

SELECTION CRITERIA

Proposals will only be accepted for Consultants who attended the mandatory pre-proposal conference. Proposals that are considered competitive will be evaluated by an evaluation team. The City reserves the right to select the proposal that is most advantageous to the City, even if it is not the least expensive.

Attachment A: Strategic Roadmap

Internal Decarbonization Plan

Final Report

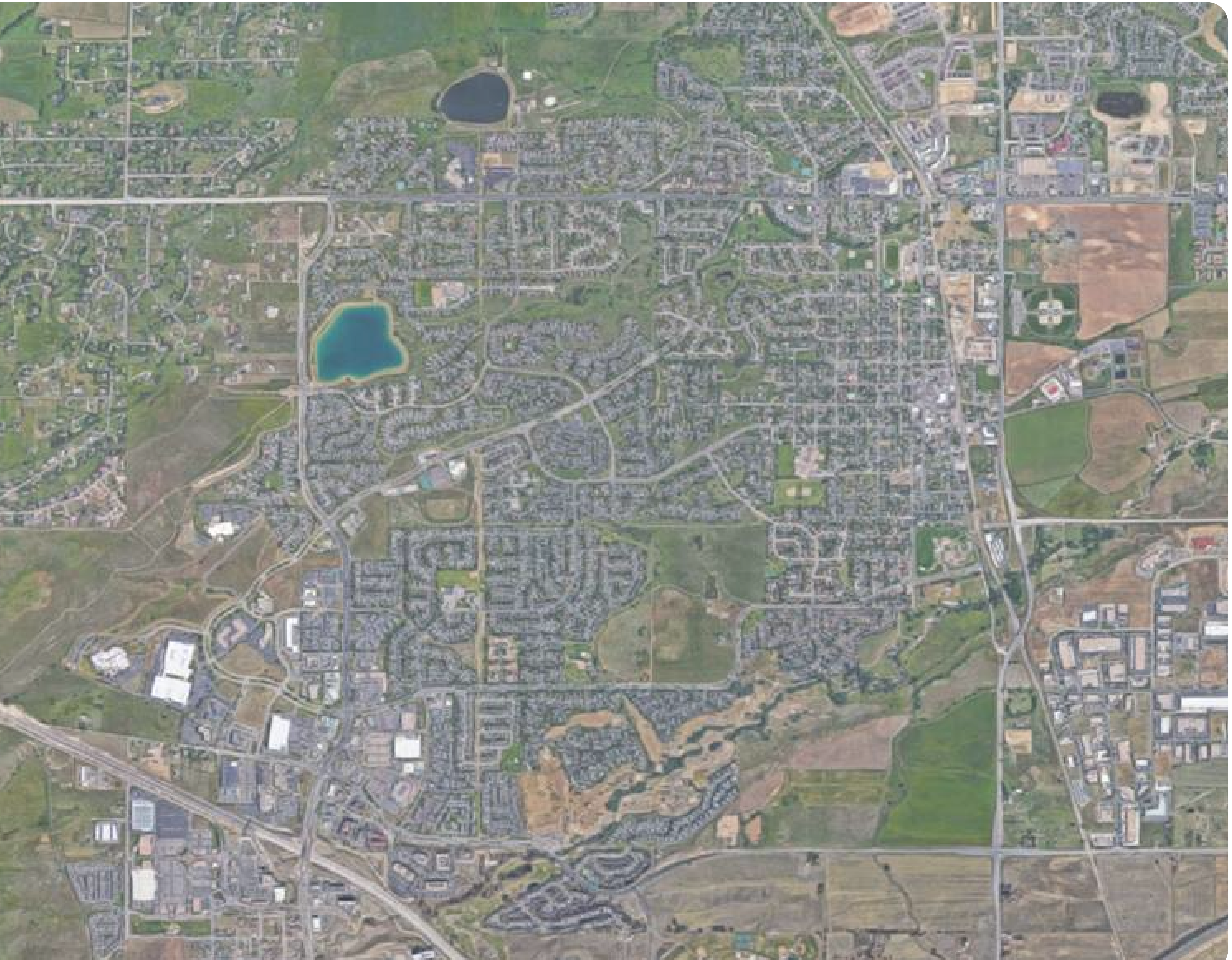
CITY OF LOUISVILLE

LOUISVILLE, COLORADO
OCTOBER 4, 2023

City of Louisville
COLORADO • SINCE 1878

McKinstry
For The Life Of Your Building

Table of Contents



SECTION 1:
EXECUTIVE SUMMARY.. 4

SECTION 2:
DECARBONIZATION IMPLEMENTATION PLAN............... 7

DECARBONIZATION IMPLEMENTATION PLAN

EXISTING ENERGY & EMISSIONS

ZERO CARBON ELECTRICITY

SECTION 3:
EFFICIENCY 13

SECTION 4:
RENEWABLY POWERABLE 14

BUILDING ELECTRIFICATION

FLEET ELECTRIFICATION

ELECTRIC VEHICLE CHARGING

MISCELLANEOUS EQUIPMENT ELECTRIFICATION

SECTION 5:
RENEWABLY POWERED 20

SECTION 7:
FINANCIAL CONSIDERATIONS 22

SECTION 8:
FUNDING & IMPLEMENTATION................................25

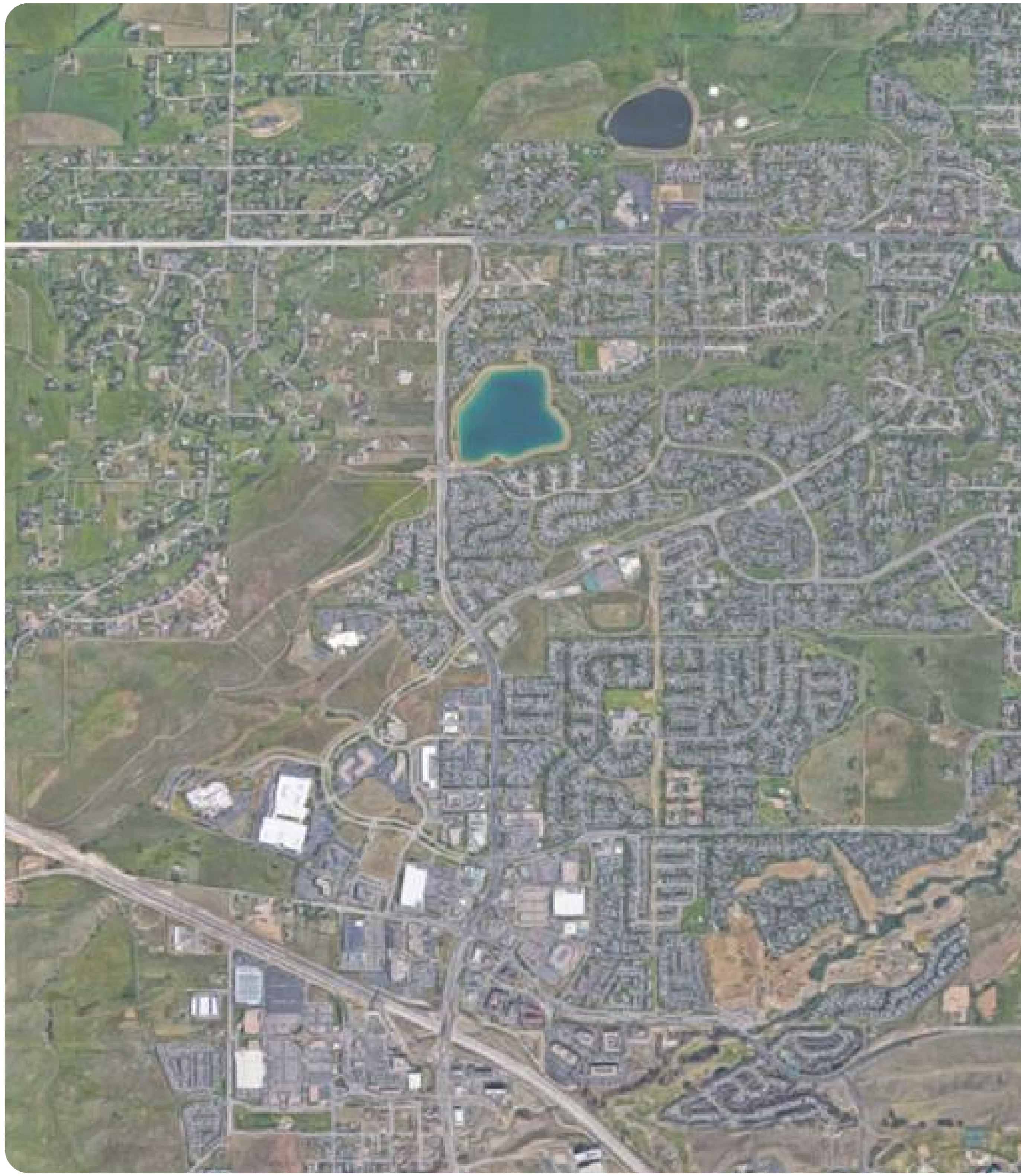
APPENDIX

Date	Version History
8/8/2023	Final Report Issued
9/19/2023	V2 - Revision
10/4/2023	V3 - Revision

Table of Contents Abbreviations

Abbreviation	Definition
AHU	Air Handling Unit
ASHP	Air Source Heat Pump
AWHP	Air to Water Heat Pump
CO2	Carbon Dioxide
CO2e	Carbon Dioxide Equivalent
CHW	Chilled Water
DHW	Domestic Hot Water
dT or DeltaT	Temperature Difference
ERV	Energy Recover Ventilator
EUI	Energy Use Intensity
EV	Electric Vehicle
FCA	Facility Condition Assessment
GC	General Contractor
GSHP	Ground Source Heat Pump
HHW	Heating Hot Water
HPWH	Heat Pump Water Heater
HVAC	Heating Ventilation Air Conditioning
IRA	Inflation Reduction Act
ITC	Investment Tax Credit

Abbreviation	Definition
kVA	Kilovolt-Ampere
kW	Kilowatt
kWh	Kilowatt-Hour
kWp	Kilowatt Peak
LED	Light Emitting Diode
MAU	Makeup Air Unit
MW	Mega Watt
NDHU	Natatorium Dehumidification Unit
PV	Photovoltaic
RCx	Retro Commissioning
ROM	Rough-Order-of-Magnitude
RTU	Rooftop Unit
SCC	Social Cost of Carbon
SHW	Service Hot Water
VAV	Variable Air Volume
VRF	Variable Refrigerant Flow
WWHP	Water to Water Heat Pump



Executive Summary | Background

Background

In August of 2019, City Council passed Resolution 25, Series 2019, which set clean energy and carbon emission reduction goals for the municipality and larger community, including:

- **Meeting 100% of Louisville's municipal electric needs with 100% carbon-free sources by 2025**
- **Reducing core municipal greenhouse gas emissions annually below the 2016 baseline through 2025.**

The City of Louisville also adopted Resolution 25-2019 (Setting Clean Energy and Carbon Emission Reduction Goals), and a Sustainability Action Plan (adopted in October 6, 2020). On December 30, 2021, the massive Marshall Fire raged in portions of the Front Range, destroying 550 homes and businesses in Louisville alone. Climate change, which much of the fire is attributed to, became very real to the City, which had already been establishing decarbonization targets. The fire accelerated the City's sense of urgency to act to eliminate its own carbon footprint.

In response to this urgency, in summer and fall 2022, the City contracted for the creation of a study, analysis, and strategic roadmap for electrification and decarbonization of 100% of City buildings, fleet, equipment and operations* by 2030 (as part of this study, an alternative completion target was determined). **This document is the outcome of that effort.**

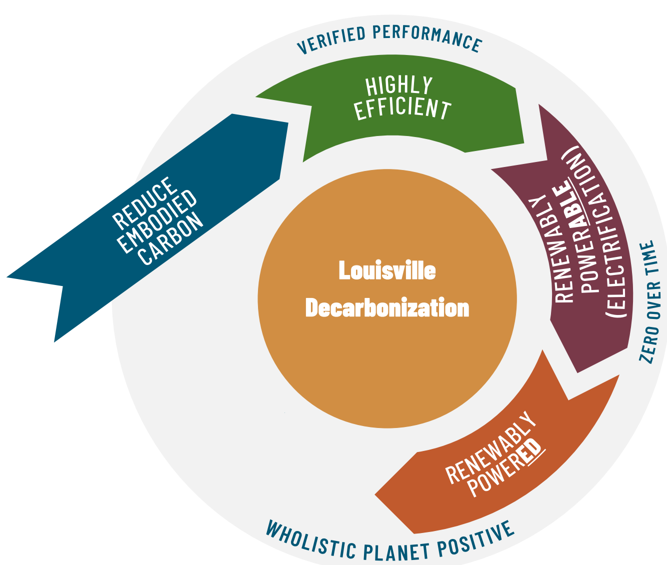
Environmental, Community, and Financial Stewardship and Leadership

Louisville is already aggressively pursuing a path to decarbonization of its own operations through efficiency and renewable electricity. This roadmap establishes a pathway to complete decarbonization, including: additional efficiency measures, renewables, and electrification of buildings, vehicles, and miscellaneous equipment. Louisville will be one of the first jurisdictions in the United States to aggressively embark on decarbonized operations. By taking responsibility for its carbon and climate impacts, Louisville is an exemplar to its own residents as well as the broader world. On a more focused level, the specific efforts Louisville is taking provide a "show and tell" opportunity for decarbonization through communications to City residents and beyond.

**Note this roadmap does not include decarbonization for water and wastewater process loads, purchasing, solid waste/recycling/composting, or street lighting. It also does not include equipment that is used via third-party contracts.*

What is Involved in Decarbonization

What is decarbonization? It is the process of eliminating all activities that generate CO2 and other greenhouse gases (in aggregate, known as CO2e -equivalent). Today, the city's operations (buildings, fleet, miscellaneous equipment) generate 3,400 metric tons of CO2e annually, which is equivalent to the carbon generated by 430 homes in a year.



Eliminating Louisville's carbon footprint requires focus on four main areas:

Embodied Carbon Retrofitting existing buildings, rather than tearing down and building new zero carbon buildings, reduces the carbon inherent in the construction process.

Efficiency & Load Reduction Reducing building energy use, and thereby reducing carbon emissions, reduces the amount of renewable energy needed for total decarbonization.

Renewably Powerable Reducing on-site fossil fuel burning via electrification allows the building to be powered by renewable sources.

Renewably Powered
Optimizing the mix of available renewable zero-carbon sources leads to decarbonization at the best value for the City of Louisville.

Note that these activities aren't necessarily implemented sequentially – this plan identifies the most cost-effective and high-value phasing plan for implementation .

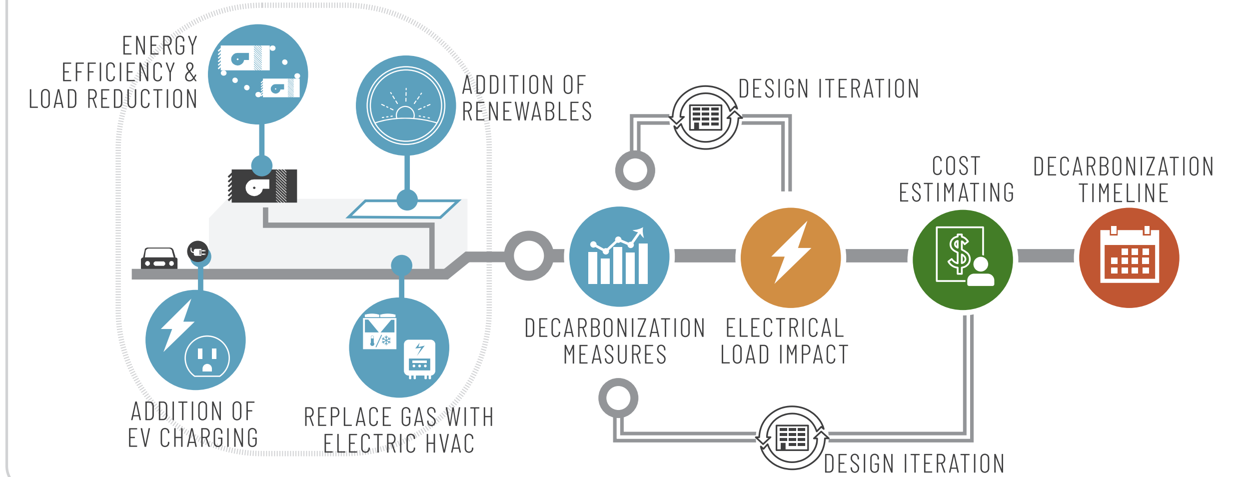
Executive Summary | Background

Core Principles

There are a number of big picture principles and concepts that further illuminate this plan:

- **Be fiscally responsible and avoid replacing equipment before it is worn out.** Allocate the replacement budget to the decarbonized alternative instead, which will typically save 25-50% of the capital cost. Also work within the context of existing equipment and reuse existing systems wherever possible. Completely tearing out and replacing systems has higher embodied carbon, is usually more costly, and always more disruptive.
- **Use proven technologies.** Full zero carbon performance can be achieved via current technologies. Louisville needs results and should not be a guinea pig for untested technologies.
- **Provide the greatest value for least cost.** Full decarbonization, particularly electrification, is expensive. It is critical to pursue the various financial incentives available at the local, state, and federal level. In addition, many decarbonization measures can provide co-benefits, providing value streams that offset costs.
- **Zero carbon power.** Louisville acquires 100% renewable electricity through utility purchase programs, so all electrical uses are assumed to emit zero carbon. However, reducing energy and electrical load has other financial benefits and related co-benefits.

Louisville Decarbonization Process Diagram



Key Findings

Clear, full, decarbonization pathways exist for all City buildings and its fleet. In most cases these approaches are based on retrofitting the existing HVAC systems, not gutting the building entirely.

Efficiency and load reduction strategies often have lower life-cycle costs than current electricity costs. These are outlined in greater detail in the individual building reports and are recommended for immediate implementation.

Hybrid building electrification is an excellent near and mid-term approach. Hybrid mechanical heating systems, which utilize electricity as the primary heating source and natural gas as a backup, achieve the decarbonization "sweet spot" via substantial carbon reductions (i.e. 75%+) while reducing overall costs up to 50%.

City-owned renewable electricity generation will reduce utility costs and provide greater benefit to the Louisville community. Substantial opportunities exist for on-site renewable electricity. A combination of Inflation Reduction Act and Xcel Energy incentives make this a very attractive option for the City and result in on-site renewable electricity being cheaper than utility-provided electricity. In addition, on-site renewables provide additional resiliency and signal the City's commitment to decarbonization

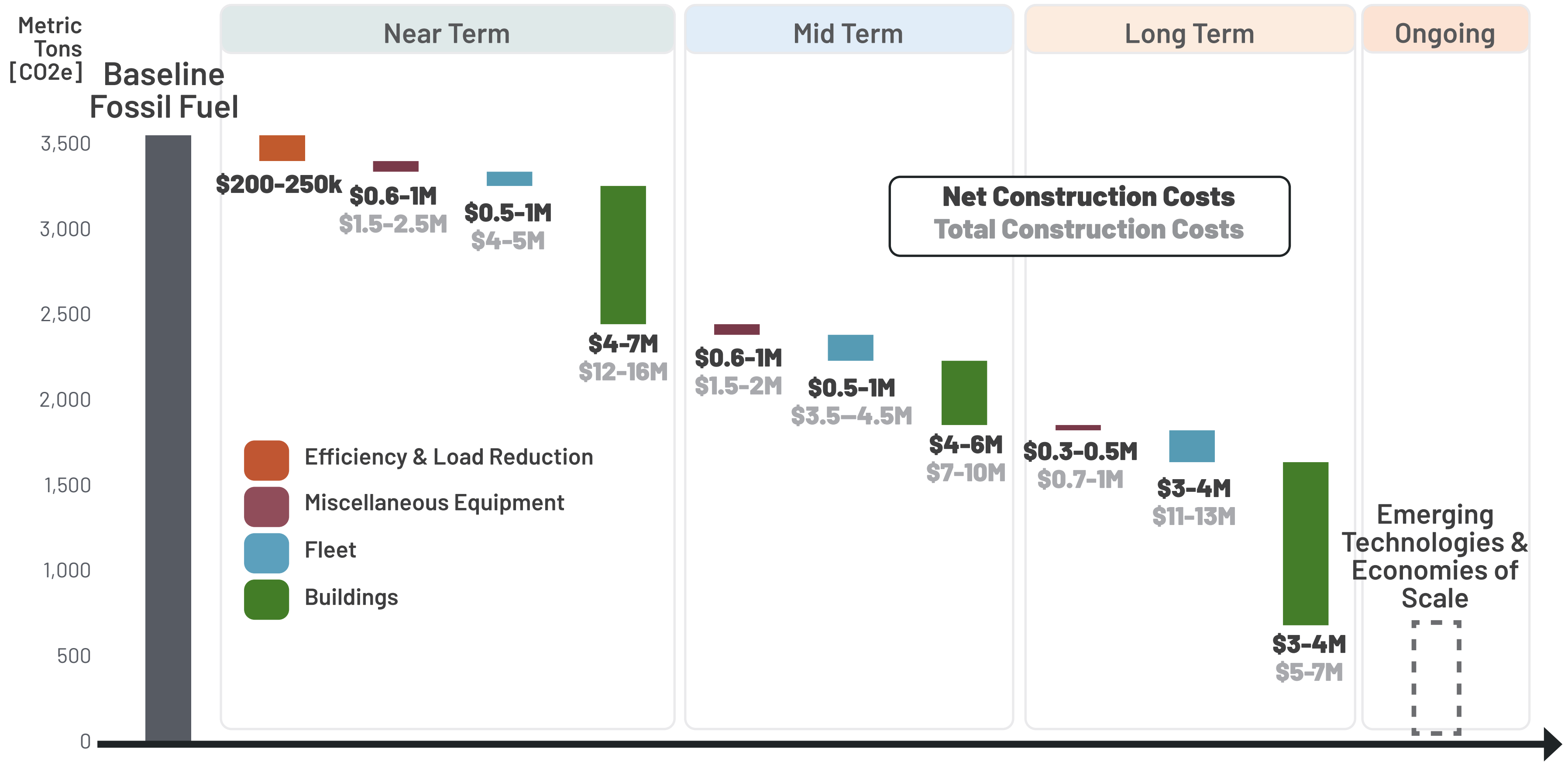
Key Recommendations

Based on the findings above and detailed findings throughout this report, a formal adoption of the City's decarbonization target is recommended:

- **100% Decarbonization by 2040**
- **Retain 100% Renewable Electricity** (underway)
- **Decarbonization Plan Progress Update Every 5-7 Years**

Executive Summary | Decarbonization Implementation Plan

Fossil Fuel Emissions

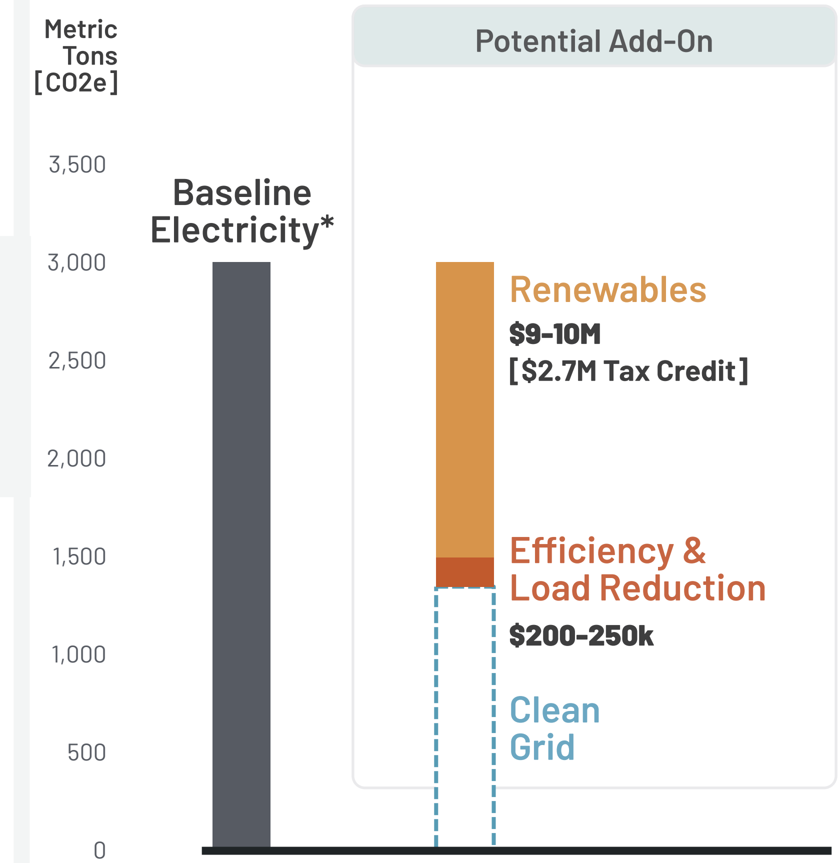


The Suggested phasing is based on preferred order of operations and remaining equipment life.

Efficiency & Load Reduction & Renewables reduce electricity that would need to be offset by nearly **50%**.

Emerging technologies & economies of scale will help bring Louisville to **Zero Carbon** emissions.

Electricity Emissions



Cost Summary Table	
Total Construction Costs	~$51M
Total Like-for-Like Construction Costs (costs that the City would continue to pay)	(~$27M)
Lifecycle Utility Cost Savings (Utility, Fleet, Solar)	($7M)
Total Grants	($3M-13M)
Total Net Cost of Decarbonization (varies based on final grant awards)	**$4M-14M**

Notes:

Total Construction Costs: Total **turnkey** construction costs needed for budgetary purposes. **Costs do not include incentives or grants. The Inflation Reduction Act will potentially offset 30-40% of the cost of renewables and fleet.**

Total Like-for-Like Construction Costs: The **turnkey** "business as usual" costs for replacing existing fossil fuel equipment with similar fossil fuel equipment. Costs were derived from a combination of the City's CIP budget and detailed cost estimating of equipment replacement as the comparison scenario.

Net Construction Costs: (Total Construction Costs) - (Total Like-for-Like Construction Costs)

Total Net Cost of Decarbonization: (Total Construction Costs) - (Total Like-for-Like Construction Costs) - (Total Project Savings + Total Grants)

Turnkey Costs: Include design, engineering, construction management, project management, and commissioning.

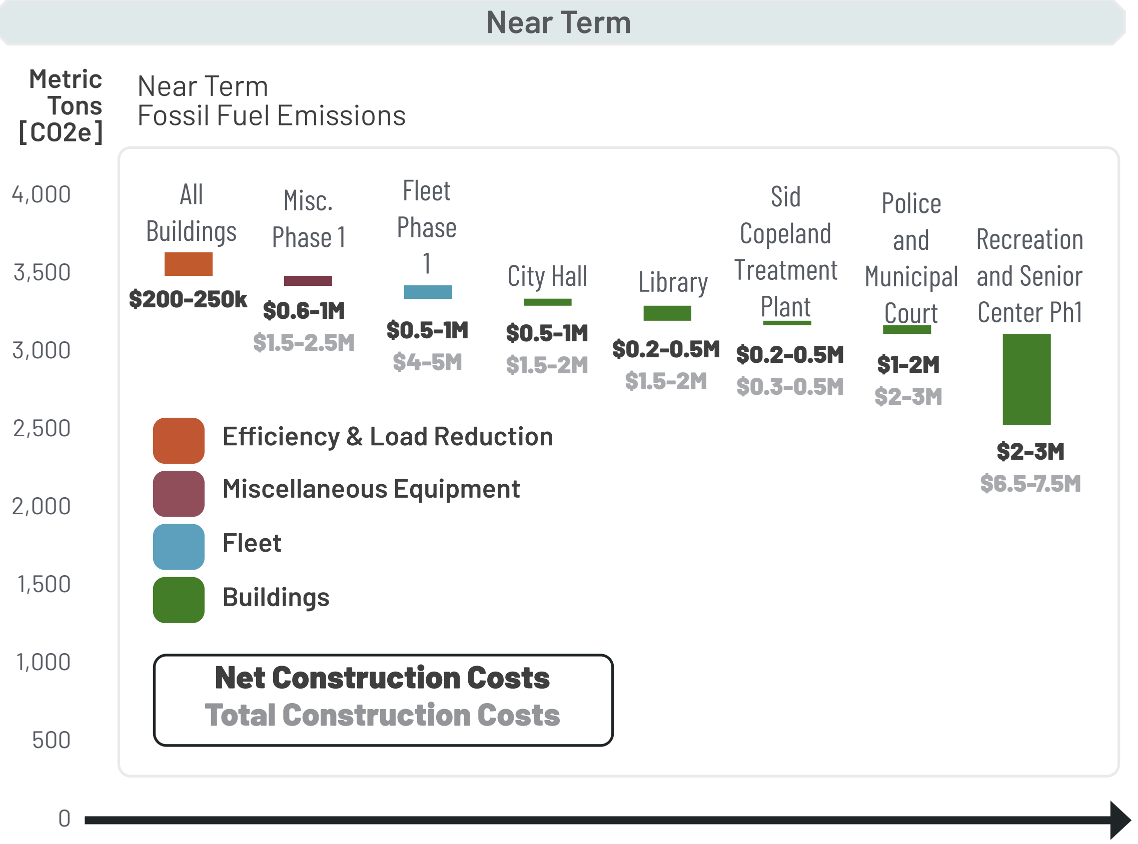
Building costs include costs associated with EV charging (chargers and electrical infrastructure upgrades)

*Assumes 2023 Xcel Grid Mix

Savings Summary by Measure	Life Cycle Carbon Reduced	Baseline Carbon % Reduction	Baseline Electricity Offset
Building Hybrid Electrification	34,000 tonnes	60%	-
Fleet Electrification	6,500 tonnes	12%	-
Miscellaneous Electrification	2,500 tonnes	4%	-
Efficiency & Load Reduction	2,400 tonnes	4%	5%
Renewables	-	-	45%
Total	**45,400 tonnes**	**82%**	**50%**

Decarbonization Implementation Plan | Near Term Plan

Near Term Roadmap



Near Term Projects

Efficiency & Load Reduction

All Buildings

Renewables

(2.5) MW

(8) Sites

Evaluate Xcel renewable purchase needed for 100% offset after installation.

Miscellaneous Electrification

Replace ~40% of remaining gas equipment

Fleet Electrification

(62) Vehicles
(36) ICE - Internal Combustion*
(26) EV - Electric Vehicle

Building Hybrid Electrification & EV Charging

City Hall

(2) Heat Pump RTUs
(17) VAVs
(1) ERV + ASHP
(7) EV Chargers

Library

(3) Heat Pump RTUs
(1) Electric DHW
(9) EV Chargers

Sid Copeland Water Treatment

(1) Heat Pump RTUs
(7) Electric Unit Heaters
(3) EV Chargers

Police & Municipal Court

(3) Heat Pump RTUs
(7) Electric Unit Heaters
(6) EV Chargers

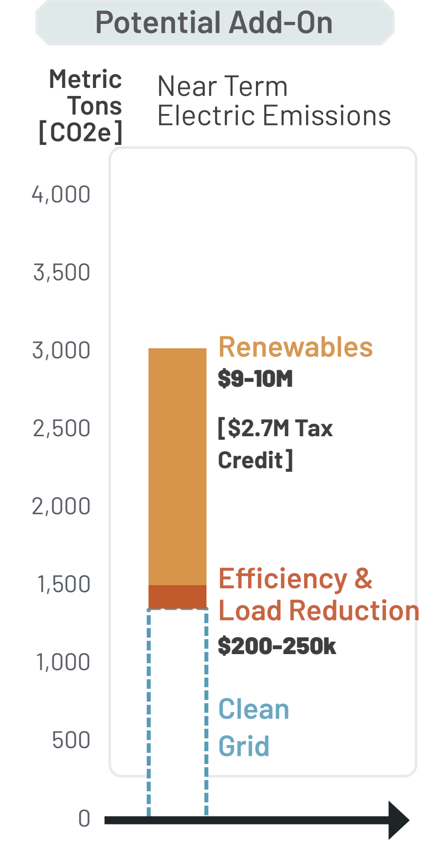
Recreation & Senior Center Ph1

(13) Heat Pump RTUs
(1) Pool NDHU
(5) EV Chargers

Part of the fleet, including police vehicles, do not currently have a viable EV replacement that will be market-ready before the existing vehicles need replacement. Therefore, some ICE's are still necessary for the initial phases of this plan.

See the appendices of the building audit reports for detailed descriptions of scope for each decarbonization measure.

Add-On



Near Term Implementation Notes

Renewable Phasing

Renewables are recommended to be implemented right away to take advantage of existing federal and state funding options.

Efficiency & Load Reduction Phasing

Efficiency & load reduction measures are recommended to be implemented right away to realize any potential downsizing for mechanical and electrical systems as buildings are upgraded in the future.

Recreation Center Phasing

The Recreation & Senior Center measures are split into two phases. The first phase addresses the majority of the RTUs that are near end-of-life and one of the pool natatorium dehumidification units (NDHUs).

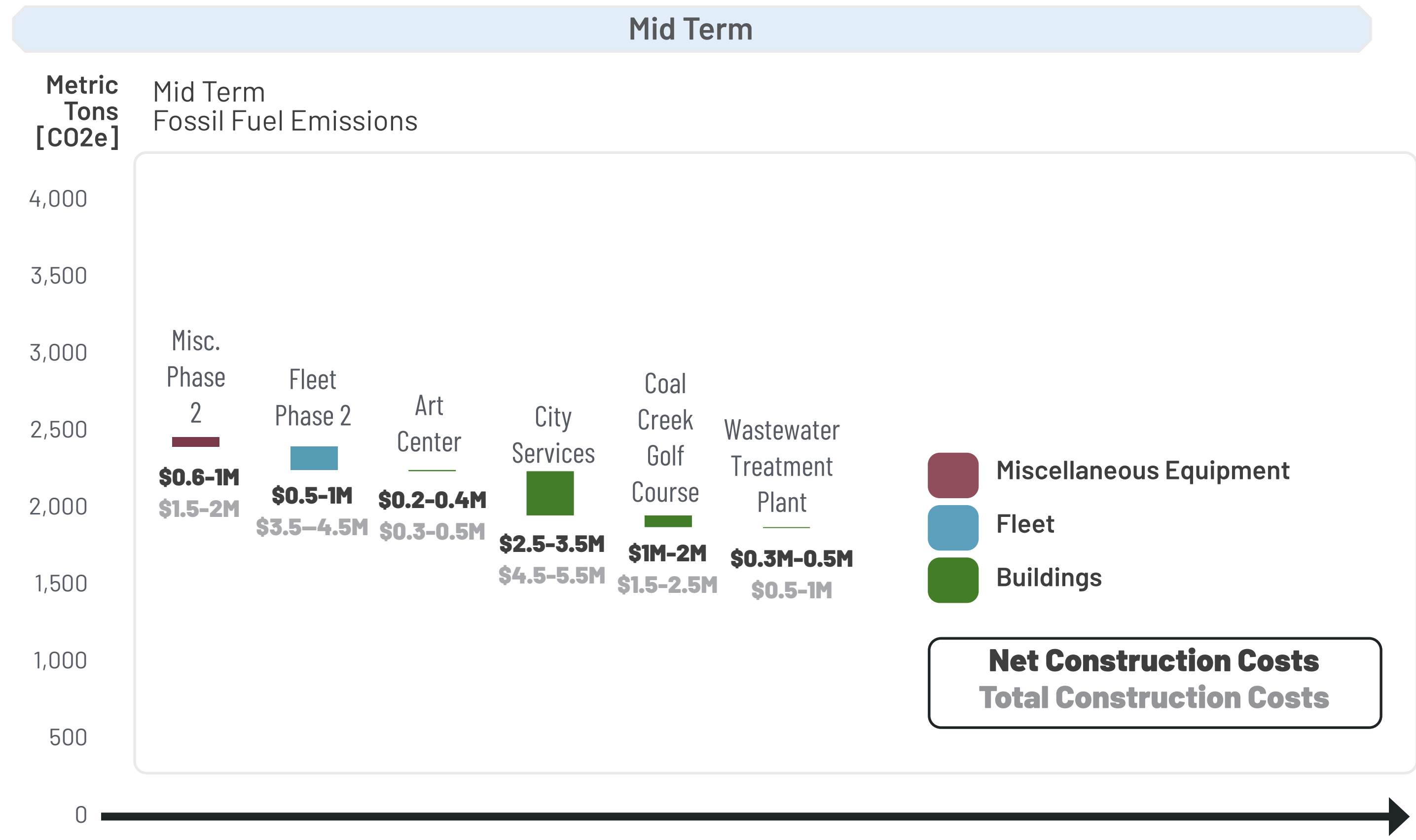
Near Term Summary Table

Measures	Life Cycle Carbon Reduced [tonnes]	Total Construction Costs*	Total Like-for-Like Construction Costs*	Net Construction Costs*
Building Hybrid Electrification	13,000	$12-16M	$8.1-9M	$3.9-7M
Fleet Electrification	1,300	$4-5M	$3.5-4M	$0.5-1M
Miscellaneous Electrification	1,000	$1.5-2.5M	$0.9-1.5M	$0.6-1M
Efficiency & Load Reduction	2,400	$0.4-0.5M	-	$0.4-0.5M
Renewables	-	$9-10M	-	$9-10M
Total	**17,700**	**$27-34M**	**$13-15M**	**$14-20M**

*Costs do not include incentives or grants. The Inflation Reduction Act will potentially offset 30-40% of the cost of renewables and fleet.

Decarbonization Implementation Plan | Mid Term Plan

Mid Term Roadmap



Mid Term Projects

Building Hybrid Electrification & EV Charging

Coal Creek Golf Course

(1) Heat Pump RTUs
(2) ERV + ASHP
Kitchen Electrification
(4) Electric Unit Heaters
(3) EV Chargers

Art Center

(1) ERV + ASHP

Wastewater Treatment Plant

(1) ASHP
(1) Electric Unit Heaters
(1) Electric DHW
(2) EV Chargers

City Services

(1) ERV + WC VRF System
(1) AHU Coil Retrofit
(1) Hydronic AWHP
(1) Electric Hotsy Washer
(~50) Electric Unit Heaters
(1) Electric DHW
(28) EV Chargers

Fleet Electrification

(35) Vehicles
(11) ICE - Internal Combustion
(24) EV - Electric Vehicle

Miscellaneous Electrification

Replace ~40% of remaining gas equipment

See the appendices of the building audit reports for detailed descriptions of scope for each decarbonization measure.

Mid Term Implementation Notes

City Services

Significant upgrades occur at the City Services building where both major building electrification upgrades and EV Charging upgrades are proposed. EV charging scope at City Services is the largest as it will be the home to the majority of the city's fleet.

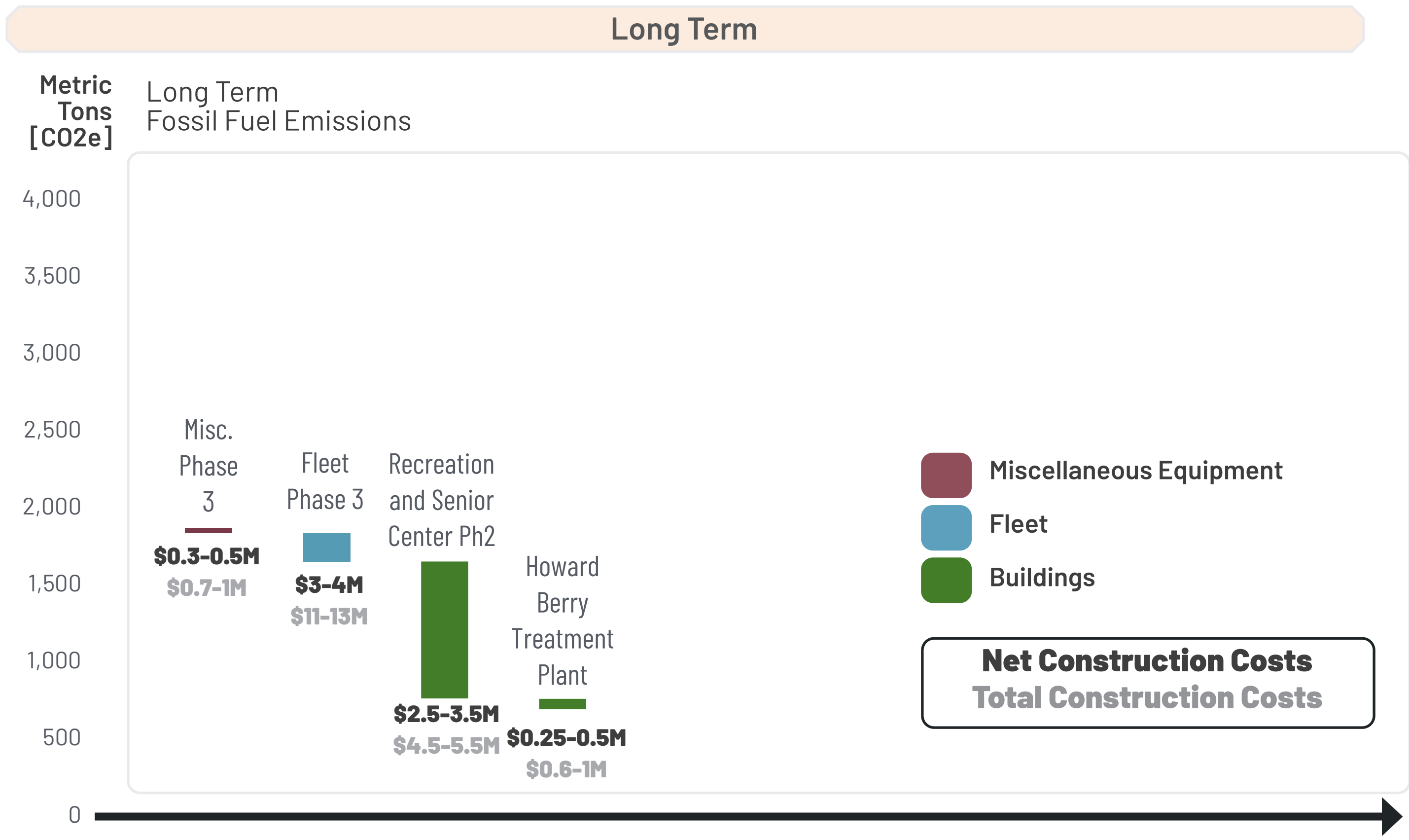
Mid Term Summary Table

Measures	Life Cycle Carbon Reduced [tonnes]	Total Construction Costs*	Total Like-for-Like Construction Costs*	Net Construction Costs*
Building Hybrid Electrification	6,000	$6.8-10.1M	$2.8-3.7M	$4-6.4M
Fleet Electrification	2,400	$3.5-4.5M	$3-3.5M	$0.5-1M
Miscellaneous Electrification	1,000	$1.5-2M	$0.9-1M	$0.6-1M
Efficiency & Load Reduction	-	-	-	-
Renewables	-	-	-	-
Total	**9,400**	**$12-17M**	**$7-8M**	**$5-8M**

*Costs do not include incentives or grants. The Inflation Reduction Act will potentially offset 30-40% of the cost of renewables and fleet.

Decarbonization Implementation Plan | Long Term Plan

Long Term Roadmap



Long Term Projects

Building Hybrid Electrification & EV Charging

Howard Berry Treatment Plant

(1) Electric MAU
(2) Electric Unit Heaters

Recreation & Senior Center Ph2

(1) Pool NDHU
(6) Pool Heat Pump Water Heaters
(1) DHW Heat Pump

Fleet Electrification

(116) vehicles
(1) ICE - Internal Combustion
(115) EV - Electric Vehicle
(68) 2031-2035
(48) 2036-2040

Miscellaneous Electrification

Replace ~20% of remaining gas equipment

See the appendices of the building audit reports for detailed descriptions of scope for each decarbonization measure.

Long Term Implementation Notes

Recreation & Senior Center

The remaining Recreation & Senior Center upgrades are completed during this phase. Note that the remaining gas RTUs are not electrified due to existing electrical capacity. Re-evaluate existing electrical capacity at the time of this study to see if additional RTUs can be electrified.

Long Term Summary Table

Measures	Life Cycle Carbon Reduced [tonnes]	Total Construction Costs*	Total Like-for-Like Construction Costs*	Net Construction Costs*
Building Hybrid Electrification	15,000	$5-7M	$2.3-3M	$2.8-4M
Fleet Electrification	3,000	$11-13M	$8.5-9M	$2.5-4M
Miscellaneous Electrification	500	$0.7-1M	$0.4-0.5M	$0.3-0.5M
Efficiency & Load Reduction	-	-	-	-
Renewables	-	-	-	-
Total	**18,500**	**$17-21M**	**$11-13M**	**$6-9M**

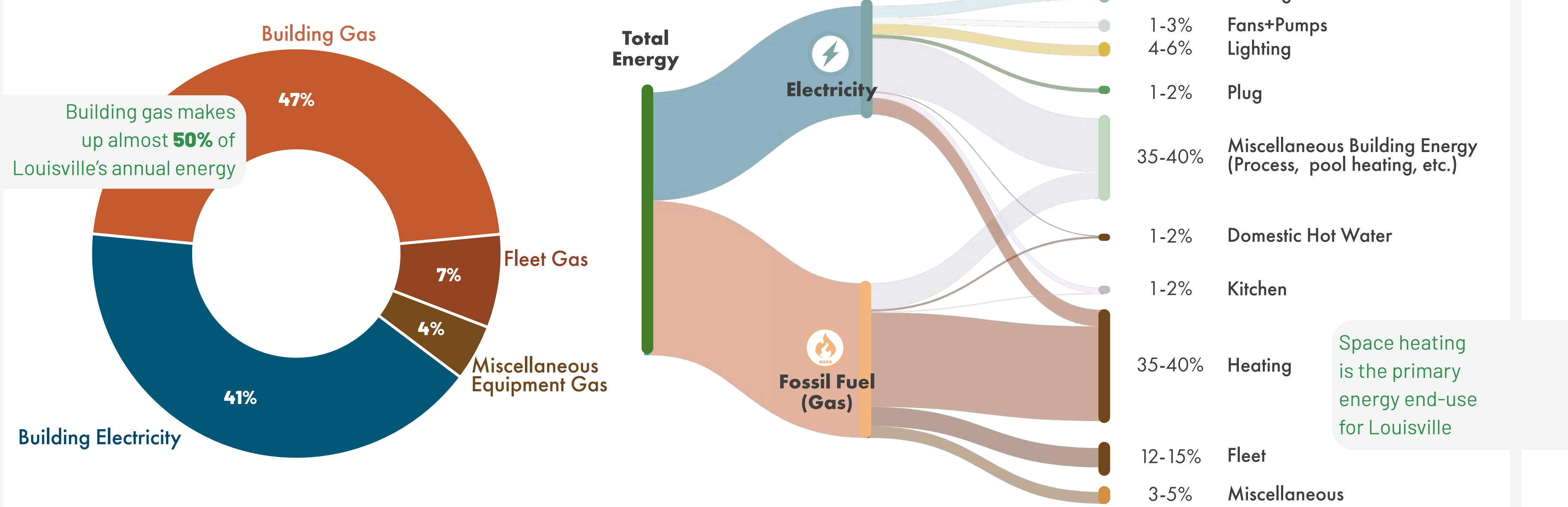
*Costs do not include incentives or grants. The Inflation Reduction Act will potentially offset 30-40% of the cost of renewables and fleet.

Energy vs Carbon

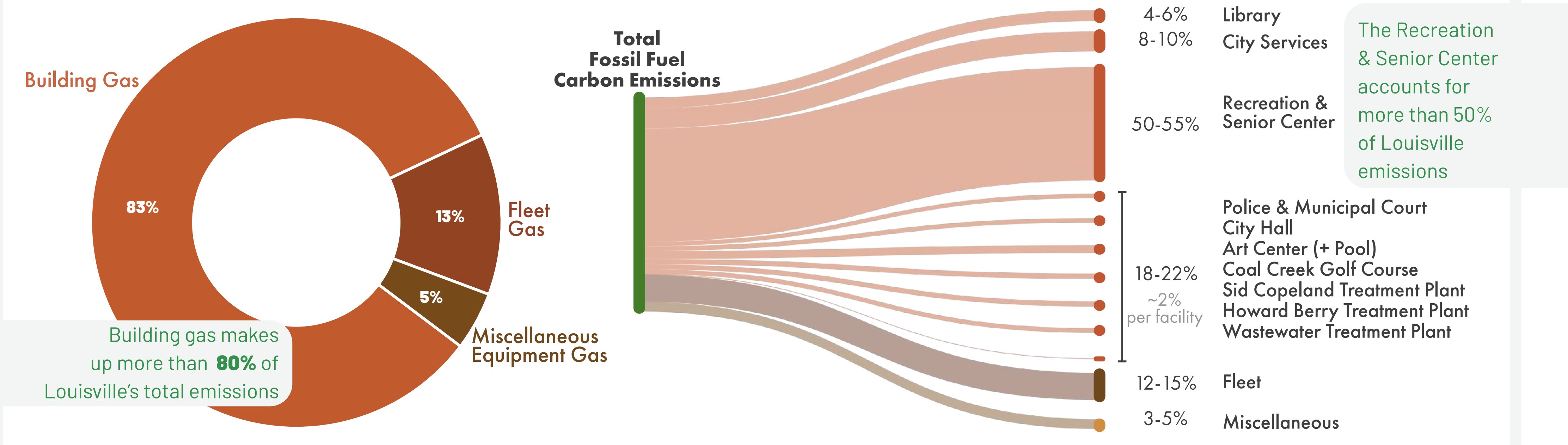
Energy use and carbon emissions are sometimes used interchangeably, but they are quite different. Carbon emissions come from burning fossil fuels – those burnt fossil fuels provide energy to buildings. Energy can also be provided to buildings via zero-carbon sources, such as renewables.

The City of Louisville participates in programs to offset their existing electrical consumption with renewable sources. **Therefore, for the purposes of this study the total carbon emissions at Louisville will be solely driven by on-site fossil fuel combustion and emissions associated with electric consumption will be zero.**

Energy End-Use



Fossil Fuel Carbon Emission End-Use



Cost of Zero Carbon Electricity

The City's decarbonization approach is predicated on 100% renewable electricity. Given this, the question becomes, **what is the best source of renewable power for the Louisville's operations?**

The table to the right summarizes the cost of zero carbon electricity. **Based on this assessment, acquisition of renewable electricity over time is recommended to follow the following prioritization:**

- **Decrease electrical demand through efficiency & load reduction.**
- **On-site renewables**
- **Renewable percentage inherent in standard Xcel electricity over time**
- **Xcel windsource**

Based on this hierarchy, and given the City's current use of Xcel standard and Windsource electricity, this plan identifies the best opportunities for efficiency and on-site renewables for the City.

Type	$/kWh	Pros	Cons
Efficiency & Load Reduction	**0.04 $ / kWh**	• Reduces islanded electricity demand during power outages • Sometimes includes co-benefits • Avoids line loss of utility scale solar • Avoids solar/wind impacts of utility scale renewables	• Some facility disruption; contracting time/process
On-site Renewables	**0.065 $ / kWh** (assumes 25.5% IRA direct payment)	• Demonstrate decarbonization to local Louisville community and encourage others to do same • Avoid solar sprawl at scale - avoiding impacts to rural areas • Enable immediate accrual of energy benefits • 25% of cost incentive available through Inflation Reduction Act • Production incentives available from Xcel with REC sale • Avoid electrical energy loss due to transmitting power over long distances • When on-site renewables are a small percentage of the total usage of facility - such as Louisville's on-site opportunities - most solar electricity would be self used and thus not negatively impact grid • Enable future resiliency through addition of batteries and storage	• Requires maintenance (cost included in cost per kwh to left) • Best installed in conjunction with roof replacement, limiting time window • Can only provide portion of needed renewable electricity
Standard Xcel Electricity	**0.065-0.070 $ / kWh**	• Provides some renewable electricity inherent in mix, increasing over time • More expensive than on-site solar per kwh • Ease of implementation, will occur on its own over time –no need for contracting for on-site renewable installation	• Possibility of Xcel not meeting promised renewable target/uncertainty/longer uptake • Solar and wind sprawl/impacts in rural/farming areas • Line loss/less efficient • Doesn't support resiliency
Xcel Windsource	**0.07-0.08 $ / kWh** (base rate + 0.015 $/kWh)	• Enables immediate provision of 100% renewable electricity; not subject to allocation • Ease of implementation –no need for contracting for on-site renewable installation • Contractually guaranteed renewable source	• Most expensive source of renewables • Avian and aesthetic impacts of wind turbines • Line loss/less efficient • Doesn't support islandability
Xcel Renewable Direct*	**0.065-0.070 $ / kWh**	• Approximate cost parity with standard grid electricity • If can be obtained, enables immediate acquisition of renewable power	• Not currently available • Limited availability, subject to new renewable projects • Solar and wind sprawl/impacts in rural/farming areas • Line loss/less efficient • Doesn't support resiliency

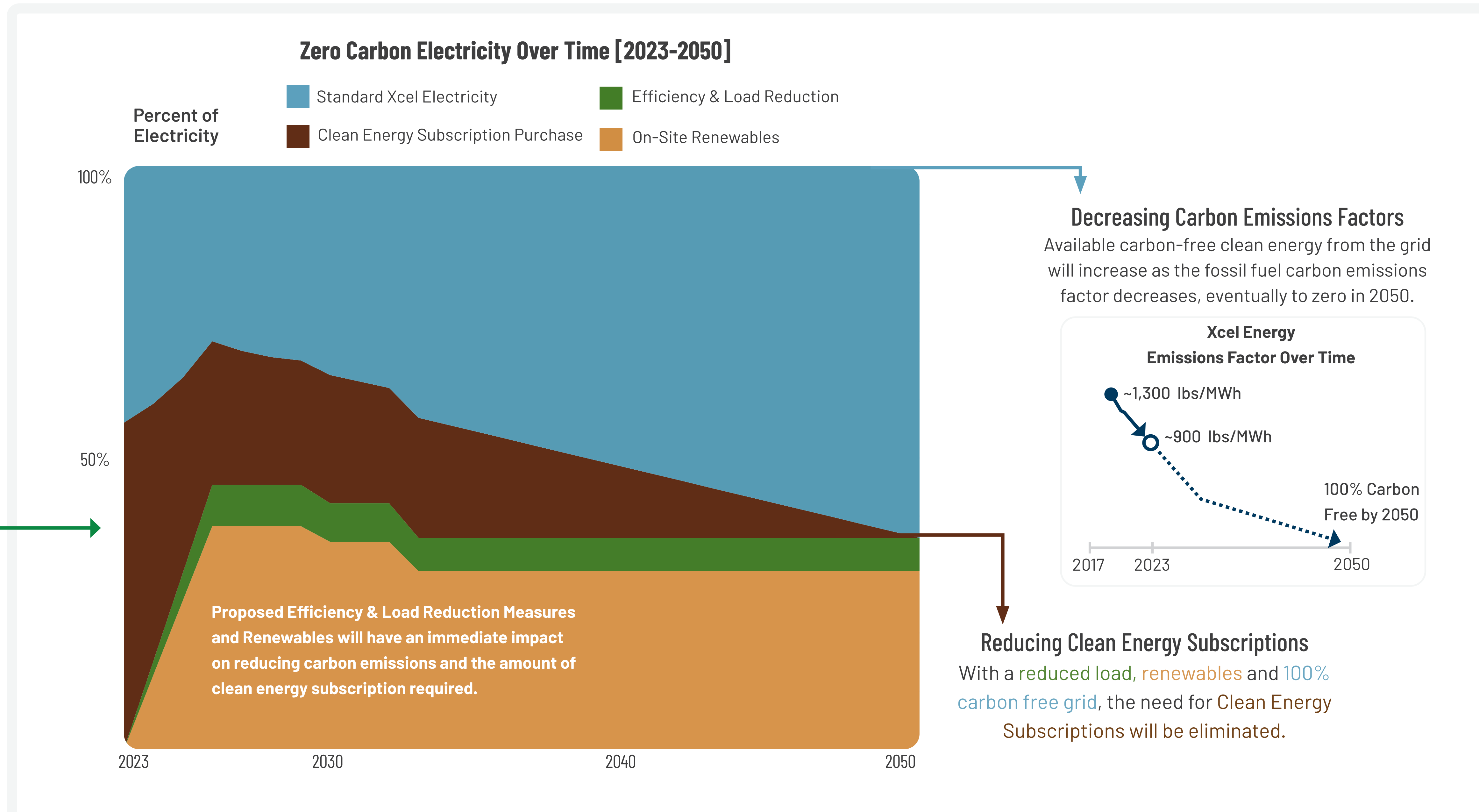
**Renewable Direct is only available occasionally based on subscription. There is a current waiting list to join.*

Zero Carbon Electricity Strategy

The City of Louisville will utilize a toolbox of strategies to successfully electrify and decarbonize emissions associated with on-site fossil fuel combustion. With an electric utility grid that still has fossil fuel emissions embedded, load reduction and renewables will be key in a quick carbon emissions decrease. Additionally, Xcel's commitment to achieve a 100% carbon free grid by 2050 will play a large role in the decarbonization effects of electrification over time. Combining all these strategies will eliminate the need for Clean Energy Subscriptions over time. The following strategies support the assumption that emissions associated with electric consumption will be zero.

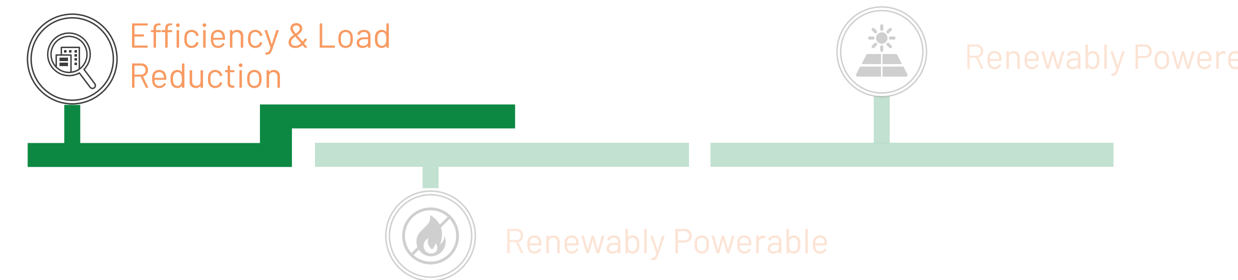
Louisville currently **acquires more than 50% of its clean electricity through a clean energy subscription.**

The rest of the city's electricity is from clean grid sources.



Efficiency & Load Reduction

The recent shift towards decarbonization still operates on the core foundation of reducing building's overall energy use. Measures can have two functions: reducing annual energy/carbon consumption and reducing peak building demand load. These measures are often incentivized by Xcel and may have shorter paybacks. Recommended measures throughout the city are summarized in the table below. See the appendices of the building audit reports for detailed descriptions of scope for each measure.



Load	Carbon	Measure	Art Center	City Hall	City Services	Coal Creek Golf Course	Library	Sid Copeland Treatment Plant	Police and Municipal Court	Recreation and Senior Center	Howard Berry Treatment Plant	Wastewater Treatment Plant
■	■	**GLAZING UPGRADES** Upgrade glazing units where failing/single-pane glazing still exists.	●	●						●		
□	■	**HVAC OCCUPANCY SENSORS** Provide occupancy sensors for HVAC setback.							●			
■	■	**POOL COVER** Provide pool cover for reduced evaporation losses.								●		
□	■	**PUMP VFDS** Provide variable speed for pumping systems.					●					
□	■	**CONTROLS OPTIMIZATION / RETRO-COMMISSIONING (RCX)** Optimization of existing controls sequence and operation.	●	●	●		●		●	●		
□	■	**SCHEDULE SAUNA** Provide temperature scheduling of Sauna during unoccupied hours.								●		
■	■	**DUCT AIR SEALING/INSULATION** Provide duct air sealing for leaky duct systems.					●					
■	■	**ENVELOPE AIR SEALING** Provide envelope air sealing for leaky buildings.	●	●	●	●	●	●	●	●		●
□	■	**LIGHTING CONTROLS/VACANCY SENSORS** Upgrade lighting controls for vacancy sensors.		●		●	●	●	●	●	●	●
□	■	**ADVANCED PLUG LOAD REDUCTION** Plug load reduction systems.		●	●	●	●		●	●		
■	■	**LED LIGHTING** Upgrade lighting to LED.		●				●			●	
□	■	**COMPRESSED AIR LEAKS** Provide commissioning to compressed air system to resolve any leaks.			●	●						
■	■	**ENVELOPE INSULATION** Provide envelope insulation upgrades where no-insulation or poor insulation exists.				●						

Renewably Powerable | Building Electrification

Why Are We Electrifying?

A powerful tool towards decarbonization is "electrification", which has become a big movement not just in the construction industry, but also in most industries of our society. There are a few driving principles behind this movement:

Electricity is currently produced using a range of sources:

- Carbon emitting fossil fuels – natural gas, coal, oil
- Zero-carbon sources – hydro-power, nuclear, wind, solar, etc.

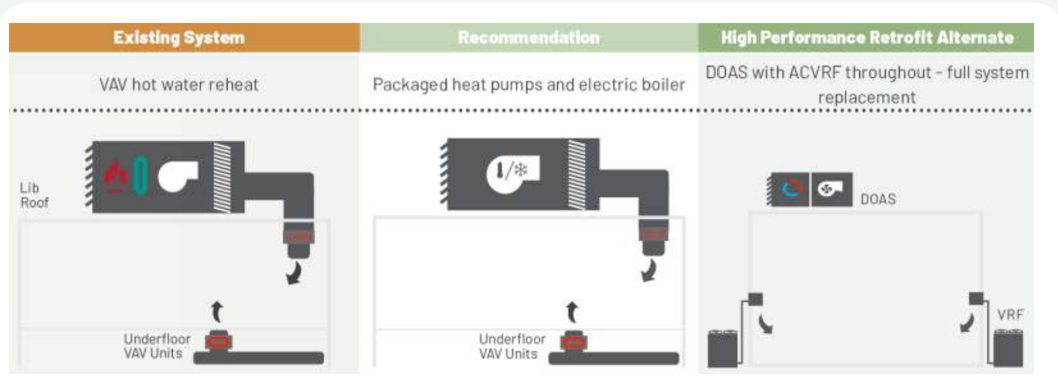
Natural gas inherently emits carbon when burned, meaning gas-based heating sources will always emit carbon

The power grid is shifting away from fossil fuels and towards zero-carbon sources, due to a variety of factors including economic, regulatory, and societal

Electrifying our heating systems means their carbon emissions will drop as the grid continues to add more renewables, eventually dropping to zero

The first step for electrifying space and water heating system was to evaluate various system options. Options were evaluated at each building site, where considerations like energy and carbon savings, incremental cost impact, complexity of design, and additional other factors were all considered when making a recommendation. **Please see the individual building audit reports for additional detail.**

HVAC System Matrix Example



Full Electrification vs Hybrid Electrification: Space & Water Heating Systems

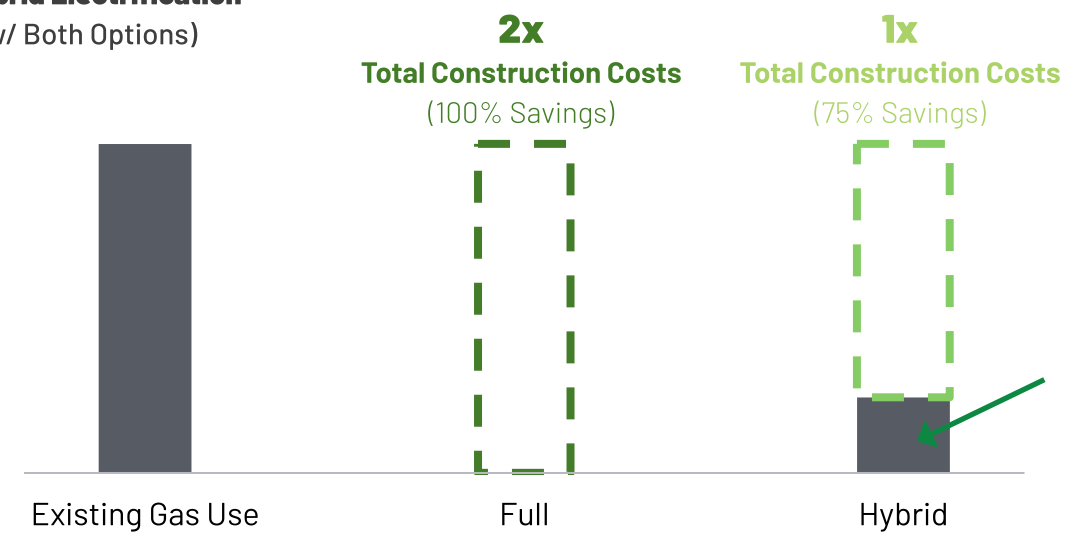
Heating is the single largest source of carbon emissions by Louisville, through burning of natural gas in boilers and furnaces. Heat pumps offer an incredible opportunity to both electrify and save energy, since they run on electricity and are also ~2-3x more efficient than natural gas based heating.

However, while heat pump-based heating is an excellent tool for building electrification, today's technology still requires supplemental heating for the coldest days. In general, it can be expensive to electrify the "last 10%" peak, because the system is sized for the coldest day of the year, which rarely occurs.

Hybrid heat pump/natural gas peaking systems are a useful tool for sensible and cost-effective decarbonization, as they strike a balance between carbon reduction, construction costs, and utility demand costs. For fully electrified heating systems, that supplemental heating would be provided by electric resistance heating, which is capable of low temperature operation. However, in most facilities this approach results in two negative consequences: a costly electrical service upgrade is required, and operating expenses increase due to high peak electrical draw and resulting Xcel demand charges. In many cases, using gas as the peaking fuel source on the coldest day will mitigate need for an electrical upgrade while still achieving significant carbon reductions. The decarbonization "sweet spot" is a heat pump system that meets most of the annual heating demand, supplemented by a gas system to meet the rare coldest days. This results in substantial carbon reductions (i.e. 75%+) while reducing overall costs up to 50%. Retaining the gas supplemental heating until the next replacement cycle in the late 2030s enables:

1. Potential technology evolution, such as 100% heat pump heating even on coldest days, renewable fuel cells, and/or strategic and accessible use of bio-gas for peaking boilers.
2. Developments in demand shifting technology (e.g. batteries), resulting in lower demand charges.
3. Changes in relative cost of natural gas vs. electricity, increasingly favoring electricity.
4. Full utilization of useful life of natural gas equipment.

Full vs Hybrid Electrification
(At Sites w/ Both Options)



Hybrid solutions do not make sense at some sites due to existing electrical capacity and expected future loads. In these cases, **full electrification** is recommended.

The last 25% of gas usage is **~4x more expensive** to electrify than the first 75%.

Renewably Powerable | Building Electrification

Additional Considerations

Heating Capacity Oversizing

For the most part, electrified heating system capacities were sized similarly to the existing fossil fuel equipment. As these projects enter the detailed design phase, there is opportunity to minimize electrical impact by identifying equipment that can be downsized. This is particularly impactful in spaces that have freeze protection heating.

Structural Impacts

Some of the proposed measures have an impact on the existing building structural system. These impacts have been included in the construction costs and are detailed in the building audit reports.

Staged Mechanical Electrification

In general, Building Electrical Code requires electrical service to be sized based on nameplate power data for mechanical equipment. Thus, if all mechanical equipment is electrified at the same time, the electrical service upgrade would need to match the total nameplate power. This can lead to oversized electrical systems as mechanical systems are often oversized. For example, the Recreation & Senior Center existing nameplate load is calculated at 2,200 Amps, but utility data shows the actual demand peaking at 550 Amps.

As an alternate approach, Electrical Code also allows for the use of metering data to determine the actual power draw of the equipment; the actual data is then used to determine whether an electrical service upgrade is needed. A staged approach would install a couple electrified units and trend the new electrical load; if the power draw of the mechanical equipment is proven to be less than the nameplate, then additional load could be added to the existing service. This process would be repeated until either the service needs to be upgraded or all units are electrified.

Building Electrical System Considerations

Battery System

Use of battery systems is growing across the building industry, both for resiliency and demand reduction purposes. However, batteries are not suited for every situation. A 250 kW battery system was evaluated for the Recreation and Senior Center, mostly for demand reduction and load shifting purposes. However, the high first cost was unable to offset the annual demand cost reductions, and resulted in a payback longer than the measure life. While this option is currently not included in this plan, it could become a viable option in the future as the technology improves and becomes more cost-effective.

Backup Power

Throughout this study, the impacts to existing backup power systems were evaluated where buildings already had generators. In general, it is recommended to continue using fossil fuel-based generators (e.g. propane) instead of using batteries. Since these units very rarely run, the added cost of batteries is not justifiable. Additional information is available for each building in the building audit reports.

Net Cost of Electrification

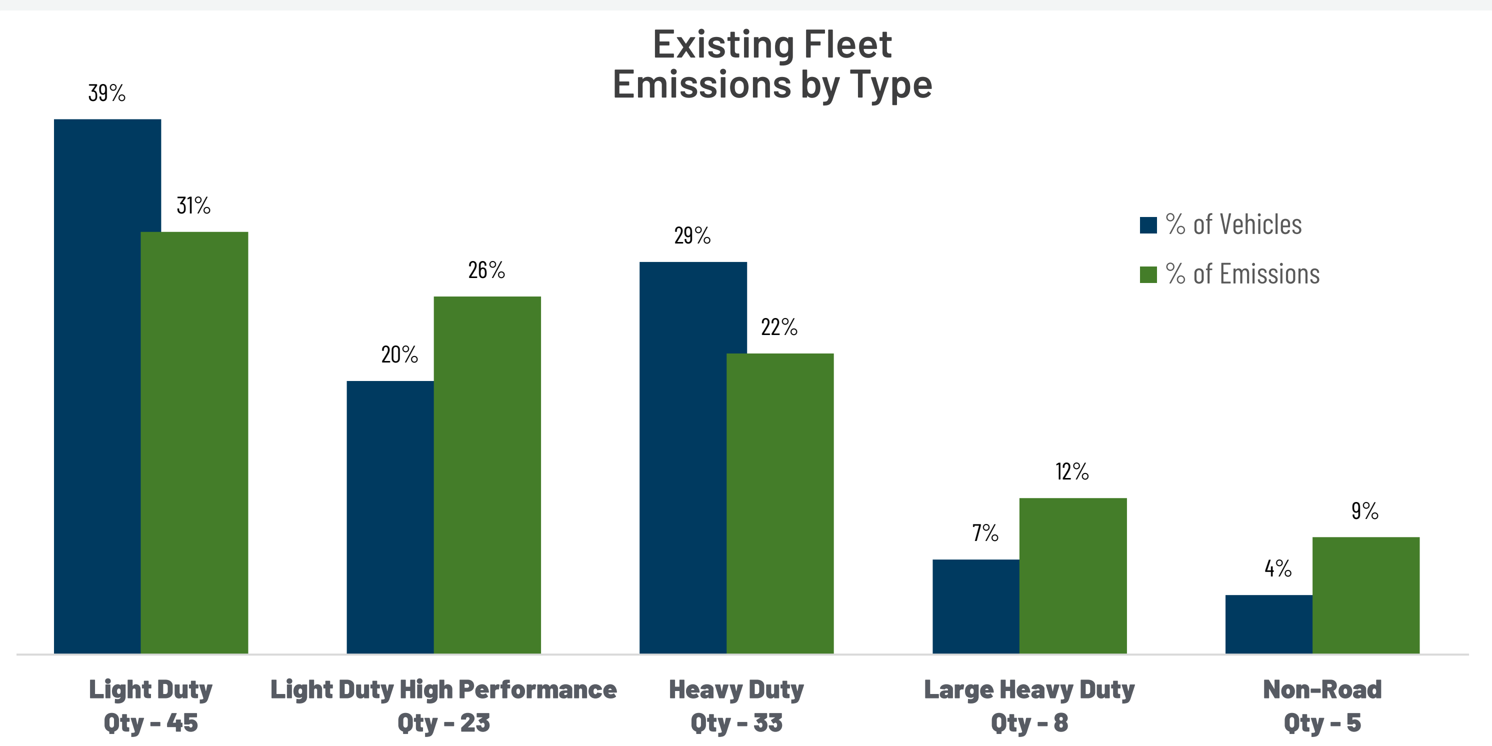
The total cost is the total amount that will need to be allocated for budgetary purposes. The net cost represents the total cost minus the replacement cost that would've been spent to replace the existing units with like-for-like fossil fuel units. Note that there is a significant net cost premium for full electrification due to electrical upgrades.

Existing Fleet

The City of Louisville provided data from 2022 for their fleet vehicles. Vehicles utilized by the city were divided into five categories.

1. **Light duty vehicles –** Light duty vehicles make up the majority of the vehicles the city owns. They typically encompass any normal passenger vehicle such as sedans, SUVs, light pickup trucks, and minivans. This vehicle is mostly used for transporting people and small amounts of cargo.
2. **Light duty high performance vehicles** – This category incorporates mainly police vehicles. These vehicles are similar to the light duty vehicles but have been altered for higher performance due to specific police requirements.
3. **Heavy duty vehicles –** Heavy duty vehicles mostly incorporate large pickup trucks. These vehicles are used for hauling and towing heavy loads.
4. **Large heavy duty vehicles* –** This category is for the large snow plows and street sweepers. These vehicles typically are only used seasonally and have a varying work load that is dependent on the weather.
5. **Non-road vehicles* –** These vehicles are typically construction type vehicles. There usage is usually measured in hours of operation instead of miles.

**There are not currently market-ready EV alternatives for these categories.*



Please refer to the appendix for additional details on fleet electrification

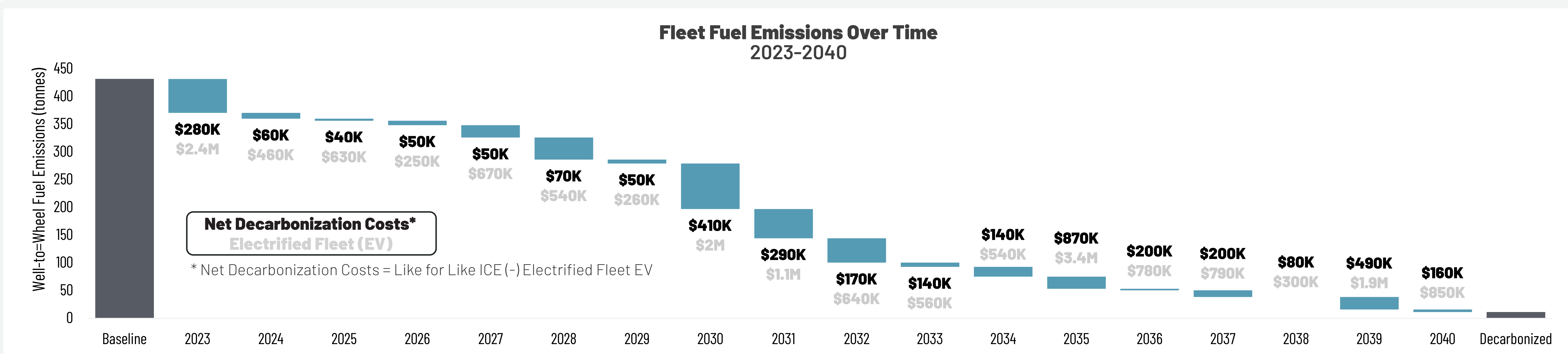
Department	Vehicle Category 1 Light Duty	2 Light Duty High Performance	3 Heavy Duty	4 Large Heavy Duty	5 Non-Road	Total [#]
Building Inspection	3					**3**
Code Enforcement	2					**2**
Engineering	4					**4**
Facilities	3		1			**4**
Finance	2					**2**
Parks	10		12			**22**
Police	7	23				**30**
Rec Center	1		2			**3**
Streets			4	5	2	**11**
Utilities	2		10	2	3	**17**
Water Treatment	4		1			**5**
Waste Water Treatment	3		1			**4**
Open Space	4		2	1		**7**
Grand Total	**45**	**23**	**33**	**8**	**5**	**114**

Existing Fleet Emissions

Based on vehicle-specific annual usage, fleet emissions were calculated using publicly-available data from the Environmental Protection Agency. Three key factors contribute to a vehicle's annual CO2 emissions: average miles driven/hours operated, fuel efficiency, and CO2 emissions factor of fuel source. Emissions data is well-to-wheel, meaning it captures to complete life-cycle emissions associated with extraction, production and consumption of fuel.

Fleet Conversion Plan

Transitioning from internal combustion engine (ICE) vehicles to EVs can substantially lower overall carbon emissions. It is recommend that the City replace vehicles with EVs after the current vehicle has met its replacement criteria. Early replacement is not assumed in the analysis – simply a year-over-year swap with an EV once the vehicle reaches the appropriate mileage or service life based on the vehicle type (i.e. 12yr/120,000 for most light duty vehicles).



Vehicle Availability

Not all vehicles in the City's fleet have suitable replacements commercially available. The current EV market is dominated by light duty vehicles, with emerging options in pickup and SUV categories. There currently are no manufactures that outfit an EV for police vehicle use. However, the market is rapidly changing so over the course of the next 5 years new innovation and demand should allow for police patrol vehicles to comes to market. Some vehicles will need to be replaced before there is an EV equivalent on the market, in those cases it is assumed that a new ICE vehicle will be purchased and then will be replaced with an EV in the next cycle. It is assumed all type 2 vehicles (mostly police patrol vehicles) will not have an EV equivalent until 2027 and all type 3, 4, and 5 vehicles until 2030.

Summary of Financial Metrics

EVs have a higher initial capital cost, but lower fuel and maintenance costs than ICE vehicles. Fueling vehicles using electricity is approximately 25% the cost of gasoline. Maintenance costs are 50-75% of gasoline equivalents. Some of the initial cost is offset by federal incentives. Over time, initial costs for EVs are also trending downward as production volumes increase and battery costs decreases.

Over the next 17 years, the Total Cost of Ownership (TCO) of replacing vehicles with EVs would be comparable with ICE vehicles. The amount of CO2 emissions saved would be ~9 million lb. Analysis assumes 2.5% inflation, electric rate inflation of 2.44%, and cost escalation of 2.65%. Initial cost is inclusive of federal incentives for EVs (both passenger and heavy duty).

Fleet Conversion Life-Cycle Cost Analysis (2023-2040)

Scenario	Vehicle [$]	Fuel [$]	Maintenance [$]	Total [$]	2023-2040 Life-cycle Emissions [Tonnes CO^2e]	Decarbonized Reduction from Baseline in 2040 [%]
Like-for-Like (ICE)	$14.5M	$3.9M	$1.6M	$20M	**7,300**	**-**
Electrified Fleet** (EV)	$18.0M	$1.7M	$1.2M	$21M	**3,100****	**97%**

**Costs & Emissions are based on the fleet conversion happening over time and account for both costs and emissions associated with the existing ICE vehicles before they are electrified.

Renewably Powerable | Electric Vehicle Charging

Charging Infrastructure

Overview

Fleet electrification requires infrastructure to charge vehicles to they can be used in daily operations. In addition, there is a desire to provide public charging for electric vehicles to encourage residents to drive EVs themselves. **The costs associated with this infrastructure are included in the building decarbonization costs.** This includes any electrical service upgrades needed to accommodate the new electrical demand. Refer to the Building Audit reports for site specific information on EV Charging infrastructure and it's impacts. Fleet charging should occur almost entirely on-site at City facilities. Charging at publicly accessible stations is much higher cost and adds operational uncertainly.

Charging Power

Charging stations are available in a range of power levels. Level 2 and 3 charging are the most appropriate for fleet use. Level 2 outputs AC power from 7-18kW, adding 15 to 40 miles of range per hour depending on the vehicles type and power level. Level 2 charging requires a 208 volt or 240 volt AC service. Level 3 outputs DC power at 25+ kW and typically requires a 480 volt AC service.

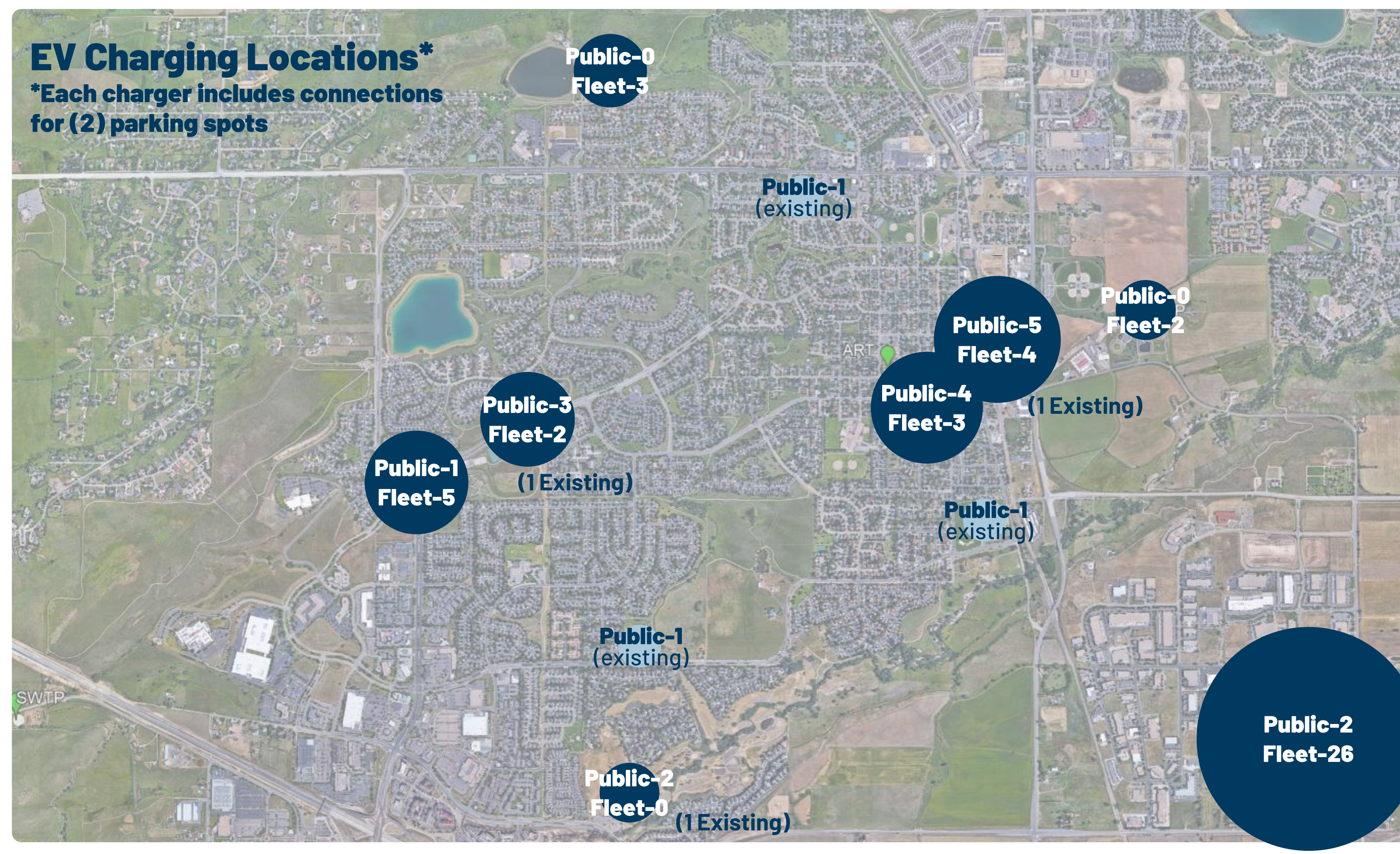
Primarily Level 2 charging for fleet use is recommended, as it provides good value for infrastructure investment when factoring in cost and time required to charge when compared to Level 3 chargers. Level 3 chargers can make sense when high use vehicles need quick recharging, though these chargers will cost more to install and incur a higher charging cost than level 2 chargers.

Public Charging

It is recommended to install a small amount of charging intended to be used by City residents and the general public. These chargers are an important demonstration of the City's decarbonization efforts and provide a valuable city service for residents. These should be located where the intended use of a site aligns with public use.

	# of EV Charging Parkings Spaces			
	Existing	New		Total
	Public Charging	Public Charging	Fleet Charging	Public + Fleet Charging
Facility	[#]	[#]	[#]	[#]
Art Center	0	0	0	0
City Hall	0	8	6	14
City Services	0	4	52	56
Coal Creek Golf Course	2	4	0	6
Library	2	10	8	20
Sid Copeland Water Treatment Plant	0	0	6	6
Police and Municipal Court	0	2	10	12
Recreation and Senior Center	2	6	4	12
Howard Berry Water Treatment Plant	0	0	0	0
Wastewater Treatment Plant	0	0	4	4
Total	**6**	**34**	**90**	**130**

Each EV charger has two charging connections, meaning it provides charging for two parking spaces.



Miscellaneous Equipment Conversion Plan

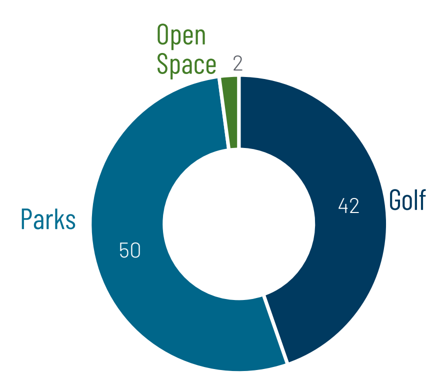
Small gasoline engines, like those in gas powered riding mowers and garden equipment, are fast becoming a significant contributor to smog forming air pollution. These small engines emit hundreds of times more pollutants per hour than automobile engines.

New lithium battery powered riding mowers, park equipment, and leaf blowers compete effectively compared to gasoline powered tools regarding power and performance, and have significantly longer operating run times than older electric models. On top of that, these new tools are quieter and will not produce the lingering gasoline smells that are an unhealthy indicator of the fumes and pollution that gasoline powered equipment produce.

Current Equipment

The city currently has three departments that own the majority of the small engine vehicles and equipment: the golf department, parks and recreation, and open space.

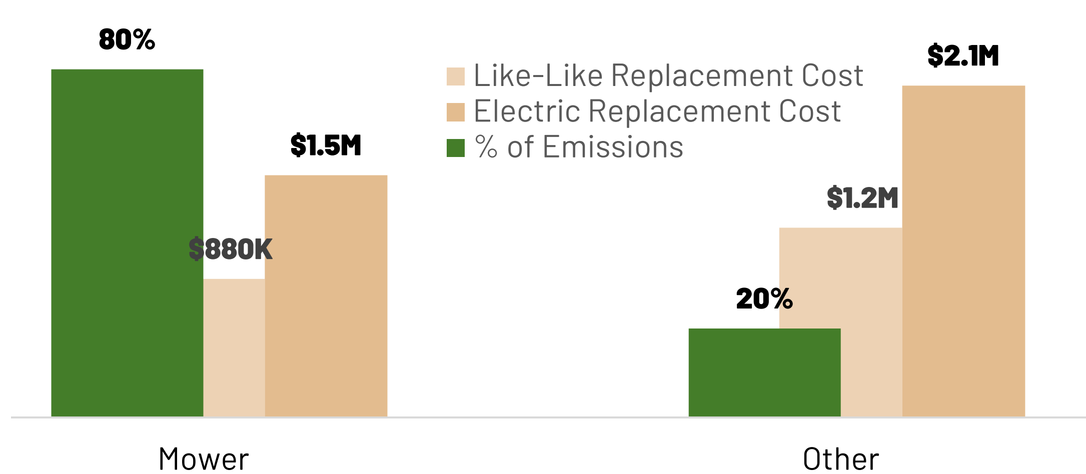
Equipment by Department



Equipment by Type

Equipment	Qty	Equipment	Qty
Aerator	1	Mower	35
ATV	18	Roller	1
Blower	3	Saw	1
Cart	3	Skid	5
Chainsaw	2	Sprayer	1
Chipper	2	Tractor	4
Forklift	1	Trimmer	4
Generator	11	Washer	1
Loader	1		

Lawn mowers account for **80%** of total emissions



Small Engine Electrification

Most the small engine equipment type categories currently have electric equivalents available. The categories that do not or have very limited choices are, tractors, skid, loaders, chippers, and rollers. Some of these types of equipment are actively being developed. Additionally, in the mower category there are some specialty golf course lawn mowers that do not have a good electric choice.

Unfortunately, unlike the fleet electric vehicles, most of the electric lawn care equipment does not have battery warranty that matches the equipment warranty. As this technology matures, the warranties will get better.

Another large hurdle for this equipment is the cost of the electrified version. Most electric versions of the non-handheld equipment is about 1.75 times the cost of the gas version. Maintenance costs are lower, but not enough to offset the initial up front cost.

It is recommended to replace existing equipment that is at the end of its life (most large equipment is replaced by the department every 8 years) with the electric equivalent.

Refueling & Charging

With the newest battery technology available, most of the larger equipment is able to operate during a typical work day. This equipment isn't designed for battery swap out in the field, so if the battery charge got low the operator would need to plug it in somewhere to charge or switch to a different piece of equipment. Typically they would need to switch to a different piece of equipment. The charging time for this equipment isn't fast enough to get a full charge in a reasonable amount of time. For smaller hand-held equipment, spare batteries can be carried along to change out when the charge gets low. Additional training may be required to get operators use to carrying around extra batteries that are fully charged. When the city switches the fleet vehicles to EV's, most work style trucks may have the ability to charge auxiliary devices like batteries for small hand held equipment. For most of this equipment it is recommended that everything be charged overnight as it is unlikely that anything would be able to be charged during the day and used that same day.

Charging

Most small motor equipment will require at least a 120v 15amp circuit to charge. It is recommended that there is one dedicated plug for each piece of equipment. Additional electrical infrastructure will be needed to make charging plugs accessible to all equipment where it is stored.

Battery Life

Battery technology is improving significantly year to year. Most batteries are lithium based and have longer life spans than the equipment. Depending on the manufacturer, the battery warranty may or may not match the typical equipment life. For small hand-held equipment, purchasing extra batteries will allow for longer use and does not add much cost. For larger equipment, the battery can be a significant part of the cost and having a second battery on hand will be cost prohibitive. In addition, the larger equipment isn't always designed for quick battery change outs. Similar to electric vehicles batteries for this type of equipment will eventually have warranty life greater than the cities typical use.

Photovoltaics

Renewable energy plays the important role of offsetting remaining carbon emissions after building load reductions and electrification has been made. This can be handled through a variety of avenues – behind-the-meter systems, Community Solar Gardens, and utility subscriptions. Since City of Louisville already offsets its current electricity with renewable utility subscriptions, the focus was on customer-owned, behind-the-meter systems that would provide more value to the City of Louisville.

On-site Versus Grid Purchase

Some of the benefits of on-site solar vs renewables purchased from the grid are listed below.

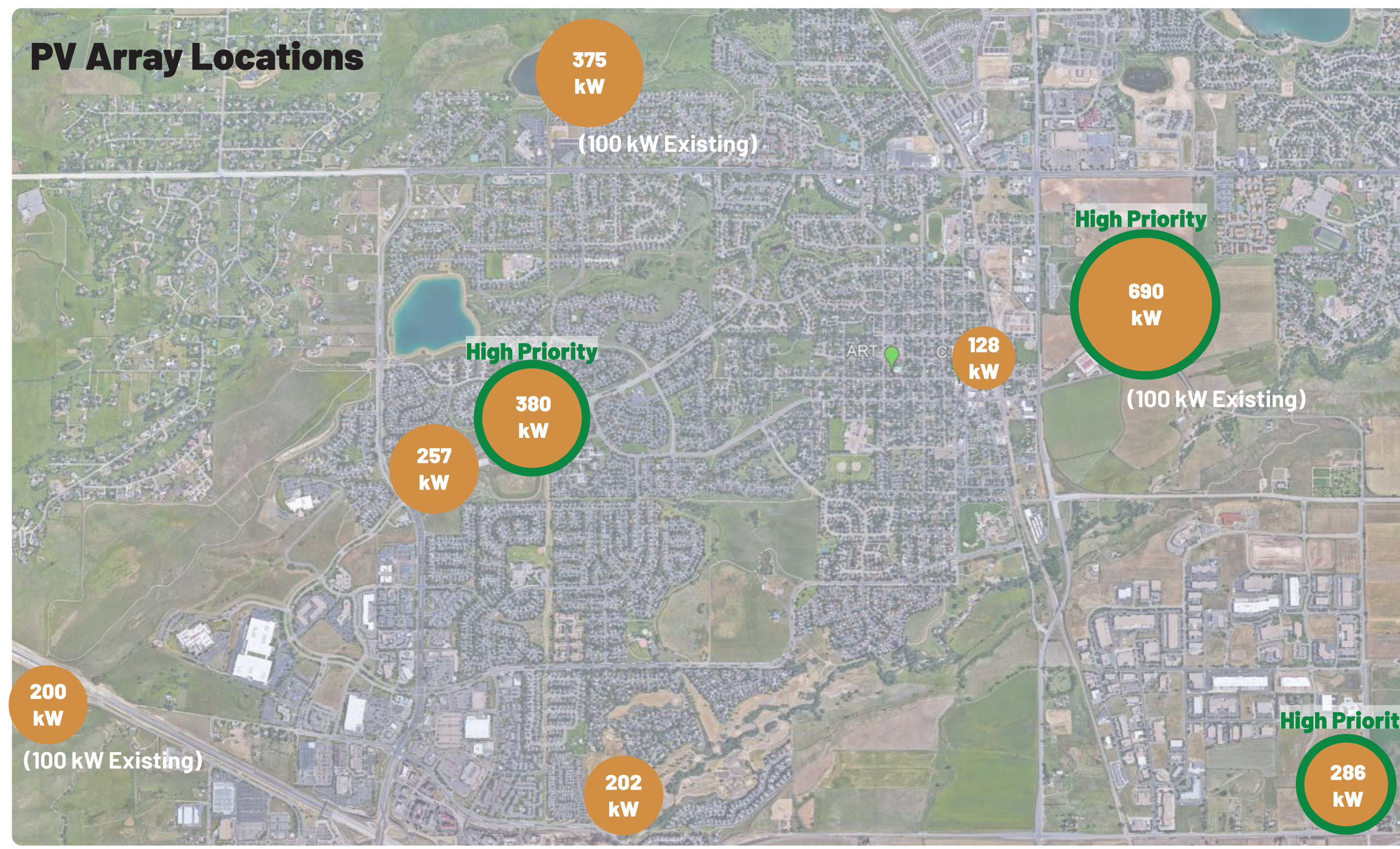
- Avoid solar sprawl at scale - avoiding offsetting of impacts to rural areas.
- Avoid electrical energy loss due to transmitting power over long distances.
- Dispersed approach is typically grid beneficial, especially when on-site renewables are a small percentage of the total usage of building - most solar on this bldg would be self used.
- Enable future resiliency through addition of batteries and storage.
- Demonstrate decarbonization to local Louisville community.

High Priority Sites

High priority sites were recommended based on the following considerations:

- Financial and technical feasibility
- Impact & considerations with land development

	Proposed			
Facility	Array Type [-]	Array Size [kW]	Array Production [kWh/year]	Cost Estimate [$]
Art Center	None	-	-	-
City Hall	None	-	-	-
City Services	**Ground**	**286**	**315,000**	**$870K**
Coal Creek Golf Course	Ground	202	252,000	$1.2M
Library	Roof	128	174,000	$520K
Sid Copeland Water Treatment Plant	Ground	375	559,000	$1.3M
Police and Municipal Court	Ground	257	397,000	$910K
Recreation and Senior Center	**Ground**	**380**	**569,000**	**$1.2M**
Howard Berry Water Treatment Plant	Ground	200	302,000	$750K
Wastewater Treatment Plant	**Ground**	**690**	**1,026,000**	**$2.1M**
Total			3,593,000	$8.8M



On-Site Design Considerations

Where to create solar arrays: ground, rooftop, or parking canopies?

The first constraint on system size is the available space on the property. Since ground mounted solar arrays are typically the least expensive, this is the first priority, followed by rooftop and then parking canopies. Solar systems benefit from economies of scale – generally, the larger the system, the cheaper it is per kW.

Financial size optimization

In some cases, it is possible to add more solar capacity than can be used by the facility. Typically, based on current regulations, this scenario would mean giving the value of this electricity back to the utility. All recommended on-site solar in this roadmap avoids significant amounts of such value "give back".

Roof age

Roof membranes and solar PV modules have similar lifespans, about 30 years. De-installation/re-installation of a solar system is costly, creating unviable economics in addition to unnecessary hassle for facilities management down the road. The PV array at the Library is the only recommended system that is roof-mounted. This array should be installed at the time of the Library roof replacement.

Assumed useful life of solar

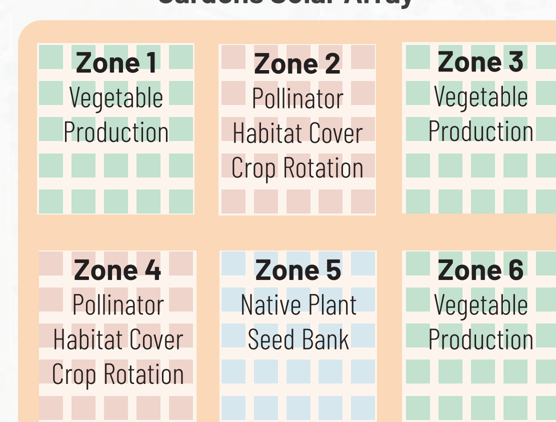
The National Renewable Energy Laboratory estimates the operational lifespan of photovoltaic systems to be 25 to 40 years, and a recent study by the Lawrence Berkeley National Lab found that utility scale solar developers assume an average useful life of ~35 years. The financial pro forma included in this roadmap assumes a useful life of the ground and canopy mounted solar arrays of thirty years, and 25 years for roof mounted arrays (based on typical 25 year roof life). While this is longer than the warranty period, it is expected the arrays will be functional for this period and potentially beyond. A small output degradation is assumed over time, consistent with standard industry practice. Note the pro forma does assume micro-inverter replacement as part of solar operation and maintenance at year 15.


Credit: Jack's Solar Garden

Agrivoltaics

The co-location of ground mounted solar arrays and agriculture (such as community pea patches), or carbon sequestering/pollinator habitat restored native meadows, are a great holistic sustainability solution. All ground mount systems should have some component of agrivoltaics to further mitigate carbon whether it's drought resistant irrigation, pollinator habitats, or wild flowers.

Planting plan for Denver Botanic Gardens Solar Array



Potential future opportunities for larger-scaled Louisville owned renewables

Virtual net metering

The State of Colorado recently adopted virtual net metering legislation, which potentially enables utility customers with multiple site portfolios to transfer the electricity value of solar production from one location to another. The details of this legislation are complex and still being understood, but over time, it may enable Louisville to look at larger scale opportunities, such as undeveloped land, open water, or park areas to be used for solar production .

Water reservoir or sewage processing pond floating solar

A specific opportunity for larger scale solar (which would require net metering to make financially feasible) is floating solar. An initial evaluation suggests that an array ~400kWdc could sit at the Sid Copeland Treatment Plant reservoir. Typically arrays need to be on the scale of 1-2MW or larger to cost-compete with ground mount options.

Financial Considerations

The process of decarbonization doesn't occur in a vacuum, and other financial considerations beyond initial costs or utility savings come into play. Different financial scenarios or considerations impact how the cost of decarbonization might be viewed – these are the **additional avoided costs** discussed below. In addition, the process of electrification, in particular, can yield additional benefits– known as **co-benefits.** Where quantification is possible, it is provided, based on economic modeling derived from best and most recent available science. **All figures assume a value stream of the roadmap horizon of 2023 - 2040.**

Additional Avoided Costs

Estimated Avoided Future Carbon Emissions Penalties

$7,335,000

Avoided future carbon emissions penalties

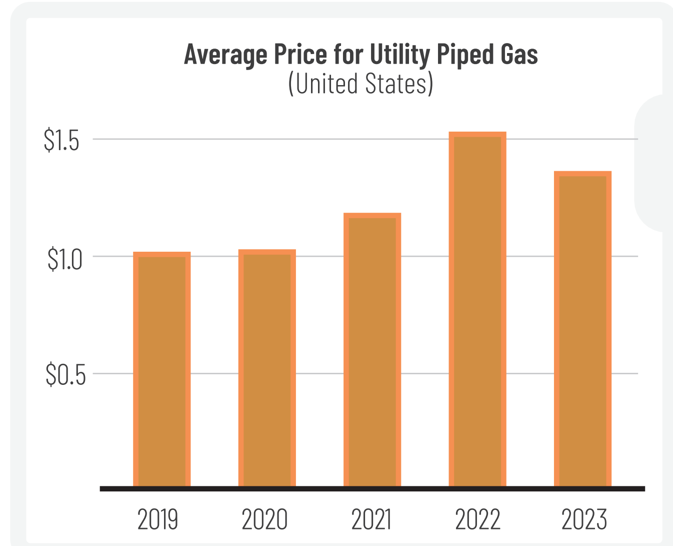
As climate change becomes an increasingly current (rather than future) reality, carbon emissions penalties are starting to be applied by leading organizations to internal operations, and by governing bodies as regulation. Colorado recently adopted HB21-1286, which establishes penalties for high Energy Use Intensity private sector buildings, and the City of Denver created Energize Denver, which has even more aggressive carbon penalties. Leading private sector firms, such as Microsoft, also apply an internal cost of carbon to lower immediate emissions and begin bending decision making to anticipate a more aggressive future carbon penalty regulatory environment. The Canadian Federal government recently adopted an internal decision making price of $261 CDN$/mton, and the EPA has draft rule of $261US. While these have yet to become actual regulatory penalties, they indicate a likely direction over time as climate change worsens. For this roadmap, an initial penalty stream based on the Colorado carbon price of $76/mton is applied from 2023-2027, moving to the draft EPA price for 2028-2040.

Estimated Avoided Cost of Future Natural Gas Price Shock

$732,000

Natural gas price shocks

Historically, natural gas has substantially greater price volatility than electricity, which isn't captured by typical escalation rates. The Russian invasion of Ukraine has put a spotlight on the potential for long term natural gas price instability – during 2022, natural gas prices increased by 50%, making previous natural gas escalation rate assumptions of 3-4% invalid. Many risk forecasters anticipate further natural gas instability based on volatility of many producing nations. This roadmap includes a scenario of a second natural gas price shock in 2030, mirroring the impact of the 2022 shock.



Natural gas prices went up **~50%** in 2022

https://www.bls.gov/regions/west/news-release/averageenergyprices_seattle.

Value of Solar for Future Electric Micro-grid Backup Power

$900,000

Future electric micro-grid backup power

Currently, emergency power is provided by backup fossil fuel powered generators. A decarbonized alternative, with potentially even greater resiliency, is electric batteries fueled by on-site solar. The cost of batteries for such systems is currently cost-prohibitive, but likely to drop in the future. Installing on-site solar as proposed for overall renewable power for the City has a dual benefit of helping enable future electrical islandability. The value of this is assumed at 10% of the overall cost of proposed on-site solar.

Co-benefits

Employee and visitor health and performance:
Air quality and Thermal comfort

The proposed decarbonization program will also enable improvement of ventilation and filtration systems that are part of HVAC systems being electrified. Demand control ventilation can be added and optimized to better filter media. Elimination of natural gas combustion removes any risk of noxious combustion gasses (NOx, SO2, CO) from malfunctioning exhausts, etc. Air sealing the buildings, which retains tempered indoor air, has the added benefit of excluding smog and wildfire smoke, as well as reducing mold – a substantial benefit. Finally, City Hall currently has very poor temperature control, with overheated and colder work areas. The new electrified and rezoned system will enable more comfortable work temperatures there.

Value of Improved Employee and Visitor Health and Performance

$1,027,000

Employee retention – climate leadership

The cost of employee turnover (training, lost knowledge, etc.) is significant in any organization. Employees take pride in working for organizations which have integrity in reflecting their values. This value stream assumes a 2% reduction in employee turnover due to its expressed climate leadership.

Value of Employee Retention Based on Climate Leadership

$714,000

Additional Co-benefits
[Not Quantified]

Community Decarbonization Education & Leadership Decarbonization is a signal to the community about the importance of the climate action goals the City has set. Specific elements such as heat pumps, renewables, and efficiency measures can be used for classes etc. to inform residents about zero carbon living.

Eliminate Gas Explosion Potential Natural gas is flammable gas that has risk of combustion. While the likelihood is statistically low, the potential cost and impact is extreme.

Eliminate Gas Cooking Burns Natural gas is currently used for cooking in the Golf Course Clubhouse. On-site combustion for cooking can lead to burns and injuries. Induction ranges and electric combi-ovens (which use infrared, microwave, steam, and heat together for great efficiency) reduce those risks.

Louisville "Brand" Louisville's decarbonization program is leading edge, and if desired, could be used for publicity and to enhance the City's reputation, with likely economic development benefits.

Job Creation Louisville's decarbonization work will result in local employment that would not otherwise occur in a business-as-usual scenario.

Annual Operating Expense Impacts

Electrification & Building Utility Cost Impact
Electrification can lead to increased annual utility costs due to the existing utility rate structures, where electric demand charges are high and the cost per unit energy of electricity is typically higher than natural gas. Specifically for Xcel energy, electric demand charges ($/kW) are particularly high. This makes demand reduction strategies particularly important. Electric energy ($/kWh) charges for Xcel are lower than most utilities, but are still approximately 50% higher than gas on a $/kBtu basis.

Building Demand Charges
Hybrid gas systems will also provide value by reducing annual demand (kW) costs in comparison to an all-electric alternative. Gas-backup systems have the option to lockout the primary heating (heat pumps) when temperatures are lower to avoid potentially costly demand (kW) charges. This strategy can help alleviate some of the demand penalty associated with the all-electric option, but it will also incur slightly more energy usage and more fossil fuel combustion.

Renewables

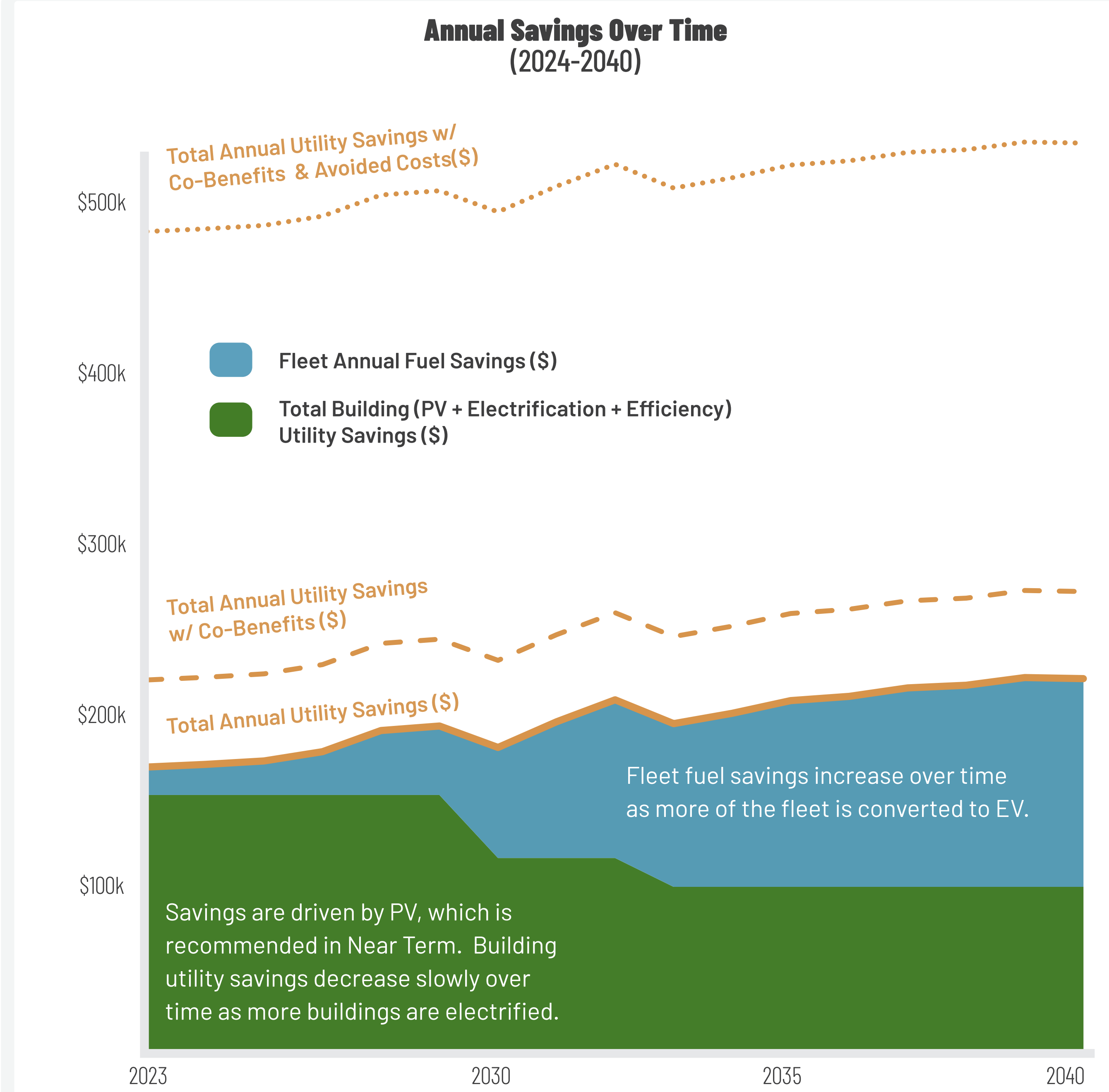
Renewable PV systems account for the majority of the utility cost savings at the building level. Adjusting utility rate schedules based on the recommended PV array was analyzed as part of this study.

Efficiency &Load Reduction

Efficiency & load reduction measures typically have positive utility savings as they do not involve fuel switching.

Co-Benefits & Avoided Costs

Additional benefits realized through the process of electrification. Annualized co-benefits and avoided costs are shown in the figure to the right.



Funding Options

Funding is a critical piece of any decarbonization roadmap to ensure an implementation plan is successfully executed. Over the course of the project, several grant and stimulus funding opportunities were researched and identified along with capital and financing streams that are applicable to the implementation of the City's roadmap. In addition, interviews with the finance team were conducted, and funding workshops were held in March and May of 2023. Below is a list of applicable funding sources identified to help the City fund and implement the recommendations within the Internal Decarbonization Roadmap. All information below is based on research conducted during the year of the study. Grants and stimulus funding is likely to vary in future years.

Grants and Stimulus Funding*

- Colorado Public Building Electrification Grant**
- Colorado High Efficiency Heating & Appliances Program
- Colorado Department of Local Affairs Grants
    - Energy and Mineral Impact Grant
    - Renewable Energy Grant
    - Climate Resiliency Challenge**
- State of Colorado Geothermal Grant
- Congressionally Directed Spending**
- FEMA Building Resilient Infrastructure and Communities (BRIC) grant
- Inflation Reduction Act
    - Investment Tax Credit – Direct Pay for renewable energy systems, battery storage
    - Grant programs for electric vehicles and electric vehicle charging
- US Department of Energy grants for municipalities
- Xcel rebates
- Mow Down Pollution Grant**
- Charge Ahead Colorado Grant**
- Colorado Fleet-Zero Emission Resource Opportunity ("Fleet-Zero")**

*The key to successful grant applications: the full application and submitted project needs to move the needle, be "shovel ready", compelling and create benefits for the community.

** Grants currently being applied for during the 2023-24 fiscal year for project implementation.

Capital and Internal Funding

- Allocate dedicated stream of capital to sustainability during bi-annual budget cycle
- Internal borrowing from enterprise funds with additional capital availability.
    - City has experience with this method of funding projects
    - Some funds are heavily restricted
- Diverted operational/Capital Improvement Plan dollars
- Dedicated sustainability tax – with % earmarked towards municipal & community sustainability projects
    - Investigated in 2023 through Open Space tax extension discussions. Recommend re-investigating in future years.

Financing Options

- **Tax Exempt Lease Purchase** – an installment purchase, conditional sale or lease by a public agency using the installed equipment as collateral and financed by an investor or bank.
- **Bond** - debt obligation issued by a public entity using the loan for public projects, such as constructing buildings, highways, or renovations.
- **Certificates of Participation (COP)** - is a type of financing where an investor purchases a share of lease revenues to secure financing for public sector projects.
- **Energy Performance Contracting** – a contracting and financing tool that leverages multiple sources of funding to construct energy savings projects for public sector agencies.
- **Energy-as-a-service** – a financing tool where a public agencies pays for an energy service without having to make any upfront capital investments and transfers ownership of the capital investment to a third party investor.
- **Infrastructure-as-a-service** - a financing tool where a public agencies pays for infrastructure via an on-going fee or lease payment without having to make any upfront capital investments and transfers ownership of the capital investment to a third party investor.

Financial Analysis

A financial analysis was conducted to determine the true cost of decarbonization. This analysis reviewed the like-for-like costs to continue replacing equipment and fleet with the current gas version and compared it to the cost to electrify and decarbonize operations, mechanical equipment and fleet. All costs within this report are turnkey and include final design, engineering, procurement, construction management, and commissioning costs. The financial impact of the project to the City was calculated from 2024 through 2040. The like-for-like project costs were derived from a combination of the City's CIP budget and detailed cost estimating of turnkey like-for-like equipment replacement as the comparison scenario.

If the City were to continue replacing fleet and mechanical systems with like-for-like gas replacements, the total cost to the City through 2040 would be approximately $27M with no grants or anticipated utility cost savings. If the City were to electrify all fleet, mechanical equipment and operations, the cost would be approximately $51.1M including the recommendations of EV charging, load reduction measures, and renewable energy. Decarbonization would allow for the City to capture $7M in utility and fleet operational savings over the term, secure $3-13M in grants, incentives and stimulus funding, and help to mitigate the impacts of climate change on the community.

Total Net Cost of Decarbonization =

Total Construction Costs - Total Like-for-Like Construction Costs - [Total Project Savings + Total Grants]

The Summary Table to the right shows the net costs of decarbonization as $4.4M to $14.4M depending on the level of grants that the City is able to secure. The co-benefit and avoided costs are not included in this number and would provide an additional $10.6M in benefits to the City through 2040 for a total potential net savings of $6.2M over the business-as-usual or "like-for-like" replacement scenario. This number is calculated by taking the gross cost to decarbonize and subtracting out what the City would be spending anyways and the project savings and grants/stimulus.

Summary Table

Total Construction Costs	**~$51M**
Total Like-for-Like Construction Costs (costs that the City would continue to pay)	**(~$27M)**
Lifecycle Utility Cost Savings (Utility, Fleet, Solar)	**($7M)**
Total Grants	**($3M-13M)**
Total Net Cost of Decarbonization (varies based on final grant awards)	**$4M-14M**

It is recommended that the City do a more in depth financial analysis for each phase to produce a complete and final amortization schedule either internally or with a selected lender. The annual financial model to the right shows annual estimated costs, savings, capital allocation and a summary each year from 2024-2040.

Notes:

Total Construction Costs: Total **turnkey** construction costs needed for budgetary purposes. **Costs do not include incentives or grants. The Inflation Reduction Act will potentially offset 30-40% of the cost of renewables and fleet.**

Total Like-for-Like Construction Costs: The **turnkey** "business as usual" costs for replacing existing fossil fuel equipment with similar fossil fuel equipment. Costs were derived from a combination of the City's CIP budget and detailed cost estimating of equipment replacement as the comparison scenario.

Turnkey Costs: Include design, engineering, construction management, project management, and commissioning.

Annual Financial Model

Year	Total Construction Costs	Solar IRA Direct Pay (30%)	Total Grants	Annual Electrification Utility Cost Savings	Annual Efficiency Utility Cost Savings	Annual Solar Utility Cost Savings	Annual Fleet Utility Cost Savings	Total Like-for-Like Construction Costs	Total Net Cost of Decarbonization
2024	$23,979,948	$0	$8,000,000	($82,000)	$44,000	$335,000	$33,000	$10,185,000	$5,465,000
2025	$629,972	$2,692,000	$100,000	($82,000)	$44,000	$335,000	$36,000	$599,000	($3,094,000)
2026	$244,741	$0	$100,000	($82,000)	$44,000	$335,000	$40,000	$201,000	($393,000)
2027	$661,949	$0	$100,000	($82,000)	$44,000	$335,000	$51,000	$622,000	($408,000)
2028	$538,469	$0	$100,000	($82,000)	$44,000	$335,000	$76,000	$469,000	($404,000)
2029	$255,583	$0	TBD	($82,000)	$44,000	$335,000	$81,000	$213,000	($335,000)
2030	$8,796,674	$0	TBD	($157,000)	$44,000	$335,000	$130,000	$4,253,000	$4,191,000
2031	$1,126,108	$0	TBD	($157,000)	$44,000	$335,000	$160,000	$843,000	($99,000)
2032	$638,869	$0	TBD	($157,000)	$44,000	$335,000	$186,000	$478,000	($247,000)
2033	$5,449,661	$0	TBD	($190,000)	$44,000	$335,000	$192,000	$2,654,000	$2,415,000
2034	$537,051	$0	TBD	($190,000)	$44,000	$335,000	$204,000	$402,000	($258,000)
2035	$3,440,025	$0	TBD	($190,000)	$44,000	$335,000	$219,000	$2,574,000	$458,000
2036	$775,290	$0	TBD	($190,000)	$44,000	$335,000	$224,000	$580,000	($218,000)
2037	$783,153	$0	TBD	($190,000)	$44,000	$335,000	$234,000	$586,000	($226,000)
2038	$297,040	$0	TBD	($190,000)	$44,000	$335,000	$237,000	$222,000	($351,000)
2039	$1,923,560	$0	TBD	($190,000)	$44,000	$335,000	$246,000	$1,439,000	$50,000
2040	$847,035	$0	TBD	($190,000)	$44,000	$335,000	$245,000	$693,000	($280,000)
Total	**$50,925,129**	**$2,692,000**	**$8,400,000**	**($2,483,000)**	**$748,000**	**$5,695,000**	**$2,594,000**	**$27,013,000**	**$6,266,000**

Implementation Options

Delivery and implementation of the decarbonization plan is laid out through 2040. As part of this analysis, it is recommended that full decarbonization is pushed to 2040 due to technology barriers and the recommendation of not replacing fleet and equipment before the end of its useful life. Three primary methods are recommended for the City to consider for implementation of all phases of the roadmap and outlined below. Due to the complexity, uniqueness and scale of the recommendations, three larger phases or mobilizations are recommended for the implementation portion of the project to reduce the burden on staff, consolidate resources and gain cost efficiencies by scaling the project. The methods below are chosen to account for the metrics above and to lower the overall cost to the City through efficiencies and to reduce the amount of resources needed throughout each phase (versus a piecemeal approach).

Energy Performance Contracting

This method utilizes a state-supported program through the Colorado Energy Office that has been used for over 200 projects within public agencies in the state of Colorado. Energy Service Companies are pre-qualified through the State to assist local governments within turnkey implementation of decarbonization projects for fleet and buildings. This approach allows for flexibility in project funding with the ability for the public agency to combine multiple funding avenues such as grants, stimulus, capital and third party financing. This approach is recommended for the larger, complex buildings that require renewable energy, load reduction measures, electrical upgrades, and mechanical electrification as a single project or construction mobilization such as at the City's recreation center. Energy performance contracting enables a jurisdiction, to "surge" a major decarbonization effort and avoid the quick ramp up/ramp down staffing impacts that would otherwise be required to manage such projects.

Further information can be found here: *https://energyoffice.colorado.gov/clean-energy-programs/clean-energy-financing/energy-performance-contracting*

When to Use:

Ph1 Renewables

Ph1 Load Reduction
All Buildings

Ph. 1-3 Mechanical
Larger Systems

***Some* EV Charging**

Design-Build or Design-Bid-Build

Traditional method for construction projects where the City would project management and bid out individual scopes of work for design, construction or both. This is recommended for smaller, less complex buildings and scopes of work that require a simple like-for-like replacement of mechanical systems such as the Art Center.

When to Use:

Smaller HVAC Systems
Mid Term Art Center

Self-Implementation

This method is recommended for scopes of work that the City can conduct internally if staff time and resources allow. This method is recommended for equipment replacements (golf carts, lawn mowers, etc) and EV charging infrastructure.

When to Use:

EV Charging **Fleet Purchase** **Misc. Equipment**

City of Louisville
COLORADO • SINCE 1878

McKinstry
For The Life Of Your Building

Appendix

Final Report

1. Fleet Electrification
2. Miscellaneous Equipment
3. Construction Pricing Context & Constructibility
4. Climate Analysis
5. Cobenefits

Appendix

Final Report

1. Fleet Electrification
2. Miscellaneous Equipment
3. Construction Pricing Context & Constructibility
4. Climate Analysis
5. Cobenefits

McKinstry
For The Life Of Your Building

Louisville
Fleet
Decarbonization Analysis and Assumptions

Louisville Fleet Decarbonization

Summary

McKinstry analyzed the costs and emissions savings associated with Louisville converting their fleet to electric models at vehicle replacement, if a suitable vehicle was available. The incremental initial vehicle cost would be $4.3M, but the incremental cost on a lifecycle basis would only be $1M. The amount of CO2 emissions saved would be approximately 9 million lb. These numbers include 2.5% inflation, electric rate inflation of 2.44%, and gas/diesel cost escalation of 2.65%.

	Vehicle replacement cost	Fuel Costs	Maintenance Costs	Total Cost	Total Emissions lb of co2
Status Quo, keep buying ICE	$14,446,954	$3,912,658	$1,596,579	$19,956,191	16,188,795
Phasing in Evs	$18,104,994	$1,710,455	$1,178,767	$20,994,216	6,936,913

Overview

As part of the decarbonization study, McKinstry analyzed Louisville's fleet vehicles for replacement with electric vehicle (EV) equivalents. Based on current technology, transitioning from internal combustion engine (ICE) vehicles to EVs can substantially lower overall carbon emissions. A caveat to consider in assessing the environmental impact of EVs is the variation of electricity generation sources in a given area. The state of Colorado relies mainly on coal and natural gas. However, the share of these fuel sources as a percentage of total generation is decreasing. Alternative energy sources such as wind and solar are increasing rapidly. By using additional onsite renewable energy sources and phasing in vehicle replacement it will be possible for Louisville's fleet to be entirely carbon free.

In the current vehicle market mainly light duty vehicles are being produced. There currently are no manufactures that outfits an EV for police vehicle use. The market is rapidly changing so over the course of the next 5 years new innovation and demand should allow for this use.

EVs typically have a higher initial capital cost to purchase or lease when compared to ICE vehicles, EVs can cost less in the long-term due to lower fuel costs, different maintenance requirements, and longer vehicle lives. Therefore, it is important to consider the entire lifespan of a vehicle when investing in fleet vehicles. There are also limiting factors of EVs to consider, such as range and power needs of certain fleet vehicles, as well as the near-constant changes in the electric vehicle and infrastructure technology.

Battery technology is changing rapidly, resulting in increased charge capacity and lower operating cost per mile. Many manufactures now offer eight year/100,000 mile warranties on their EV batteries (generally covering defects and workmanship), and some offers an ten year/100,000 mile warranty on battery capacity. Auto manufacturer warranties and charge capacity have generally reduced consumer concern about battery life and range. As a result, the analysis of total ownership cost does not account for the cost of EV battery replacement, assuming that municipal vehicles will be retired at the warranty expiration.

Fleet Vehicle Type

Vehicles utilized by the city were divided into five categories.

1. *Light duty vehicles* – Light duty vehicles make up the majority of the vehicles the city owns. They typically encompass any normal passenger vehicle such as sedans, SUVs, light pickup trucks, and minivans. This vehicle is mostly used for transporting people and small amounts of cargo
2. *Light duty high performance vehicles* – This category incorporates mainly police vehicles. These vehicles are similar to the light duty vehicles but have been altered for higher performance due to specific police requirements.
3. *Heavy duty vehicles* – Heavy duty vehicles mostly incorporate large pickup trucks. These vehicles are used for hauling and towing heaving loads.
4. *Large heavy duty vehicles* – This category is for the large snow plows and street sweeper. These vehicles typically are only used seasonally and have a varying work load that is dependent on the weather
5. *Non-road vehicles* – These vehicles are typically construction type vehicles. There usage is usually measured in hours of operation instead of miles.

	Vehicle Category					
	1	2	3	4	5	Total
Building Inspection	3					3
Code Enforcement	2					2
Engineering	4					4
Facilities	3		1			4
Finance	2					2
Parks	10		12			22
Police	7	23				30
Rec Center	1		2			3
Streets			4	5	2	11
Utilities	2		10	2	3	17
WTP	4		1			5
WWTP	3		1			4
open space	4		2	1		7
Grand Total	45	23	33	8	5	114

Fleet Vehicle Emissions

Three key factors contribute to a vehicle's annual CO2 emissions: average miles driven/hours operated, fuel efficiency, and CO2 emissions factor of fuel source. Based on data provided by the City of Louisville, research from the Environmental Protection Agency, and various other public sources estimated Fleet vehicles emissions were calculated. Vehicle specific mile per gallon were used where available. For all heavy-duty vehicles, categories 3 and 4, mile per gallon data is not available and driver reported data from Fuelly.com was used. All category 5 data is based on estimated hours of use and typical gallons of fuel used per hour.

lb of CO2 per year based on average miles driven per year

	Vehicle Category					
	1	2	3	4	5	Total
Building Inspection	8,505					8,505
Code Enforcement	10,692					10,692
Engineering	15,814					15,814
Facilities	13,456		9,263			22,719
Finance	1,640					1,640
Parks	128,631		82,799	1,280		212,709
Police/Admin	35,938	22,821				58,760
Police/Detective	5,350					5,350
Police/Patrol		228,640				228,640
Rec Center	2,472		2,768			5,240
Streets			40,176	86,453	63,994	190,622
Utilities	21,564		72,880	23,043	17,578	135,065
Water/Waste Water	52,836		3,691			56,526
Total	296,898	251,461	211,576	110,775	81,572	952,282

Louisville currently sources all of it electricity from renewable sources. Because of this choice, switching to all EVs would eliminate all source of emissions from its vehicle fleet.

Fleet EV Conversion Costs

EVs typically have lower fuel and maintenance costs than ICE vehicles, but higher capital costs. There is industry consensus that the cost of EVs are trending downward as production volumes increase and battery costs decreases. Capital costs can sometimes be offset by state and local incentives that encourage alternative fleet implementation through funding and technical assistance. However, it is difficult for municipalities to access many of these incentives. To conduct the cost analysis, capital costs were estimated using average cost of ICE and EV by vehicle class. Specifically, replacement costs for ICE vehicles were estimated using public sources such as Kelly Blue Book. For EV public sources, there are not vehicles for every class so an average cost for all EV was used. In addition heavy duty vehicles, large heavy duty vehicles, and construction non-road type vehicles do not have readily available EV comparables so a 50% premium was added to the EV costs. These assumptions can be further refined as additional information becomes available.

Fleet vehicle Class

		Vehicle class									
Department/Type	**Model**	**2**	**7**	**8**	**9**	**11**	**13**	**14**	**15**	**16**	**17**
Building Inspection	Escape		2								
	F150						1				
Code Enforcement	Colorado			1							
	Dakota			1							
Engineering	Colorado			2							
	Expedition								2		
Facilities	Civic	1									
	Colorado			1							
	F150						1				
	Silverado 3/4 4X4									1	
Finance	Bolt							1			
	Impalla				1						
Parks	1500									1	
	2500									2	
	3500									1	
	Colorado			11							
	Dakota			2							
	F250									2	
	F350									4	
	F550									1	
	F750									1	
	Silverado 3/4 4X4									3	
	Tacoma			1							
Police/Admin	Caprice				1						
	Explorer		5								
Police/Detective	Caprice				1						
	Expedition								1		
Police/Patrol	Expedition								1		
	Explorer		21								
Rec Center	2500									1	
	Caravan					1					

	E350									1	
Street	600BAH										1
	2500									1	
	Silverado 3/4 4X4									1	
	F550									2	
	7400										3
	HV 513 6x4										1
	624K										1
	624I										1
Utilities	2500									4	
	2500									2	
	Colorado			1							
	F150						1				
	F250									1	
	F450									1	
	MV607										1
	Silverado 3/4 4X4									1	
	F550									1	
	410J										1
	410L										1
	7400										1
	7400										1
WTP	Colorado			1							
	F150						3				
	F250									1	
WWTP	Colorado			1							
	Escape		1								
	F150						1				
	F250									1	
Grand Total		1	29	22	3	1	7	1	4	34	12

Even though there are not direct EV replacements for all classes of vehicles in the table above there are enough EV choices in the market that a comparable EV could be purchased. For vehicle classes 16 and 17 there are currently not EV options available. The market is rapidly changing and EV equivalents should be available in the market in the next 10 years. Please note that the EV cost reflects the averaged MSRP of a midsized crossover (Hyundai Kona) and full-sized pickup (Ford F150 Lightning). We have assumed that some portion of Louisville's existing F150s and Expeditions can be replaced by smaller electric fleet vehicles.

Vehicle class costs

Class	Type	Average Cost
1	subcompact car	23,156
2	compact car	25,954
3	small/mid-size pickup truct	28,911
4	subcompact suv/crossover	29,646
5	Mid-size car	31,211
6	Hybrid energy car	33,162

7	compact suv/crossover	33,414
8	Mid-size pickup truck	41,311
9	full-size car	43,112
10	mid-size SUV/crossover	45,487
11	minivan	45,574
12	van	48,018
13	full - size pickup truck	60,022
14	Electric vehicle	47,430*
15	Full size SUV/crossover	72,073
16	Heavy Duty Truck	75,861
17	Construction Equipment	155,670
18	Electric Heavy Duty	113,791.50
19	Electric Construction	233,505.00

For first cost comparison assuming all vehicles could be replaced with an EV equivalent the table below shows the estimated costs by departments for all vehicles in that department. It is expected that these costs will come down as the EV adoption rate increases.

Fleet Maintenance Costs

Due to a more streamlined vehicle system, EVs contain fewer moving components that are vulnerable for repair than in ICE vehicles. With over a dozen moving components, ICE vehicle repairs on the engine, transmission system and gearbox are likely over the vehicle's lifespan. In addition, brake system maintenance costs are about fifty percent less in EVs due to regenerative braking. Regenerative braking is the recovery of kinetic energy during braking. In ICE vehicles, the majority of kinetic energy is converted into heat and emitted unused into the environment during friction braking. EVs can use the electric motor to recover a portion of the kinetic energy for reuse. Regenerative braking provides an extended range while lowering fuel consumption and GHG emissions.

The table below compares maintenance cost of Louisville's vehicles in two different scenarios over the vehicles typical replacement schedule. Scenario one is status quo with all vehicles having internal combustion engines. The second scenario is all vehicles being converted to EV. Both of these scenarios assume the vehicle would be replaced due to age vs mileage, which in general holds true for most city vehicles.

In general the EV maintenance cost are about 75% of the ICE maintenance costs. Louisville currently does a lot of its own maintenance on all of its combustion engine vehicles. If the city starts to switch to EV additional training will be needed and this will likely add some additional cost until EV technicians become more prevalent in the workforce.

Vehicle Maintenance costs

	Vehicle category	Quantity of each Type	Sum of average miles	Maintenance Cost All Combustion over vehicle Life	Maintenance Costs all EV
Building Inspection	1	3	5,812	$5,580	$2,790

Code Enforcement	1	2	7,047	$6,765	$3,383
Engineering	1	4	9,548	$9,166	$4,583
Facilities	1	3	10,332	$9,919	$4,959
	3	1	6,143	$14,669	$12,384
Finance	1	2	2,903	$2,787	$1,393
Parks	1	14	87,463	$83,964	$41,982
	3	14	48,099	$114,860	$96,968
	4	1	241	$719	$607
Police/Admin	1	5	26,541	$25,479	$12,740
	2	1	16,103	$25,894	$18,293
Police/Detective	1	2	3,173	$3,046	$1,523
Police/Patrol	2	22	161,377	$259,494	$183,324
Rec Center	1	1	1,872	$1,797	$899
	3	2	1,567	$3,742	$3,159
Streets	3	4	20,322	$48,529	$40,969
	4	5	16,279	$48,593	$41,023
	5	2	482	$1,918	$1,620
Utilities	1	2	12,704	$12,196	$6,098
	3	10	43,464	$103,792	$87,623
	4	2	1,736	$5,182	$4,375
	5	3	486	$1,934	$1,633
WTP	1	4	24,639	$23,653	$11,827
	3	1	1,300	$3,104	$2,621
WWTP	1	3	12,077	$11,594	$5,797
	3	1	857	$2,047	$1,728
Total		114	522,567	$830,425	$594,300

Type	Replacement Year	Replace after Mileage/hours	Maintenance costs per mile ICE	Maintenance costs per mile EV
1	12	120,000	0.08	0.04
2	8	80,000	0.201	0.142
3	12	120,000	0.199	0.168
4	15	80,000	0.199	0.168
5	20	10,000 hours	0.199	0.168

Fleet Fuel Savings

EVs typically achieve better fuel economy and have lower fuel costs than similar ICE vehicles. A comparison of assumed average fuel efficiencies is shown on below. Fuel efficiencies for ICE vehicles were based on vehicle specification sheets and performance. Fuel efficiencies for EVs were estimated using public sources. There is no published data on electric heavy and light construction vehicles and it was assumed they would be use 3 to 5 times more electricity than light passenger vehicles.

Department/Type	Vehicle category	Average of city mpg or gallons/hr	Average of Highway
Building Inspection	1	24	30
Code Enforcement	1	16	21
Engineering	1	14	18
Facilities	1	18	24
	3	15	19
Finance	1	72	67
Parks	1	16	21
	3	13	15
	4	5	5
Police	1	16	23
	2	17	22
Rec Center	1	17	25
	3	13	13
Streets	3	12	13
	4	5	5
	5*	5	
Utilities	1	14	18
	3	13	13
	4	5	5
	5*	3	5
WTP	1	16	22
	3	14	14
WWTP	1	18	24
	3	14	14
Grand Total		15	19

Vehicle Type	kWh/100 miles
1	35
2	40
3	45
4	150
5	200

Louisville Fleet Decarbonization

On top of fuel efficiency improvements with EVs, the cost per kWh of electricity tends to be lower and more stable than the cost per gallon of gasoline or diesel. The fuel costs used can be seen below. These costs are a snapshot in time and have recently varied greatly. The cost of using electricity to fuel the vehicles is relatively cheap if the charging cycle does not increase the demand charge. For most of the cities buildings if charging at night the buildings peak demand won't be effected. For the City services building due to the large number of fleet vehicles located there it is likely the peak demand charge will increase. This additional cost is taken into account by using the blended electricity rate from the table below for any vehicle that would be stored at that site.

Gasoline Price	**Diesel Price**	**Commercial Electricity Price blended ($/kWh)**	**Commercial Electricity Price ($/kWh)**
$4.01	4.946	$0.11	$0.05

Overall switching all fleet vehicles to EVs has the potential to save up to 90% on fueling costs. This is high dependent on the current gas and diesel fuel costs.

Department/Type	Vehicle category	Quantity of each Type	Sum of average Miles Traveled	Total Gallons Consumed	Cost of Fuel	Total EV kWh Consumed	Cost of kWh
Building Inspection	1	3	5,812	355	$1,423	2,034	$220
Code Enforcement	1	2	7,047	446	$1,789	2,466	$266
Engineering	1	4	9,548	659	$2,645	3,342	$361
Facilities	1	3	10,332	561	$2,251	3,616	$391
	3	1	6,143	392	$1,574	2,457	$265
Finance	1	2	2,903	68	$274	1,016	$46
Parks	1	14	87,463	5,363	$21,518	30,612	$3,306
	3	14	48,099	3,490	$14,080	19,010	$2,053
	4	1	241	48	$238	108	$12
Police	1	1	29,714	1,722	$6,907	10,400	$468
	2	2	177,480	10,485	$42,065	62,118	$2,795
Rec Center	1	4	1,872	103	$414	655	$29
	3	5	1,567	117	$470	627	$28
Streets	3	2	20,322	1,615	$7,129	8,477	$916

	4	2	16,279	3,256	$16,103	24,419	$1,099
	5	10	482	2,410	$11,920	723	$33
Utilities	1	2	12,704	899	$3,607	4,446	$480
	3	3	41,016	3,086	$12,386	16,409	$1,772
	4	4	4,184	837	$4,139	6,276	$514
	5	1	486	693	$3,428	729	$33
WTP	1	3	24,639	1,458	$5,851	8,624	$388
	3	1	1,300	94	$378	520	$23
WWTP	1	7	12,077	745	$2,987	4,227	$408
	3	23	857	62	$249	343	$15
Total		114	522,567	38,964	$163,824	213,655	$15,921

Fleet EV Conversion Plan

Assuming EV vehicle innovation continues the City should be able to replace all vehicles with an EV equivalent over the next 7 to 17 years. The City will need to decide if replacing some lightly used construction type equipment is worth the premium that will most likely be charged, otherwise all other vehicles will have an EV equivalent on the market.

Most city vehicles are assigned to a single person making consolidating difficult. If the City does want to consolidate the parks, utilities, and street departments have the most number of vehicles, most of which are stored at the City Services building. During our visits to this site there were always ~10 trucks parked in the back not in use at the specific time. In addition, there are a number of parking lot snowplow trucks staged at certain locations to plow the parking lots. These could possibly be reduced but would require city personnel to drive from site to site with the plow trucks.

McKinstry would recommend that the City replace vehicles with EV after the current vehicle has meet its replacement criteria. The table below shows the current replacement schedule assuming current usage pattern and shows what type of vehicle will be purchased. Some vehicles will need to be replaced before there is an EV equivalent on the market, in those cases it is assumed that a new ICE vehicle will be purchased and then will be replaced with an EV in the next cycle. In general, it is assumed all type 2 vehicles (mostly police vehicles) will not have an EV equivalent until 2027 and all type 3, 4, and 5 vehicles until 2030.

Department	Replacement Type	2023	2024	2025	2026	2027	2028	2029	2030
Building Inspection	ICE	0	0	0	0	0	0	0	0
	EV	0	0	0	1	0	0	0	0
Code Enforcement	ICE	0	0	0	0	0	0	0	0
	EV	1	0	0	0	1	0	0	0
Engineering	ICE	0	0	0	0	0	0	0	0
	EV	4	0	0	0	0	0	0	0
Facilities	ICE	0	0	0	0	1	0	0	0
	EV	2	0	0	0	0	0	0	0
Finance	ICE	0	0	0	0	0	0	0	0
	EV	1	0	0	0	0	0	0	0
Parks	ICE	5	1	1	0	4	0	0	0
	EV	8	1	1	0	0	2	1	1
Police	ICE	12	2	3	2	0	0	0	0
	EV	0	2	0	0	2	3	2	2
Rec Center	ICE	2	0	0	0	0	0	0	0
	EV	0	0	1	0	0	0	0	0
Streets	ICE	0	0	3	0	0	1	0	0
	EV	0	0	0	0	0	0	0	3
Utilities	ICE	3	0	0	0	1	1	1	2
	EV	1	0	0	1	0	0	0	4
WTP	ICE	1	0	0	0	0	0	0	0
	EV	0	1	0	0	0	0	0	2
WWTP	ICE	0	1	0	0	0	0	0	0
	EV	1	0	0	0	0	0	0	1
Total	ICE	23	4	7	2	6	2	1	2
	EV	18	4	2	2	3	5	3	13

Louisville Fleet Decarbonization

Department	Replacement Type	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
Building Inspection	ICE	0	0	0	0	0	0	0	0	0	0
	EV	0	0	2	0	0	0	0	1	0	0
Code Enforcement	ICE	0	0	0	0	0	0	0	0	0	0
	EV	0	0	0	0	1	0	0	0	1	0
Engineering	ICE	0	0	0	0	0	0	0	0	0	0
	EV	0	0	0	0	4	0	0	0	0	0
Facilities	ICE	0	0	0	0	0	0	0	0	0	0
	EV	0	1	0	0	2	0	0	0	1	0
Finance	ICE	0	0	0	0	0	0	0	0	0	0
	EV	0	0	1	0	1	0	0	0	0	0
Parks	ICE	0	0	0	0	0	0	0	0	0	0
	EV	3	0	1	1	12	2	2	0	4	3
Police	ICE	0	0	0	0	0	0	0	0	0	0
	EV	13	4	4	1	3	5	3	1	13	3
Rec Center	ICE	0	0	0	0	0	0	0	0	0	0
	EV	0	0	0	0	2	0	1	0	0	0
Streets	ICE	0	0	0	0	0	0	0	0	0	1
	EV	0	1	0	1	0	0	2	0	0	1
Utilities	ICE	0	0	0	0	0	0	0	0	0	0
	EV	0	0	0	1	5	0	0	1	1	0
WTP	ICE	0	0	0	0	0	0	0	0	0	0
	EV	1	0	0	0	1	1	0	0	0	0
WWTP	ICE	0	0	0	0	0	0	0	0	0	0
	EV	0	1	0	0	1	1	0	0	0	0
Total	ICE	0	0	0	0	0	0	0	0	0	1
	EV	17	7	8	4	32	9	8	3	20	7

Assuming the above replacement schedule an estimated replacement cost is shown below. A yearly inflation rate of 2.5% was used.

Department	Replacment Type	2023	2024	2025	2026	2027	2028
Building Inspection	ICE	$0	$0	$0	$0	$0	$0
	EV	$0	$0	$0	$86,387	$0	$0
Code Enforcement	ICE	$0	$0	$0	$0	$0	$0
	EV	$55,212	$0	$0	$0	$60,944	$0
Engineering	ICE	$0	$0	$0	$0	$0	$0
	EV	$303,075	$0	$0	$0	$0	$0
Facilities	ICE	$0	$0	$0	$0	$83,736	$0
	EV	$89,899	$0	$0	$0	$0	$0
Finance	ICE	$0	$0	$0	$0	$0	$0
	EV	$57,619	$0	$0	$0	$0	$0
Parks	ICE	$379,305	$77,758	$79,701	$0	$334,945	$0

	EV	$487,872	$56,592	$58,007	$0	$0	$124,935
Police	ICE	$478,286	$68,499	$105,317	$71,966	$0	$0
	EV	$0	$118,119	$0	$0	$98,588	$151,578
Rec Center	ICE	$151,722	$0	$0	$0	$0	$0
	EV	$0	$0	$63,993	$0	$0	$0
Streets	ICE	$0	$0	$322,954	$0	$0	$85,830
	EV	$0	$0	$0	$0	$0	$0
Utilities	ICE	$227,583	$0	$0	$0	$83,736	$176,126
	EV	$55,212	$0	$0	$86,387	$0	$0
WTP	ICE	$75,861	$0	$0	$0	$0	$0
	EV	$0	$56,592	$0	$0	$0	$0
WWTP	ICE	$0	$77,758	$0	$0	$0	$0
	EV	$55,212	$0	$0	$0	$0	$0
Total	ICE	$1,312,757	$224,014	$507,972	$71,966	$502,418	$261,956
	EV	$1,104,102	$231,304	$122,000	$172,775	$159,531	$276,513
	All Vehicles	$2,416,859	$455,317	$629,972	$244,741	$661,949	$538,469

Department	Replacement Type	2029	2030	2031	2032	2033	2034
Building Inspection	ICE	$0	$0	$0	$0	$0	$0
	EV	$0	$0	$0	$0	$114,331	$0
Code Enforcement	ICE	$0	$0	$0	$0	$0	$0
	EV	$0	$0	$0	$0	$0	$0
Engineering	ICE	$0	$0	$0	$0	$0	$0
	EV	$0	$0	$0	$0	$0	$0
Facilities	ICE	$0	$0	$0	$0	$0	$0
	EV	$0	$0	$0	$100,183	$0	$0
Finance	ICE	$0	$0	$0	$0	$0	$0
	EV	$0	$0	$0	$0	$81,144	$0
Parks	ICE	$0	$0	$0	$0	$0	$0
	EV	$64,029	$120,518	$258,072	$0	$129,785	$72,443
Police	ICE	$0	$0	$0	$0	$0	$0
	EV	$103,579	$106,168	$770,296	$223,085	$228,663	$58,595
Rec Center	ICE	$0	$0	$0	$0	$0	$0
	EV	$0	$0	$0	$0	$0	$0
Streets	ICE	$0	$0	$0	$0	$0	$0
	EV	$0	$615,137	$0	$259,829	$0	$272,983
Utilities	ICE	$87,976	$370,085	$0	$0	$0	$0
	EV	$0	$482,074	$0	$0	$0	$133,030
WTP	ICE	$0	$0	$0	$0	$0	$0
	EV	$0	$190,711	$97,739	$0	$0	$0
WWTP	ICE	$0	$0	$0	$0	$0	$0
	EV	$0	$95,355	$0	$55,771	$0	$0

Total	ICE	$87,976	$370,085	$0	$0	$0	$0
	EV	$167,608	$1,609,963	$1,126,108	$638,869	$553,923	$537,051
	All Vehicles	$255,583	$1,980,049	$1,126,108	$638,869	$553,923	$537,051

Department	Replacement Type	2035	2036	2037	2038	2039	2040
Building Inspection	ICE	$0	$0	$0	$0	$0	$0
	EV	$0	$0	$0	$116,181	$0	$0
Code Enforcement	ICE	$0	$0	$0	$0	$0	$0
	EV	$74,254	$0	$0	$0	$81,963	$0
Engineering	ICE	$0	$0	$0	$0	$0	$0
	EV	$407,602	$0	$0	$0	$0	$0
Facilities	ICE	$0	$0	$0	$0	$0	$0
	EV	$120,905	$0	$0	$0	$150,511	$0
Finance	ICE	$0	$0	$0	$0	$0	$0
	EV	$77,491	$0	$0	$0	$0	$0
Parks	ICE	$0	$0	$0	$0	$0	$0
	EV	$1,263,658	$215,875	$221,272	$0	$602,044	$252,035
Police	ICE	$0	$0	$0	$0	$0	$0
	EV	$249,666	$343,540	$189,301	$64,678	$938,531	$203,856
Rec Center	ICE	$0	$0	$0	$0	$0	$0
	EV	$272,711	$0	$86,064	$0	$0	$0
Streets	ICE	$0	$0	$0	$0	$0	$236,870
	EV	$0	$0	$286,517	$0	$0	$154,274
Utilities	ICE	$0	$0	$0	$0	$0	$0
	EV	$763,128	$0	$0	$116,181	$150,511	$0
WTP	ICE	$0	$0	$0	$0	$0	$0
	EV	$136,356	$76,110	$0	$0	$0	$0
WWTP	ICE	$0	$0	$0	$0	$0	$0
	EV	$74,254	$139,764	$0	$0	$0	$0
Total	ICE	$0	$0	$0	$0	$0	$236,870
	EV	$3,440,025	$775,290	$783,153	$297,040	$1,923,560	$610,165
	All Vehicles	$3,440,025	$775,290	$783,153	$297,040	$1,923,560	$847,035

Louisville Fleet Decarbonization

Over the next 17 year, if the above replacement schedule was followed, the incremental initial vehicle cost would be $4.3M, but the incremental cost on a lifecycle basis would only be $1M. The amount of CO2 emissions saved would be ~9 million lb. These numbers does not include any financing costs, but do include 2.5% inflation, electric rate inflation of 2.44%, and gas/diesel cost escalation of 2.65%.

	Vehicle replacement cost	Fuel Costs	Maintenance Costs	Total Cost	Total Emissions lb of co2
Status Quo, keep buying ICE	$14,446,954	$3,912,658	$1,596,579	$19,956,191	16,188,795
Phasing in Evs	$18,104,994	$1,710,455	$1,178,767	$20,994,216	6,936,913

At this time McKinstry does not recommend leasing EVs as the biggest benefit to leasing would be on the maintenance costs and possibly being able to receive some of the vehicle tax incentives. Maintenance costs for EV are less than ICE and City already does most of its own maintenance. Some retraining of the city's fleet mechanics may be needed but in general EV's are easier to maintain other than the electronic components, but most electronic issues are likely to happen during the warranty period when the dealer would be responsible for fixing. In addition, as more EV are adopted more qualified EV technicians will become available for the city to hire.

Because the City is a public entity it is hard to qualify for tax credit and incentives. There are some unique purchasing mechanisms available that allow public entities to receive part of these tax incentives but with all the recent changes in these program this will need to be further investigated.

There are no specific fire code for EV vehicles. Because most EV batteries are integral to the vehicle, are not designed to be replaced easily, and are expected to last the lifetime of the City's replacement schedule EV battery storage will not be necessary or recommended.

Appendix

Final Report

1. Fleet Electrification
2. Miscellaneous Equipment
3. Construction Pricing Context & Constructibility
4. Climate Analysis
5. Cobenefits

McKinstry
For The Life Of Your Building

Louisville
Miscellaneous Equipment
Decarbonization Analysis and Info

Louisville Summary Supporting Info

1 - Executive Summary

Small Vehicle EV Charging

Relative to automobiles, gas powered lawn and garden equipment produce far fewer total carbon emissions, but they still add significantly to the problem with carbon accumulation and also with deteriorating air quality in urban areas. The US Department of Energy estimates that 1.2 billion gallons of gasoline are consumed annually in the US for lawn care. This translates to nearly 12 Million tons of CO_2 emitted per year.

Small gasoline engines like those in gas powered riding mowers and garden equipment are fast becoming the number one contributor to smog forming air pollution. These small engines emit hundreds of times more pollutants per hour than automobile engines. These pollutants - benzene, butadiene, formaldehyde, oxides of nitrogen, carbon monoxide and small particulates are known carcinogens and known respiratory, cardiovascular, and neurological health risks. The EPA considers gasoline powered lawn and garden equipment “an important source of dangerous air pollution.”

New lithium battery powered riding mowers, park equipment, and leaf blowers compete effectively with gasoline powered tools regarding power and performance and have significantly longer operating run times than older electric models. On top of that these new tools are quieter and will not produce the lingering gasoline smells that are an indicator of the fumes and pollution that gasoline powered equipment produces.

Louisville Summary Supporting Info

Current equipment

The city currently has three departments that own the majority of the small engine vehicles and equipment. The is equipment was broken down into smaller subcategories for analysis. The table below show she equipment categories.

	Qty of equipment		
Type	**golf qty**	**parks**	**open space**
aerator	1	0	0
ATV	8	12	0
blower	3	0	0
Cart	3	0	0
chainsaw	2	2	0
chipper	0	1	0
excavator	0	1	0
forklift	0	11	0
generator	0	0	0
loader	1	0	0
mower	17	16	2
roller	0	1	0
saw	0	1	0
skid	0	2	0
sprayer	1	0	0
tractor	1	3	0
trimmer	4	0	0
washer	1	0	0

Louisville Summary Supporting Info

This equipment was then assigned typical yearly runtime hours which could be used calculate the carbon emissions, maintenance costs, and replacement costs. The table below provides the hours of runtime for each equipment category. Runtimes were estimated based on the existing equipment type and confirmed with golf, parks, and open space facilities teams.

	hours of operation per year		
Type	**golf**	**parks**	**open space**
aerator	50	0	0
ATV	30	50	0
blower	100	0	80
Cart	1000	125	0
chainsaw	50	0	0
chipper	50	120	40
excavator	0	50	30
forklift	0	50	30
generator	0	0	40
loader	100	0	50
mower	800	380	300
roller	45	50	60
saw	0	190	0
skid	0	50	80
sprayer	50	0	0
tractor	50	65	30
trimmer	500	0	200
washer	50	0	60

The EPA has published typical emission factors for small engines. These factors scale with engine size. The table below provides these factors for both gasoline and diesel. Most of the Cities equipment is gasoline.

HP	CO2 lbs/yr gas	CO2 lbs/yr diesel
1	1.08366	1.14138

Louisville Summary Supporting Info

Using the same fuel costs as the fleet vehicles and the above emission factors we were able to estimate the total cost of running the small engine equipment and it emissions.

Equipment type	Gallons of Fuel (yearly)	Fuel Cost (yearly)	Lb of CO2 (yearly)
aerator	46	185	623
ATV	756	3,062	10,440
blower	222	889	3,002
Cart	1,680	6,740	22,757
chainsaw	18	71	238
chipper	408	1,637	5,527
forklift	232	931	3,143
loader	126	622	2,511
mower	18,346	77,358	274,348
roller	40	160	542
saw	160	640	2,162
skid	431	2,050	8,039
sprayer	50	201	677
tractor	390	1,929	7,790
trimmer	200	802	2,709
Grand Total	**23,104**	**97,277**	**344,507**

Small Engine Electrification

Most the equipment categories currently have electric equivalents available. The categories that do not or have very limited choices are, tractor, skid, loader, chipper, and roller. Some of these types of equipment are actively being developed. In addition, in the mower category there is some specialty golf mowers that do not have a good electric choice.

Unfortunately, unlike the electric fleet vehicles most of the electric lawn care equipment does not have battery warranty that match the equipment warranty. As this technology matures the warranties will get better.

Another large hurdle for this equipment is the cost of the electrified version. Most electric versions of the non-handheld equipment is about 1.75 times the cost of the gas version. Maintenance costs are lower but not enough to offset the initial up-front cost.

Louisville Summary Supporting Info

The table below shows the electrical cost and cost to purchase new electric versions of the equipment. Cost for most of the equipment is estimated to be about 1.75 time the gas/diesel powered equivalent.

Type	Count of Type	Electric Fuel (kWh)	Electric Fuel Cost ($)	Electric Vehicle Costs ($)
aerator	1	858	39	39,839
ATV	18	14,331	1,336	403,765
blower	3	4,133	186	25,088
Cart	3	31,332	1,410	36,750
chainsaw	2	328	15	2,056
chipper	2	7,609	822	57,579
forklift	1	4,327	467	50,703
generator	11	-	-	775,520
loader	1	3,282	148	9,471
mower	35	372,136	27,701	1,539,193
roller	1	746	81	25,673
saw	1	2,977	321	9,184
skid	5	10,593	1,144	355,859
sprayer	1	933	42	62,272
tractor	4	10,183	947	247,067
trimmer	4	3,730	168	2,450
washer	1	-	-	5,369
Grand Total	**94**	**467,498**	**34,826**	**3,647,837**

McKinstry would recommend replacing existing equipment that is at the end of its life, most large equipment is replaced by the department every 8 years, with the electric equivalent.

Refueling/charging

With the newest battery technology available most of the larger equipment can operate during a typical workday. This equipment isn't designed for battery swap out in the field, so if the battery charge got low the operator would need to plug it in somewhere to charge or switch to a different piece of equipment. Typically, they would need to switch to a different piece of equipment. The charging time for this equipment isn't fast enough to get a full charge in a reasonable amount of time. For smaller handheld equipment spare batteries can carried along to change out and when the charge gets low. This will take some training to get operators use to carrying around extra batteries that are fully charged. When the city switches to the fleet vehicles to EV's, most work style trucks may have the ability to charge auxiliary devices like batteries for small handheld equipment. For most of this equipment it is recommended that everything be charged overnight as it is unlikely that anything would be able to be charged during the day and used that same day.

Charging

Most small motor equipment will require at least a 120v 15amp circuit to charge. It is recommended that there is one dedicated plug for each piece of equipment. Additional electrical infrastructure will be needed to make charging plugs accessible to all equipment where it is stored.

Battery Life

Battery technology is significantly improving year to year. Most batteries are Lithium based and have longer life spans than the equipment. Depending on the manufacture the battery warranty may or may not match the typical equipment life. For small handheld equipment purchasing extra batteries will allow longer use and does not add much cost. For larger equipment the battery can be a significant part of the cost and having a second battery on hand will be cost prohibitive. In addition, the larger equipment isn’t always designed for quick battery change outs. Like electric vehicles, batteries for this type of equipment will eventually have warranty life greater than the cities typical use.

Appendix

Final Report

1. Fleet Electrification
2. Miscellaneous Equipment
3. Construction Pricing Context & Constructibility
4. Climate Analysis
5. Cobenefits

McKinstry
For The Life Of Your Building

Construction Pricing Context

The MEP scope narratives described in previous sections and included in the appendices were used by McKinstry's construction division to provide Rough Order of Magnitude (ROM) pricing. This early ROM budgeting process sought to be reasonable but conservative wherever possible. **Typically for ROM-level pricing a range of +/- 20% is applied to the total construction and start up costs.** This range can be reduced, and the pricing further refined, via a deeper understanding of existing building conditions and detailed design. Note this does not account for escalation, which is addressed separately. This pricing represents the total construction and startup cost to Louisville, including:

- General contractor markup
- Design fees
- Engineering energy analysis
- Controls
- Equipment startup, commissioning, testing, and balancing
- Placeholders for miscellaneous trades (e.g. carpentry).
- Allowances specific to each building for construction conditions (e.g. crane time)

All construction costs are in 2023 dollars unless noted otherwise.

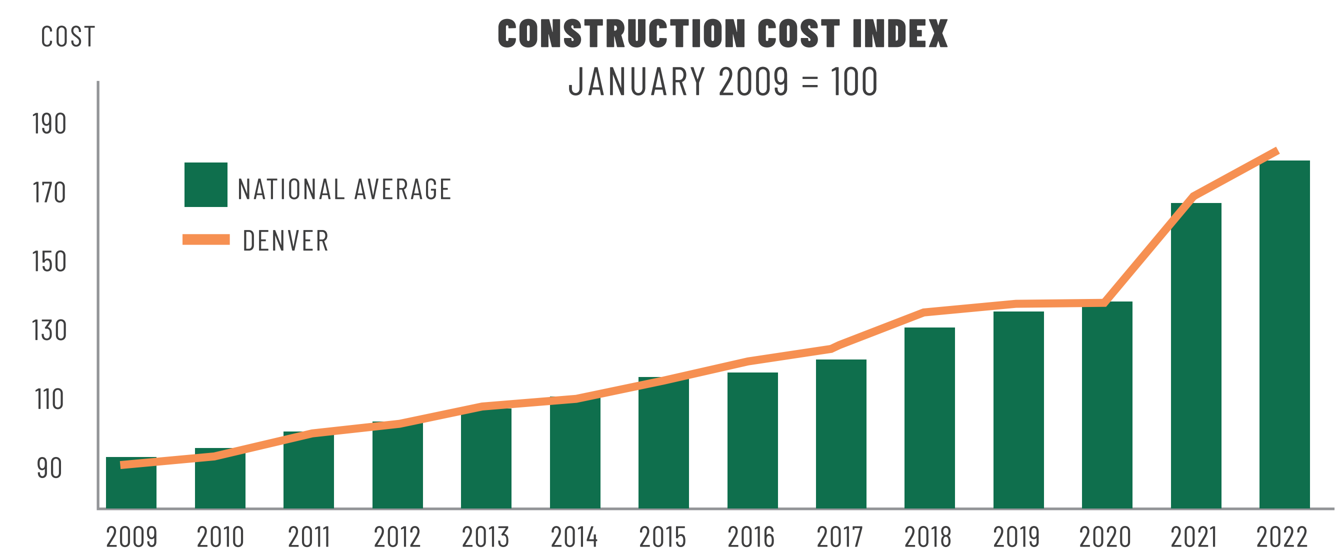
Using These Construction Costs

Throughout this report, differentiation is made between "total construction costs" and "net cost over business-as-usual fossil fuel systems"The distinction between the two is:

- Total costs: these are the total construction costs. This is the total amount of money that will need to be allocated for budgetary purposes.
- The like-for-like project costs were derived from a combination of the City's CIP budget and detailed cost estimating of turnkey like-for-like equipment replacement as the comparison scenario.
- Net Cost: these are the total construction costs minus the like-like replacement costs that would've been spent to replace the existing units. These numbers represent the true cost of this decarbonization effort.

Note the numbers in the 2023 City Budget are budget numbers, and do not represent all costs for replacing the existing units. As such, they should not be used when determining the costs of decarbonization. In addition, the cost estimates in this report assume miscellaneous equipment (e.g. expansion tanks, domestic hot water storage tanks) need to be replaced. This assumption should be validated in detailed design, and could result in the total construction cost being lower if equipment can be reused.

As shown in the graph by the Mortenson, construction costs have been steadily rising since 2009. However, costs rose drastically from 2020 to 2022 (approximately 35%) due to global supply chain issues and unforeseen consequences of the COVID-19 pandemic.



SOURCE: MORTENSON CONSTRUCTION

Constructibility

Recent upheavals in the global supply chain and labor workforce have caused uncertainty in the construction market. Our construction teams are seeing the following trends as of March, 2023:

ELECTRICAL LEAD TIMES:

- Most commodity items, such as conduit, wire, fittings, etc. are readily available.
- Lead times for Switchboards are being quoted 50-80 weeks. Panel-boards can be 20-40 weeks depending on complexity.

MECHANICAL LEAD TIMES:

- 26-30 weeks for larger and more customized equipment (50 ton RTUs)
- Equipment needs to be ordered earlier in detailed design process to accommodate long lead times. Requires additional coordination earlier in design.

In order to combat these lead time challenges, design teams may need to be flexible with their specifications and the products/manufacturers they are selecting.

LABOR MARKET:

While we are seeing a general relaxing of labor shortages in other markets around the country, the contractor and labor shortages continue to persist in the Denver market.

Appendix

Final Report

1. Fleet Electrification
2. Miscellaneous Equipment
3. Construction Pricing Context & Constructibility
4. Climate Analysis
5. Cobenefits

Future Weather Sensitivity

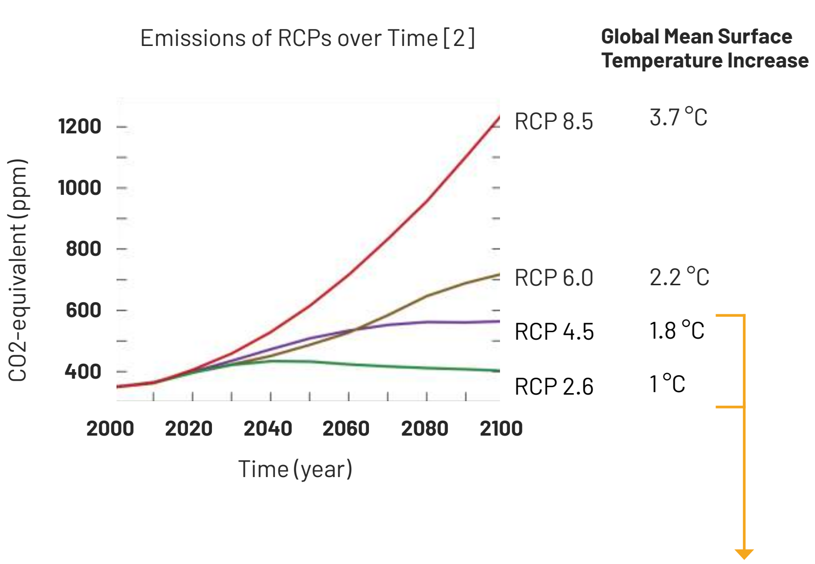
Global climate change will affect how mechanical systems designed to provide comfortable environments respond in a future, warmer environment. This document seeks to daylight ranges and uncertainties in future warming scenarios, and understand the design and energy implications of considering future weather.

The Intergovernmental Panel on Climate Change (IPCC) has introduced a concept called Representative Concentration Pathway (RCP) to try to quantify possible future climate states based on complex models of greenhouse gas (GHG) concentrations and predicted global emissions.

There are four RCPs, representing a variety of possible outcomes:

- **RCP8.5** - Business as usual, no substantial change to current global emissions rates
- **RCP6.0** - Moderate action to reduce global emissions
- **RCP4.5** - Moderately aggressive action to reduce global emissions
- **RCP2.6** - Aggressive, immediate and coordinated action to reduce global emissions

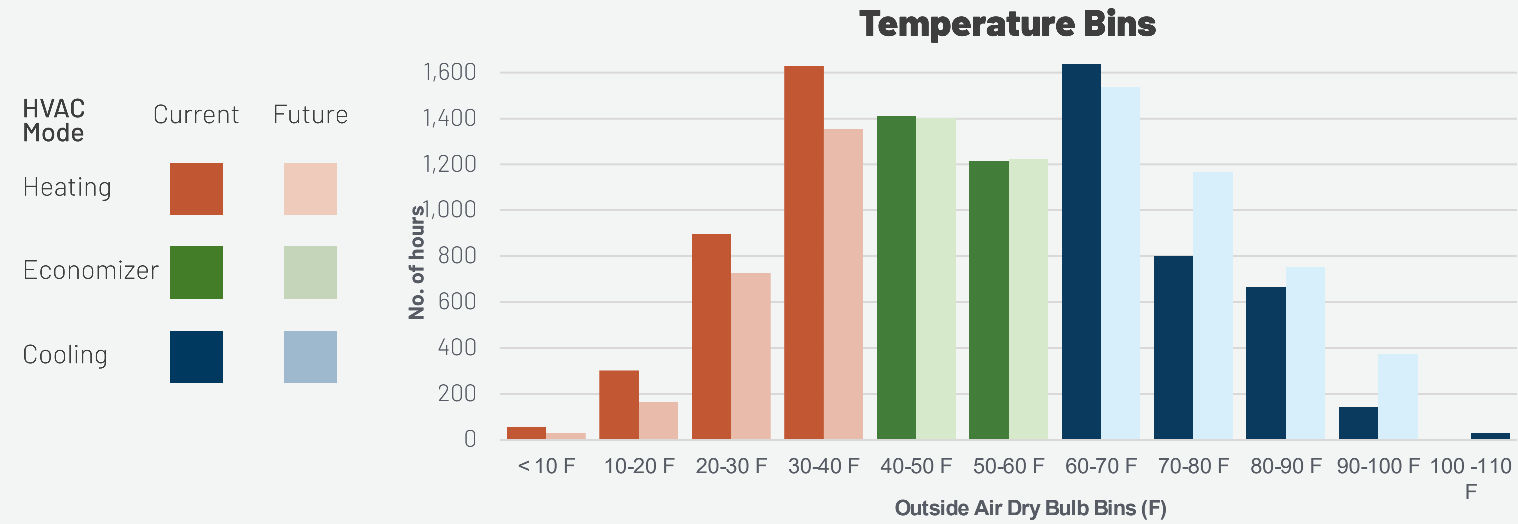
RCP 4.5 is used for this study.



RCP 4.5 and RCP 2.6 will both achieve the Paris Agreement target of limiting global temperature rise to below 2° C.

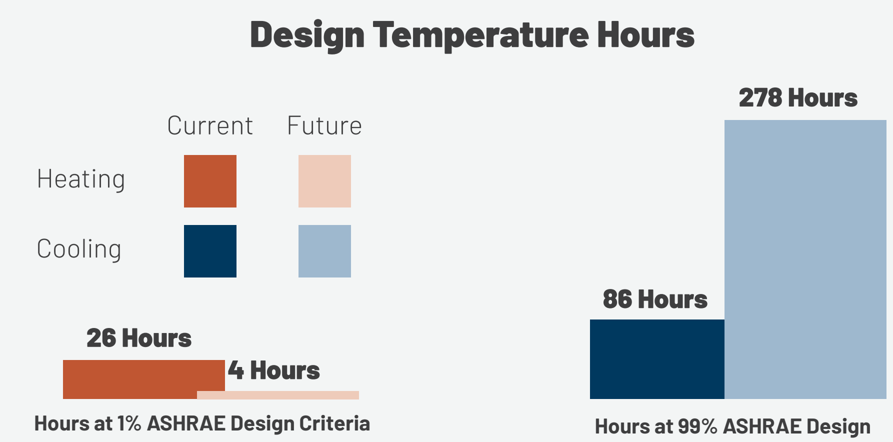
Temperature Impact

The impact on dry bulb temperature when considering future weather can be show in the figure to the right. **Temperatures shift upward, spending less time in the colder heating temperature bins, and shifting upwards into the warmer cooling driven temperature bins.**



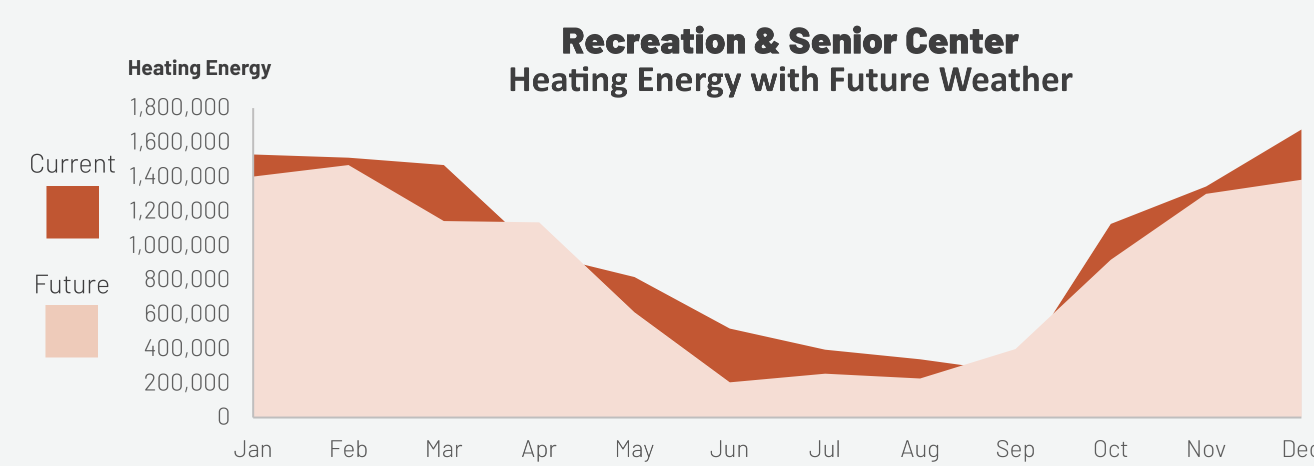
Design Impact

This temperature shift could play a hand in decisions about equipment sizing. **There may be opportunity to downsize heating equipment based on these weather bins. Cooling equipment should be selected to prepare the city for weather of the future.**



Energy & Carbon Impact

Building heating load is directly correlated with dry bulb temperature. **At the Recreation Center, the existing building heating load would decrease by approximately 10% under future weather conditions. There is still significant savings associated with decarbonizing the heating load.**



Appendix

Final Report

1. Fleet Electrification
2. Miscellaneous Equipment
3. Construction Pricing Context & Constructibility
4. Climate Analysis
5. Cobenefits

McKinstry
For The Life Of Your Building

Louisville CO Decarbonization Roadmap - Cobenefits Valuation Appendix

For this assessment, McKinstry subcontracted with Autocase, a resource economics advisory service, to help establish values for certain performance parameters.

Avoided Future Carbon Emissions Penalties

As climate change becomes an increasingly current (rather than future) reality, carbon emissions penalties are starting to be applied by leading organizations to internal operations, and by governing bodies as regulation. Colorado recently adopted HB21-1286, which establishes penalties for high Energy Use Intensity private sector buildings, and the City of Denver created Energize Denver, which has even more aggressive carbon penalties. Leading private sector firms, such as Microsoft, also apply an internal cost of carbon to lower immediate emissions and begin bending decision making to anticipate a more aggressive future carbon penalty regulatory environment. The Canadian Federal government recently adopted an internal decision making price of $261 CDN$/mton, and the EPA has draft rule of $261US. While these have yet to become actual regulatory penalties, they indicate a likely direction over time as climate change worsens. For this roadmap, an initial penalty stream based on the Colorado carbon price of $76/mton is applied from 2023-2027, moving to the draft EPA price for 2028-2040. These prices are escalated.

Year	CO2 svings, mtons	Penalty/mton	Total
2024	1010	$76	$76,760
2025	1014	$77	$78,078
2026	1022	$78	$79,716
2027	1044	$79	$82,476
2028	1088	$223	$242,624
2029	1095	$226	$247,470
2030	1554	$230	$357,420
2031	1607	$234	$376,038
2032	1651	$237	$391,287
2033	2614	$241	$629,974
2034	2631	$245	$644,595
2035	2653	$248	$657,944
2036	2656	$252	$669,312
2037	2668	$256	$683,008
2038	2668	$259	$691,012
2039	2690	$263	$707,470
2040	2695	$267	$719,565
	32360		$7,334,749

Avoided Cost of Future Natural Gas Price Shock

Historically, natural gas has substantially greater price volatility than electricity, which isn't captured by typical escalation rates. The Russian invasion of Ukraine has put a spotlight on the potential for long term natural gas price instability – during 2022, natural gas prices increased by 50%, making previous natural gas escalation rate assumptions of 3-4% invalid. Many risk forecasters anticipate further natural gas instability based on volatility of many producing nations. This roadmap includes a scenario of a second natural gas price shock in 2030, mirroring the impact of the 2022 shock. Note that the Ukraine war actually resulted in a drop in average electricity prices across the US, with a slow return to median; the assumed aggregate net reduction in electricity costs over 2023-2040, assuming a 2030 price shock event, is 10%, and the aggregate net increase in natural gas over the same period is assumed at 16%.

Value of Solar for Future Electric Micro-grid Backup Power

Currently, emergency power is provided by backup fossil fuel powered generators. A decarbonized alternative, with potentially even greater resiliency, is electric batteries fueled by on-site solar. The cost of batteries for such systems is currently cost prohibitive, but likely to drop in the future. Installing on-site solar as proposed for overall renewable power for the City has a dual benefit of helping enable future electrical islandability. The value of this is assumed at 10% of the overall cost of recommended on-site solar (which totals approximately $9 million).

Employee and visitor health and performance: Air quality and thermal comfort

The proposed decarbonization program will also enable improvement of ventilation and filtration systems that are part of HVAC systems being electrified. Demand control ventilation can be added and optimized to better filter media. Elimination of natural gas combustion removes any risk of noxious combustion gasses (from malfunctioning exhausts, etc. Air sealing the buildings, which retains tempered indoor air, has the added benefit of excluding smog and wildfire smoke, as well as reducing mold – a substantial benefit. Finally, City Hall currently has very poor temperature control, with overheated and colder work areas. The new electrified and rezoned system will enable more comfortable work temperatures there.

For the purposes of this assessment, no indoor air quality data was available for City facilities. McKinstry HVAC engineers applied professional judgement based on literature about typical IAQ levels within facilities generally and their knowledge about the specific Louisville facilities and established an assumed IAQ performance level degradation of 20% from baseline air quality levels, for 20% of occupied hours for the higher employee density areas only. City Hall thermal performance was assumed to slightly degraded 25% of the time and moderately degraded 25% of the time, with the balance within ASHRAE setpoint guidelines.

These assumed levels were then applied to Autocase's proprietary economics model, which utilizes best available scientific literature to define value and costs associated with different performance parameters. Health outcomes assessed sum to an annual benefit of $59,000 included the following avoided outcomes:

- Mortality
- Nonfatal Heart Attacks
- Infant Mortality

- Hospital Admits, All Respiratory
- Hospital Admits, Cardiovascular
- Acute Bronchitis
- Upper Respiratory Symptoms
- Lower Respiratory Symptoms
- Emergency Room Visits, Asthma
- Asthma Exacerbation
- Wheezing
- Rhinitis
- Minor Restricted Activity Days
- Work Loss Days

Better thermal comfort settings in City Hall generate benefits to full-time employees with reduced Sick Building Syndrome symptoms. It generates an average annual benefit of $1,400 for 55 employees.

Employee retention – climate leadership

The cost of employee turnover (training, lost knowledge, etc.) is significant in any organization. Employees take pride in working for organizations which have integrity in reflecting their values. This value stream assumes a 2% reduction in employee turnover due to its expressed climate leadership. The expressed aggregate value assumes typical turnover rates, and a cost per turnover of $23,760 (provided by the City).

Attachment B: DOLA Grant Documentation

State of Colorado Intergovernmental Grant Agreement
SUMMARY OF TERMS AND CONDITIONS

<table>
<tr><td>State Agency
Department of Local Affairs (DOLA)</td><td>DLG Portal Number
EIAF-09756</td><td>CMS Number
189766</td></tr>
<tr><td>Grantee
City of Louisville</td><td>Grant Award Amount
$2,500,000.00</td><td>Retainage Amount
$125,000.00</td></tr>
<tr><td>Project Number and Name
EIAF 9756 – CRC Louisville Recreation & Senior Center Resiliency Hub</td><td>Performance Start Date
The later of the Effective Date or March 07, 2024</td><td>Grant Expiration Date
March 31, 2026</td></tr>
<tr><td rowspan="3">Project Description
The Project consists of decarbonization efforts on nine (9) City facilities including a resiliency hub within the City of Louisville, Colorado.</td><td colspan="2">Program Name
Energy & Mineral Impact Assistance Program (EIAF)</td></tr>
<tr><td colspan="2">Funding Source
STATE FUNDS</td></tr>
<tr><td colspan="2">Catalog of Federal Domestic Assistance (CFDA) Number
N/A</td></tr>
<tr><td>DOLA Regional Manager
<u>Chris La May, (970) 679-7679, (chris.la.may@state.co.us)</u></td><td colspan="2">Funding Account Codes
CTGG1 NLAA 202400003641</td></tr>
<tr><td>DOLA Regional Assistant
<u>Gheda Gayou, (303) 842-6318, (gheda.gayou@state.co.us)</u></td><td>VCUST#
14215</td><td>Address Code CN003 EFT</td></tr>
</table>

THE SIGNATORIES LISTED BELOW AUTHORIZE THIS GRANT

DEPARTMENT OF LOCAL AFFAIRS	STATE OF COLORADO
PROGRAM REVIEWER	Jared S. Polis, Governor **DEPARTMENT OF LOCAL AFFAIRS** Maria De Cambra, Executive Director
DocuSigned by: Angie Cue 45D2B7CF50DE4BD...	DocuSigned by: Desiree Stratz 0920A67707B9482...
By: Angie Cue, EIAF Program Manager	By: Maria De Cambra, Executive Director
Date: 3/18/2024 | 6:40 AM PDT	Date: 3/18/2024 | 10:43 AM MDT

In accordance with §24-30-202 C.R.S., this Grant is not valid until signed and dated below by the State Controller or an authorized delegate (the "**Effective Date**").

<u>STATE CONTROLLER</u>
<u>Robert Jaros, CPA, MBA, JD</u>

DocuSigned by:
Beulah Messick - DOLA
090ACD88A721474...

By: Beulah Messick, Controller Delegate
Department of Local Affairs

Effective Date: 3/19/2024 | 2:08 PM MDT

TERMS AND CONDITIONS

1. GRANT

As of the Performance Start Date, the State Agency shown on the Summary of Terms and Conditions page of this Intergovernmental Grant Agreement (the "State") hereby obligates and awards to Grantee shown on the Summary of Terms and Conditions page of this Intergovernmental Grant Agreement (the "Grantee") an award of Grant Funds in the amount shown on the Summary of Terms and Conditions page of this Intergovernmental Grant Agreement. By accepting the Grant Funds provided under this Intergovernmental Grant Agreement, Grantee agrees to comply with the terms and conditions of this Intergovernmental Grant Agreement and requirements and provisions of all Exhibits to this Intergovernmental Grant Agreement.

2. TERM

A. Initial Grant Term and Extension

The Parties' respective performances under this Intergovernmental Grant Agreement shall commence on the Performance Start Date and shall terminate on the Grant Expiration Date unless sooner terminated or further extended in accordance with the terms of this Intergovernmental Grant Agreement. Upon request of Grantee, the State may, in its sole discretion, extend the term of this Intergovernmental Grant Agreement by providing Grantee with an updated Intergovernmental Grant Agreement or an executed Option Letter showing the new Grant Expiration Date.

B. Early Termination in the Public Interest

The State is entering into this Intergovernmental Grant Agreement to serve the public interest of the State of Colorado as determined by its Governor, General Assembly, or Courts. If this Intergovernmental Grant Agreement ceases to further the public interest of the State or if State, Federal or other funds used for this Intergovernmental Grant Agreement are not appropriated, or otherwise become unavailable to fund this Intergovernmental Grant Agreement, the State, in its discretion, may terminate this Intergovernmental Grant Agreement in whole or in part by providing written notice to Grantee. If the State terminates this Intergovernmental Grant Agreement in the public interest, the State shall pay Grantee an amount equal to the percentage of the total reimbursement payable under this Intergovernmental Grant Agreement that corresponds to the percentage of Work satisfactorily completed, as determined by the State, less payments previously made. Additionally, the State, in its discretion, may reimburse Grantee for a portion of actual, out-of-pocket expenses not otherwise reimbursed under this Intergovernmental Grant Agreement that are incurred by Grantee and are directly attributable to the uncompleted portion of Grantee's obligations, provided that the sum of any and all reimbursements shall not exceed the maximum amount payable to Grantee hereunder. This subsection shall not apply to a termination of this Intergovernmental Grant Agreement by the State for breach by Grantee.

C. *Reserved*.

3. AUTHORITY

Authority to enter into this Intergovernmental Grant Agreement exists in the law as follows:

A. *Reserved*.

B. State Authority

Authority to enter into this Grant exists in C.R.S. 24-32-106 and 29-3.5-101 and funds have been budgeted, appropriated and otherwise made available pursuant to C.R.S. 39-29-110 (Local Government Severance Tax Fund) and a sufficient unencumbered balance thereof remains available for payment. Required approvals, clearance and coordination have been accomplished from and with appropriate agencies. This Intergovernmental Grant Agreement is funded, in whole or in part, with State funds.

4. DEFINITIONS

The following terms shall be construed and interpreted as follows:

A. "**Budget**" means the budget for the Work described in **Exhibit B**.

B. "**Business Day**" means any day on which the State is open and conducting business, but shall not include Saturday, Sunday or any day on which the State observes one of the holidays listed in §24-11-101(1) C.R.S.

C. *Reserved*.

D. "**CORA**" means the Colorado Open Records Act, §§24-72-200.1 *et seq.*, C.R.S.

E. "**Grant**" or "**Intergovernmental Grant Agreement**" means this agreement which offers Grant Funds to Grantee, including all attached Exhibits, all documents incorporated by reference, all referenced statutes, rules and cited authorities, and any future updates thereto.

F. "**Grant Funds**" or "**Grant Award Amount**" means the funds that have been appropriated, designated, encumbered, or otherwise made available for payment by the State under this Intergovernmental Grant Agreement.

G. "**Grant Expiration Date**" means the Grant Expiration Date shown on the Summary of Terms and Conditions page of this Intergovernmental Grant Agreement. Work performed after the Grant Expiration Date is not eligible for reimbursement from Grant Funds.

H. "**Performance Start Date**" means the later of the Performance Start Date or the Effective Date shown on the Summary of Terms and Conditions page of this Intergovernmental Grant Agreement.

I. "**Exhibits**" means the following exhibits attached to this Intergovernmental Grant Agreement:

- **i.** **Exhibit B**, Scope of Project
- **ii.** **Exhibit G**, Form of Option Letter

J. "**Extension Term**" means the period of time by which the Grant Expiration Date is extended by the State through delivery of an updated Intergovernmental Grant Agreement, an amendment, or an Option Letter.

K. *Reserved*.

L. *Reserved*.

M. "**Goods**" means any movable material acquired, produced, or delivered by Grantee as set forth in this Intergovernmental Grant Agreement and shall include any movable material acquired, produced, or delivered by Grantee in connection with the Services.

N. "**Incident**" means any accidental or deliberate event that results in, or constitutes an imminent threat of, the unauthorized access or disclosure of State Confidential Information or of the unauthorized modification, disruption, or destruction of any State Records.

O. "**Initial Term**" means the time period between the Performance Start Date and the initial Grant Expiration Date.

P. "**Matching Funds**" or "**Other Funds**" means funds provided by the Grantee as a match required to receive the Grant Funds.

Q. "**Party**" means the State or Grantee, and **"Parties"** means both the State and Grantee.

R. *Reserved*.

S. *Reserved*.

T. *Reserved.*

U. *Reserved.*

V. "**Services**" means the services performed by Grantee as set forth in this Intergovernmental Grant Agreement, and shall include any services rendered by Grantee in connection with the Goods.

W. "**State Confidential Information**" means any and all State Records not subject to disclosure under CORA. State Confidential Information shall include, but is not limited to State personnel records not subject to disclosure under CORA. State Confidential Information shall not include information or data concerning individuals that is not deemed confidential but nevertheless belongs to the State, which has been communicated, furnished, or disclosed by the State to Grantee which (i) is subject to disclosure pursuant to CORA; (ii) is already known to Grantee without restrictions at the time of its disclosure to Grantee; (iii) is or subsequently becomes publicly available without breach of any obligation owed by Grantee to the State; (iv) is disclosed to Grantee, without confidentiality obligations, by a third party who has the right to disclose such information; or (v) was independently developed without reliance on any State Confidential Information.

X. "**State Fiscal Rules**" means the fiscal rules promulgated by the Colorado State Controller pursuant to §24-30-202(13)(a) C.R.S.

Y. "**State Fiscal Year**" means a 12 month period beginning on July 1 of each calendar year and ending on June 30 of the following calendar year. If a single calendar year follows the term, then it means the State Fiscal Year ending in that calendar year.

Z. "**State Records**" means any and all State data, information, and records, regardless of physical form, including, but not limited to, information subject to disclosure under CORA.

AA. *Reserved*.

BB. "**Subcontractor**" means third-parties, if any, engaged by Grantee to aid in performance of the Work. "Subcontractor" also includes sub-grantees.

CC. *Reserved*.

DD. *Reserved*.

EE. *Reserved*.

FF. "**Work**" means the delivery of the Goods and performance of the Services described in this Intergovernmental Grant Agreement.

GG. "**Work Product**" means the tangible and intangible results of the Work, whether finished or unfinished, including drafts. Work Product includes, but is not limited to, documents, text, software (including source code), research, reports, proposals, specifications, plans, notes, studies, data, images, photographs, negatives, pictures, drawings, designs, models, surveys, maps, materials, ideas, concepts, know-how, and any other results of the Work. "Work Product" does not include any material that was developed prior to the Performance Start Date that is used, without modification, in the performance of the Work.

Any other term used in this Intergovernmental Grant Agreement that is defined in an Exhibit shall be construed and interpreted as defined in that Exhibit.

5. PURPOSE

The purpose of the Energy and Mineral Impact Assistance Program is to assist political subdivisions that are socially and/or economically impacted by the development, processing, or energy conversion of minerals and mineral fuels. The purpose of this Grant is described in **Exhibit B**.

6. SCOPE OF PROJECT

Grantee shall complete the Work as described in this Intergovernmental Grant Agreement and in accordance with the provisions of **Exhibit B**. The State shall have no liability to compensate or reimburse Grantee for the delivery of any goods or the performance of any services that are not specifically set forth in this Intergovernmental Grant Agreement.

7. PAYMENTS TO GRANTEE

A. Maximum Amount

Payments to Grantee are limited to the unpaid, obligated balance of the Grant Funds. The State shall not pay Grantee any amount under this Grant that exceeds the Grant Award Amount shown on the Summary of Terms and Conditions page of this Intergovernmental Grant Agreement.

i. The State may increase or decrease the Grant Award Amount by providing Grantee with an updated Intergovernmental Grant Agreement or an executed Option Letter showing the new Grant Award Amount.

ii. The State shall not be liable to pay or reimburse Grantee for any Work performed or expense incurred before the Performance Start Date or after the Grant Expiration Date.

iii. Financial obligations of the State payable after the current State Fiscal Year are contingent upon funds for that purpose being appropriated, budgeted, and otherwise made available.

B. *Reserved*.

C. Matching Funds.

Grantee shall provide the Other Funds amount shown on the Project Budget in **Exhibit B** (the "Local Match Amount"). Grantee shall appropriate and allocate all Local Match Amounts to the purpose of this Intergovernmental Grant Agreement each fiscal year prior to accepting any Grant Funds for that fiscal year. Grantee does not by accepting this Intergovernmental Grant Agreement irrevocably pledge present cash reserves for payments in future fiscal years, and this Intergovernmental Grant Agreement is not intended to create a multiple-fiscal year debt of Grantee. Grantee shall not pay or be liable for any claimed interest, late charges, fees, taxes or penalties of any nature, except as required by Grantee's laws or policies.

D. Reimbursement of Grantee Costs

The State shall reimburse Grantee's allowable costs, not exceeding the maximum total amount described in this Intergovernmental Grant Agreement for all allowable costs described in this Intergovernmental Grant Agreement and shown in the Budget in **Exhibit B**. The State shall only reimburse allowable costs if those costs are: **(a)** reasonable and necessary to accomplish the Work and for the Goods and Services provided; and **(b)** equal to the actual net cost to Grantee (i.e. the price paid minus any items of value received by Grantee that reduce the cost actually incurred).

i. Upon request of the Grantee, the State may, without changing the maximum total amount of Grant Funds, adjust or otherwise reallocate Grant Funds among or between each line of the Project Budget by providing Grantee with an executed Option Letter or formal amendment.

E. Close-Out and De-obligation of Grant Funds

Grantee shall close out this Grant no later than 90 days after the Grant Expiration Date. To complete close out, Grantee shall submit to the State all deliverables (including documentation) as defined in this Intergovernmental Grant Agreement and Grantee's final reimbursement request or invoice. The State will withhold 5% of allowable costs until all final documentation has been submitted and accepted by the State as substantially complete. Any Grant Funds remaining after submission and payment of Grantee's final reimbursement request are subject to de-obligation by the State.

F. Erroneous Payments

The State may recover, at the State's discretion, payments made to Grantee in error for any reason, including, but not limited to, overpayments or improper payments, and unexpended or excess funds received by Grantee. The State may recover such payments by deduction from subsequent payments under this Intergovernmental Grant Agreement, deduction from any payment due under any other contracts, grants or agreements between the State and Grantee, or by any other appropriate method for collecting debts owed to the State.

8. REPORTING – NOTIFICATION

A. Performance and Final Status

Grantee shall submit all financial, performance and other reports to the State no later than the end of the close out period described in **§7.E**.

B. Violations Reporting

Grantee shall disclose, in a timely manner, in writing to the State, all violations of federal or State criminal law involving fraud, bribery, or gratuity violations potentially affecting this Award.

9. GRANTEE RECORDS

A. Maintenance and Inspection

Grantee shall make, keep, and maintain, all records, documents, communications, notes and other written materials, electronic media files, and communications, pertaining in any manner to this Grant for a period of three years following the completion of the close out of this Grant. Grantee shall permit the State to audit, inspect, examine, excerpt, copy and transcribe all such records during normal business hours at Grantee's office or place of business, unless the State determines that an audit or inspection is required without notice at a different time to protect the interests of the State.

B. Monitoring

The State will monitor Grantee's performance of its obligations under this Intergovernmental Grant Agreement using procedures as determined by the State. The State shall have the right, in its sole discretion, to change its monitoring procedures and requirements at any time during the term of this Agreement. The State shall monitor Grantee's performance in a manner that does not unduly interfere with Grantee's performance of the Work.

C. Audits

Grantee shall comply with all State and federal audit requirements.

10. CONFIDENTIAL INFORMATION-STATE RECORDS

A. Confidentiality

Grantee shall hold and maintain, and cause all Subcontractors to hold and maintain, any and all State Records that the State provides or makes available to Grantee for the sole and exclusive benefit of the State, unless those State Records are otherwise publically available at the time of disclosure or are subject to disclosure by Grantee under CORA. Grantee shall not, without prior written approval of the State, use for Grantee's own benefit, publish, copy, or otherwise disclose to any third party, or permit the use by any third party for its benefit or to the detriment of the State, any State Records, except as otherwise stated in this Intergovernmental Grant Agreement. Grantee shall provide for the security of all State Confidential Information in accordance with all policies promulgated by the Colorado Office of Information Security and all applicable laws, rules, policies, publications, and guidelines. If Grantee or any of its Subcontractors will or may receive the following types of data, Grantee or its Subcontractors shall provide for the security of such data according to the following: **(i)** the most recently promulgated IRS Publication 1075 for all Tax Information and in accordance with the Safeguarding Requirements for Federal Tax Information attached to this Grant as an Exhibit, if applicable, **(ii)** the most recently updated PCI (payment card information) Data Security Standard from the PCI Security Standards Council for all PCI, **(iii)** the most recently issued version of the U.S. Department of Justice, Federal Bureau of Investigation, Criminal Justice Information (CJI) Services Security Policy for all CJI, and **(iv)** the federal Health Insurance Portability and Accountability Act (HIPAA) for all protected health information (PHI) and the HIPAA Business Associate Agreement attached to this Grant, if applicable. Grantee shall immediately forward any request or demand for State Records to the State's principal representative.

B. Other Entity Access and Nondisclosure Agreements

Grantee may provide State Records to its agents, employees, assigns and Subcontractors as necessary to perform the Work, but shall restrict access to State Confidential Information to those agents, employees, assigns and Subcontractors who require access to perform their obligations under this Intergovernmental Grant Agreement. Grantee shall ensure all such agents, employees, assigns, and Subcontractors sign nondisclosure agreements with provisions at least as protective as those in this Grant, and that the nondisclosure agreements are in force at all times the agent, employee, assign or Subcontractor has access to any State

Confidential Information. Grantee shall provide copies of those signed nondisclosure restrictions to the State upon request.

C. Use, Security, and Retention

Grantee shall use, hold and maintain State Confidential Information in compliance with any and all applicable laws and regulations in facilities located within the United States, and shall maintain a secure environment that ensures confidentiality of all State Confidential Information wherever located. Grantee shall provide the State with access, subject to Grantee's reasonable security requirements, for purposes of inspecting and monitoring access and use of State Confidential Information and evaluating security control effectiveness. Upon the expiration or termination of this Grant, Grantee shall return State Records provided to Grantee or destroy such State Records and certify to the State that it has done so, as directed by the State. If Grantee is prevented by law or regulation from returning or destroying State Confidential Information, Grantee warrants it will guarantee the confidentiality of, and cease to use, such State Confidential Information.

D. Incident Notice and Remediation

If Grantee becomes aware of any Incident, it shall notify the State immediately and cooperate with the State regarding recovery, remediation, and the necessity to involve law enforcement, as determined by the State. After an Incident, Grantee shall take steps to reduce the risk of incurring a similar type of Incident in the future as directed by the State, which may include, but is not limited to, developing and implementing a remediation plan that is approved by the State at no additional cost to the State.

E. Safeguarding Personally Identifiable Information (PII)

If Grantee or any of its Subcontractors will or may receive PII under this Agreement, Grantee shall provide for the security of such PII, in a manner and form acceptable to the State, including, without limitation, State non-disclosure requirements, use of appropriate technology, security practices, computer access security, data access security, data storage encryption, data transmission encryption, security inspections, and audits. Grantee shall be a "Third-Party Service Provider" as defined in §24-73-103(1)(i), C.R.S. and shall maintain security procedures and practices consistent with §§24-73-101 *et seq.*, C.R.S. In addition, as set forth in §24-74-102, *et seq.*, C.R.S., Grantee, including, but not limited to, Grantee's employees, agents and Subcontractors, agrees not to share any PII with any third parties for the purpose of investigating for, participating in, cooperating with, or assisting with Federal immigration enforcement. If Grantee is given direct access to any State databases containing PII, Grantee shall execute, on behalf of itself and its employees, the certification on an annual basis, attached as an exhibit, if applicable. Grantee's duty and obligation to certify as set forth in the exhibit shall continue as long as Grantee has direct access to any State databases containing PII. If Grantee uses any Subcontractors to perform services requiring direct access to State databases containing PII, the Grantee shall require such Subcontractors to execute and deliver the certification to the State on an annual basis, so long as the Subcontractor has access to State databases containing PII.

11. CONFLICTS OF INTEREST

Grantee shall not engage in any business or activities, or maintain any relationships that conflict in any way with the full performance of the obligations of Grantee under this Grant. Grantee acknowledges that, with respect to this Grant, even the appearance of a conflict of interest shall be harmful to the State's interests and absent the State's prior written approval, Grantee shall refrain from any practices, activities or relationships that reasonably appear to be in conflict with the full performance of Grantee's obligations under this Grant. If a conflict or the appearance of a conflict arises, or if Grantee is uncertain whether a conflict or the appearance of a conflict has arisen, Grantee shall submit to the State a disclosure statement setting forth the relevant details for the State's consideration. Grantee acknowledges that all State employees are subject to the ethical principles described in §24-18-105, C.R.S. Grantee further acknowledges that State employees may be subject to the requirements of §24-18-105, C.R.S. with regard to this Grant.

12. INSURANCE

Grantee shall maintain at all times during the term of this Grant such liability insurance, by commercial policy or self-insurance, as is necessary to meet its liabilities under the Colorado Governmental Immunity Act, §24-10-101, *et seq.*, C.R.S. (the "GIA"). Grantee shall ensure that any Subcontractors maintain all insurance customary for the completion of the Work done by that Subcontractor and as required by the State or the GIA.

13. REMEDIES

In addition to any remedies available under any Exhibit to this Intergovernmental Grant Agreement, if Grantee fails to comply with any term or condition of this Grant, the State may terminate some or all of this Grant and require Grantee to repay any or all Grant Funds to the State in the State's sole discretion. The State may also terminate this Intergovernmental Grant Agreement at any time if the State has determined, in its sole discretion, that Grantee has ceased performing the Work without intent to resume performance, prior to the completion of the Work.

14. DISPUTE RESOLUTION

Except as herein specifically provided otherwise, disputes concerning the performance of this Grant that cannot be resolved by the designated Party representatives shall be referred in writing to a senior departmental management staff member designated by the State and a senior manager or official designated by Grantee for resolution.

15. NOTICES AND REPRESENTATIVES

Each Party shall identify an individual to be the principal representative of the designating Party and shall provide this information to the other Party. All notices required or permitted to be given under this Intergovernmental Grant Agreement shall be in writing, and shall be delivered either in hard copy or by email to the representative of the other Party. Either Party may change its principal representative or principal representative contact information by notice submitted in accordance with this **§15**.

16. RIGHTS IN WORK PRODUCT AND OTHER INFORMATION

Grantee hereby grants to the State a perpetual, irrevocable, non-exclusive, royalty free license, with the right to sublicense, to make, use, reproduce, distribute, perform, display, create derivatives of and otherwise exploit all intellectual property created by Grantee or any Subcontractors or Subgrantees and paid for with Grant Funds provided by the State pursuant to this Grant.

17. GOVERNMENTAL IMMUNITY

Liability for claims for injuries to persons or property arising from the negligence of the Parties, their departments, boards, commissions, committees, bureaus, offices, employees and officials shall be controlled and limited by the provisions of the Colorado Governmental Immunity Act, §24-10-101, *et seq.*, C.R.S.; the Federal Tort Claims Act, 28 U.S.C. Pt. VI, Ch. 171 and 28 U.S.C. 1346(b), and the State's risk management statutes, §§24-30-1501, *et seq.* C.R.S. No term or condition of this Intergovernmental Grant Agreement shall be construed or interpreted as a waiver, express or implied, of any of the immunities, rights, benefits, protections, or other provisions, contained in these statutes.

18. GENERAL PROVISIONS

A. Assignment

Grantee's rights and obligations under this Grant are personal and may not be transferred or assigned without the prior, written consent of the State. Any attempt at assignment or transfer without such consent shall be void. Any assignment or transfer of Grantee's rights and obligations approved by the State shall be subject to the provisions of this Intergovernmental Grant Agreement.

B. Captions and References

The captions and headings in this Intergovernmental Grant Agreement are for convenience of reference only, and shall not be used to interpret, define, or limit its provisions. All references in this Intergovernmental Grant Agreement to sections (whether spelled out or using the § symbol), subsections, exhibits or other attachments, are references to sections, subsections, exhibits or other attachments contained herein or incorporated as a part hereof, unless otherwise noted.

C. Entire Understanding

This Intergovernmental Grant Agreement represents the complete integration of all understandings between the Parties related to the Work, and all prior representations and understandings related to the Work, oral or written, are merged into this Intergovernmental Grant Agreement.

D. Modification

The State may modify the terms and conditions of this Grant by issuance of an updated Intergovernmental Grant Agreement, which shall be effective if Grantee accepts Grant Funds following receipt of the updated letter. The Parties may also agree to modification of the terms and conditions of the Grant in either an option letter or a formal amendment to this Grant, properly executed and approved in accordance with applicable Colorado State law and State Fiscal Rules.

E. Statutes, Regulations, Fiscal Rules, and Other Authority

Any reference in this Intergovernmental Grant Agreement to a statute, regulation, State Fiscal Rule, fiscal policy or other authority shall be interpreted to refer to such authority then current, as may have been changed or amended since the Performance Start Date. Grantee shall strictly comply with all applicable Federal and State laws, rules, and regulations in effect or hereafter established, including, without limitation, laws applicable to discrimination and unfair employment practices.

F. Digital Signatures

If any signatory signs this agreement using a digital signature in accordance with the Colorado State Controller Contract, Grant and Purchase Order Policies regarding the use of digital signatures issued under the State Fiscal Rules, then any agreement or consent to use digital signatures within the electronic system through which that signatory signed shall be incorporated into this Agreement by reference.

G. Order of Precedence

In the event of a conflict or inconsistency between this Intergovernmental Grant Agreement and any Exhibits or attachment, such conflict or inconsistency shall be resolved by reference to the documents in the following order of priority:

i. Colorado Special Provisions in **§19** of the main body of this Grant;

ii. Any executed Option Letter and Amendment;

iii. The provisions of this Intergovernmental Grant Agreement; and

iv. The provisions of any exhibits to this Intergovernmental Grant Agreement.

H. Severability

The invalidity or unenforceability of any provision of this Intergovernmental Grant Agreement shall not affect the validity or enforceability of any other provision of this Intergovernmental Grant Agreement, which shall remain in full force and effect, provided that the Parties can continue to perform their obligations under the Grant in accordance with the intent of the Grant.

I. Survival of Certain Intergovernmental Grant Agreement Terms

Any provision of this Intergovernmental Grant Agreement that imposes an obligation on a Party after termination or expiration of the Grant shall survive the termination or expiration of the Grant and shall be enforceable by the other Party.

J. Third Party Beneficiaries

Except for the Parties' respective successors and assigns described above, this Intergovernmental Grant Agreement does not and is not intended to confer any rights or remedies upon any person or entity other than the Parties. Any services or benefits which third parties receive as a result of this Grant are incidental to the Grant, and do not create any rights for such third parties.

K. Waiver

A Party's failure or delay in exercising any right, power, or privilege under this Intergovernmental Grant Agreement, whether explicit or by lack of enforcement, shall not operate as a waiver, nor shall any single or partial exercise of any right, power, or privilege preclude any other or further exercise of such right, power, or privilege.

L. Accessibility

i. Grantee shall comply with and adhere to Section 508 of the U.S. Rehabilitation Act of 1973, as amended.

ii. Grantee shall comply with and the Work Product provided under this Agreement shall be in compliance with all applicable provisions of §§24-85-101, *et seq.*, C.R.S., and the *Accessibility Standards for Individuals with a Disability*, as established by OIT pursuant to Section §24-85-103 (2.5), C.R.S. Grantee shall also comply with all State of Colorado technology standards related to technology accessibility and with Level AA of the most current version of the Web Content Accessibility Guidelines (WCAG), incorporated in the State of Colorado technology standards.

iii. The State may require Grantee's compliance to the State's Accessibility Standards to be determined by a third party selected by the State to attest to Grantee's Work Product and software is in compliance with §§24-85-101, *et seq*., C.R.S., and the *Accessibility Standards for Individuals with a Disability* as established by OIT pursuant to Section §24-85-103 (2.5), C.R.S.

M. *Reserved*.

19. COLORADO SPECIAL PROVISIONS (COLORADO FISCAL RULE 3-3)

A. STATUTORY APPROVAL. §24-30-202(1) C.R.S.

This Intergovernmental Grant Agreement shall not be valid until it has been approved by the Colorado State Controller or designee. If this Intergovernmental Grant Agreement is for a Major Information Technology Project, as defined in §24-37.5-102(2.6), then this Intergovernmental Grant Agreement shall not be valid until it has been approved by the State's Chief Information Officer or designee.

B. FUND AVAILABILITY. §24-30-202(5.5) C.R.S.

Financial obligations of the State payable after the current fiscal year are contingent upon funds for that purpose being appropriated, budgeted, and otherwise made available.

C. GOVERNMENTAL IMMUNITY.

Liability for claims for injuries to persons or property arising from the negligence of the Parties, its departments, boards, commissions committees, bureaus, offices, employees and officials shall be controlled and limited by the provisions of the Colorado Governmental Immunity Act, §24-10-101, *et seq.*, C.R.S.; the Federal Tort Claims Act, 28 U.S.C. Pt. VI, Ch. 171 and 28 U.S.C. 1346(b), and the State's risk management statutes, §§24-30-1501, *et seq.* C.R.S. No term or condition of this Intergovernmental Grant Agreement shall be construed or interpreted as a waiver, express or implied, of any of the immunities, rights, benefits, protections, or other provisions, contained in these statutes.

D. INDEPENDENT CONTRACTOR.

Grantee shall perform its duties hereunder as an independent Grantee and not as an employee. Neither Grantee nor any agent or employee of Grantee shall be deemed to be an agent or employee of the State. Grantee shall not have authorization, express or implied, to bind the State to any agreement, liability, or understanding, except as expressly set forth herein. **Grantee and its employees and agents are not entitled to unemployment insurance or workers compensation benefits through the State and the State shall not pay for or otherwise provide such coverage for Grantee or any of its agents or employees. Grantee shall pay when due all applicable employment taxes and income taxes and local head taxes incurred pursuant to this Intergovernmental Grant Agreement. Grantee shall (a) provide and keep in force workers' compensation and unemployment compensation insurance in the amounts required by law, (b) provide proof thereof when requested by the State, and (c) be solely responsible for its acts and those of its employees and agents.**

E. COMPLIANCE WITH LAW.

Grantee shall comply with all applicable federal and State laws, rules, and regulations in effect or hereafter established, including, without limitation, laws applicable to discrimination and unfair employment practices.

F. CHOICE OF LAW, JURISDICTION, AND VENUE.

Colorado law, and rules and regulations issued pursuant thereto, shall be applied in the interpretation, execution, and enforcement of this Intergovernmental Grant Agreement. Any provision included or incorporated herein by reference which conflicts with said laws, rules, and regulations shall be null and void. All suits or actions related to this Intergovernmental Grant Agreement shall be filed and proceedings held in the State of Colorado and exclusive venue shall be in the City and County of Denver.

G. PROHIBITED TERMS.

Any term included in this Intergovernmental Grant Agreement that requires the State to indemnify or hold Grantee harmless; requires the State to agree to binding arbitration; limits Grantee's liability for damages resulting from death, bodily injury, or damage to tangible property; or that conflicts with this provision in any way shall be void ab initio. Nothing in this Intergovernmental Grant Agreement shall be construed as a waiver of any provision of §24-106-109 C.R.S.

H. SOFTWARE PIRACY PROHIBITION.

State or other public funds payable under this Intergovernmental Grant Agreement shall not be used for the acquisition, operation, or maintenance of computer software in violation of federal copyright laws or applicable licensing restrictions. Grantee hereby certifies and warrants that, during the term of this Intergovernmental Grant Agreement and any extensions, Grantee has and shall maintain in place appropriate systems and controls to prevent such improper use of public funds. If the State determines that Grantee is in violation of this provision, the State may exercise any remedy available at law or in equity or under this Intergovernmental Grant Agreement, including, without limitation, immediate termination of this Intergovernmental Grant Agreement and any remedy consistent with federal copyright laws or applicable licensing restrictions.

I. EMPLOYEE FINANCIAL INTEREST/CONFLICT OF INTEREST. §§24-18-201 and 24-50-507 C.R.S.

The signatories aver that to their knowledge, no employee of the State has any personal or beneficial interest whatsoever in the service or property described in this Intergovernmental Grant Agreement. Grantee has no interest and shall not acquire any interest, direct or indirect, that would conflict in any manner or degree with the performance of Grantee's services and Grantee shall not employ any person having such known interests.

THE REST OF THIS PAGE INTENTIONALLY LEFT BLANK

EXHIBIT B – SCOPE OF PROJECT (SOP)

1. PURPOSE

1.1. Energy Impact. The purpose of the Energy and Mineral Impact Assistance Program is to assist political subdivisions that are socially and/or economically impacted by the development, processing, or energy conversion of minerals and mineral fuels.

2. DESCRIPTION OF THE PROJECT(S) AND WORK

2.1. Project Description. The Project consists of decarbonization efforts on nine (9) City facilities including a resiliency hub within the City of Louisville, Colorado.

2.2. Work Description. The City of Louisville (Grantee) will hire a qualified firm to complete the design/builds for upgrading heating, cooling, lighting, electric and water systems in facilities throughout the City of Louisville in an effort to advance decarbonization.

Work includes:

1) Decarbonization of an approximately 100,000 square foot Recreation and Senior Center (RSC), located at 900 Via Appia Way in the City of Lousiville, Colorado including mechanical electrification of thirteen (13) heat pump rooftop units (RTU) replacements (2-3 Ton, 2- 4 Ton, 2–5 Ton, 3-6 Ton, 1-7.5 Ton, 1-10 Ton, 2-15 Ton); one (1) nanatorium dehumidification unit replacement; two (2) energy recovery ventilators (ERV); installation of a 380 kilowatt (kW) ground-mounted solar photovoltaic (PV) array with agrivoltaic elements below, including native pollinator habitats with firewise/drought resistant landscaping; energy efficiency measures including window glazing upgrades, a pool cover, sauna scheduling, building envelope air sealing, and weather stripping; lighting controls; advanced plug load reduction; installation of three (3) level 2 and two (2) level 3 electric vehicle (EV) chargers; and installation/replacement/optimization of associated controls, conduit, piping, and electrical.

2) Decarbonization of the Police and Municipal Court Building, located at 992 West Via Appia Way in the City of Lousiville, Colorado including two (2) heat pump RTU replacements (30-ton); one (1) electric unit heater; envelope air sealing; duct air sealing/insulation; controls optimization/retrocommissioning; advanced plug load reduction; installation of three (3) level 2 EV chargers and two (2) level 3 EV chargers; installation of a 257kW ground mounted solar PV array; ventilation and air conditioning unit replacement; and installation or replacement of associated controls, conduit, piping, and electrical.

3) Decarbonization of the Louisville Public Library, located at 951 Spruce Street in the City of Lousiville, Colorado including mechanical electrification of two (2) heat pump RTU replacements (50-ton); one (1) electric domestic hot water heater replacement; variable frequency drives; snow melt system retrocomissioning; advanced plug load reduction; envelope air sealing; duct air sealing; installation of a 128kW rooftop solar PV array, installation of four (4) level 2 EV chargers and one (1) level 3 EV charger; and installation/replacement/optimization of associated controls, conduit, piping, and electrical.

4) Full electrification of the Austin-Niehoff House, located at 717 Main Street in the City of Lousiville, Colorado including electrical infrastructure upgrades; installation of a 2 ton residential air source heat pump; Heating, ventilation, and air conditioning (HVAC) ductwork and piping; and window sealing.

5) Energy efficiencies at the Sid Copeland Water Treatment Plant, located at 1955 North Washington Avenue in the City of Lousiville, Colorado including one (1) heat pump RTU replacement (3-ton) with a heat wheel; envelope air sealing; lighting controls; light-emitting diode (LED) replacement lighting; installation of one (1) EV level 2 charger; and installation or replacement of associated controls, conduit, piping, and electrical.

6) Energy efficiencies at the Art Center, located at 801 Grant Avenue in the City of Lousiville, Colorado including envelope air sealing, replacement of windows, and insertion of wall insulation.

7) Energy efficiencies at the City Services Building, located at 739 South 104th Street in the City of Lousiville, Colorado including envelope air sealing, compressed air leaks, controls optimization/retrocommissioning, and advanced plug load reduction.

8) Energy efficiencies at the Howard Berry Water Treatment Plant, located at 7000 Marshall Road in the City of Lousiville, Colorado including installation of lighting controls/vacancy sensors and replacement of lighting with LED technologies.

9) Energy efficiencies at the Wastewater Treatment Plant, located at 1601 Empire Road in the City of Lousiville, Colorado including envelope air sealing and installation of lighting controls/vacancy sensors.

The High Performance Certification Program (HPCP) applies with modification for alternative 3rd party verification. Grantee will comply with the HPCP, as required by Colorado Revised Statutes (C.R.S. 24-30-1303.5). The Grantee has requested and been granted a HPCP modification in order to use an alternative third party verification process. The Grantee will hire a consultant to complete 3rd party verification of the building. This means that green building standards must be achieved to the greatest extent possible per C.R.S. 24-30-1305.5(6). The following items must be submitted upon completion of the Project: a description of how the Project has included green building features as described by the Leadership in Energy and Environmental Design (LEED) or Green Globes to the greatest extent practicable and a description of the total hard and soft costs associated with the green building approaches used.

Grantee will provide DOLA with electronic copies of project photos and proof of Substantial Completion prior to Project Closeout. Grantee will own and maintain all improvements and, in accordance with **§9** below, a contractor will be hired to complete the Work.

2.2.1. A contract for consultant services shall be awarded by Grantee to a qualified firm through a formal Request For Proposals or competitive selection process.

2.2.2. The Grantee warrants that the facilities will **continue to be utilized as a public facilities** for at least ten (10) years following completion of the Grant. If the facilities are used for any purpose other than intended during that ten-year period, the Grantee shall return a portion of the Grant Funds based on the following payback schedule: In year one, one hundred percent (100%) of the grant funds must be returned; in year two, ninety percent (90%); in year three, eighty percent (80%); in year four, seventy percent (70%); in year five, sixty percent (60%); in year six, fifty percent (50%); in year seven, forty percent (40%); in year eight, thirty (30%) percent; in year nine, twenty (20%) and in year ten, ten (10%) percent. At the end of the ten (10) year period following the date of completion of the renovations and thereafter, no State restrictions on use of the properties shall be in effect.

2.3. Responsibilities. Grantee shall be responsible for the completion of the Work and to provide required documentation to DOLA as specified herein.

2.3.1. Grantee shall notify DOLA at least 30 days in advance of Project Completion.

2.4. Recapture of Advanced Funds. To maximize the use of Grant Funds, the State shall evaluate Grantee's expenditure of the Grant Funds for timeliness and compliance with the terms of this Grant. DOLA reserves the right to recapture advanced Grant Funds when Grantee has not or is not complying with the terms of this Grant.

2.5. Eligible Expenses. Eligible expenses shall include: contracted labor, materials, bonding, insurance, permitting, required testing, inspection and/or commissioning costs. Architectural/Engineering, project and construction oversight, bid process, travel, per diem and legal fees shall be the sole responsibility of the Grantee.

THE REST OF THIS PAGE INTENTIONALLY LEFT BLANK

3. DEFINITIONS

3.1. Project Budget Lines.

3.1.1. "Rehabilitation/Remodel of Public Structures" means labor and materials costs, bond and insurance costs, bid advertisements, purchase and erection of pre-engineered additions, and attorney's fees.

3.2. "Substantial Completion" means the Work is sufficiently complete in accordance with the Grant so it can be utilized for its intended purpose without undue interference.

4. DELIVERABLES

4.1. Outcome. The final outcome of this Grant is completed decarbonization efforts on nine (9) City of Louisville facilities to greatly reduce the City's municipal carbon emissions and increase the City's resiliency.

4.2. Service Area. The performance of the Work described within this Grant shall be located in Louisville, Colorado.

4.3. Performance Measures. Grantee shall comply with the following performance measures:

Milestone/Performance Measure/Grantee will:	**By:**
Put Project out to bid.	Within 60 days after the Effective Date of this Intergovernmental Grant Agreement.
Award and finalize subcontract(s).	Within 30 days after bid opening.
Provide DOLA with Project Timeline.	Within 30 days after the Effective Date of the subcontract(s).
Upon Project Completion, Grantee will provide a monitoring and reporting plan to DOLA that includes the delivery of semi-annual (every six months) reports on the energy and cost performance of the system. These reports will be completed using the form supplied by DOLA, and are required for five (5) years after the expiration date of the Grant Agreement or date of Project Closeout (Work is completed, all deliverables have been submitted and accepted, the final payment request has been submitted, and an agreement as to any amount of Grant Funds to be de-obligated has been made), whichever is later.	To be included with the Project Final Report.
Provide DOLA with an electronic copy of the project photos and proof of Substantial Completion (i.e. Certificate of Occupancy, Certificate of Completion, Board motion of approval, lien waiver) and 3rd Party commissioning documentation.	To be included with the Project Final Report.
Submit Quarterly Pay Requests	**See §4.5.2 below**
Submit Quarterly Status Reports	**See §4.5.2 below**
Submit Project Final Report	June 29, 2026

4.4. Budget Line Adjustments.

4.4.1. Grant Funds. Grantee may request in writing that DOLA move Grant Funds between and among budget lines, so long as the total amount of Grant Funds remains unchanged. To make such budget line changes, DOLA will use an Option Letter (**Exhibit G**).

4.4.2. Other Funds. Grantee may increase or decrease the amount of Other Funds in any one or any combination of budget lines as described in **§6.2**, or move Other Funds between and among budget lines, so long as the total amount of such "Other Funds" is not less than the amount set forth in **§6.2** below. Grantee may increase the Total Project Cost with "Other Funds" and such change does not require an amendment or option letter. DOLA will verify the Grantee's contribution of "Other Funds" and compliance with this section at Project Closeout.

4.5. Quarterly Pay Request and Status Reports. Beginning 30 days after the end of the first quarter following execution of this Grant and for each quarter thereafter until termination of this Grant, Grantee shall submit Pay Requests and Status Reports using a form provided by the State. The State shall pay the Grantee for actual expenditures made in the performance of this Grant based on the submission of statements in the format prescribed by the State. The Grantee shall submit Pay Requests setting forth a detailed description and provide documentation of the amounts and types of reimbursable expenses. Pay Requests and Status Reports are due within 30 days of the end of the quarter but may be submitted more frequently at the discretion of the Grantee.

4.5.1. For quarters in which there are no expenditures to reimburse, Grantee shall indicate zero (0) requested in the Pay Request and describe the status of the Work in the Status Report. The report will contain an update of expenditure of funds by budget line as per **§6.2** of this **Exhibit B** Scope of Project as well as a projection of all Work expected to be accomplished in the following quarter, including an estimate of Grant Funds to be expended.

4.5.2. Specific submittal dates.

Quarter	Year	Due Date	Pay Request Due	Status Report Due
1st (Jan-Mar)	**2024**	**April 30, 2024**	**Yes**	**Yes**
2nd (Apr-Jun)	**2024**	**JULY 15, 2024***	**Yes**	**Yes**
3rd (Jul-Sep)	**2024**	**October 30, 2024**	**Yes**	**Yes**
4th (Oct-Dec)	**2024**	**January 30, 2025**	**Yes**	**Yes**
1st (Jan-Mar)	**2025**	**April 30, 2025**	**Yes**	**Yes**
2nd (Apr-Jun)	**2025**	**JULY 15, 2025***	**Yes**	**Yes**
3rd (Jul-Sep)	**2025**	**October 30, 2025**	**Yes**	**Yes**
4th (Oct-Dec)	**2025**	**January 30, 2026**	**Yes**	**Yes**
1st (Jan-Mar)	**2026**	**April 30, 2026**	**Yes**	**Yes**

***State fiscal year runs July 1 – June 30 annually. Grantee must request reimbursement for all eligible costs incurred during a State fiscal year by July 15 annually.**

4.6. DOLA Acknowledgment. The Grantee agrees to acknowledge the Colorado Department of Local Affairs in any and all materials or events designed to promote or educate the public about the Work and the Project, including but not limited to: press releases, newspaper articles, op-ed pieces, press conferences, presentations and brochures/pamphlets.

5. PERSONNEL

5.1. Responsible Administrator. Grantee's performance hereunder shall be under the direct supervision of **Kayla Betzold, Sustainability Manager, (kbetzold@louisvilleco.gov)**, who is an employee or agent of Grantee, and is hereby designated as the responsible administrator of this Project and a key person under this **§5**. Such administrator shall be updated through the process in **§5.3**. If this person is an agent of the Grantee, such person must have signature authority to bind the Grantee and must provide evidence of such authority.

5.2. Other Key Personnel. **Jeff Durbin, City Manager, (jdurbin@louisvilleco.gov).** Such key personnel shall be updated through the process in **§5.3**.

5.3. Replacement. Grantee shall immediately notify the State if any key personnel specified in **§5** of this **Exhibit B** cease to serve. All notices sent under this subsection shall be sent in accordance with **§15** of the Grant.

5.4. DLG Regional Manager: **Chris La May, (970) 679-7679, (chris.la.may@state.co.us)**

5.5. DLG Regional Assistant: **Gheda Gayou, (303) 842-6318, (gheda.gayou@state.co.us)**

6. FUNDING

The State provided funds shall be limited to the amount specified under the "Grant Funds" column of **§6.2**, Budget, below.

6.1. Matching/Other Funds. Grantee shall provide **at least 70%** of the Total Project Cost as documented by Grantee and verified by DOLA at Project Closeout. Initial estimates of Grantee's contribution are noted in the "Other Funds" column of **§6.2** below. Increases to Grantee's contribution to Total Project Cost do not require modification of this Intergovernmental Grant Agreement and/or **Exhibit B**.

6.2. Budget

Budget Line(s)		Total Project Cost	Grant Funds	Other Funds	Other Funds Source
Line #	Cost Category				
1	Rehabilitation/Remodel of Public Structures	$8,603,006	$2,500,000	$6,103,006	Grantee
	Total	**$8,603,006**	**$2,500,000**	**$6,103,006**	

7. PAYMENT

Payments shall be made in accordance with this section and the provisions set forth in **§7** of the Grant.

7.1. Payment Schedule. If Work is subcontracted or subgranted and such Subcontractors and/or Subgrantees are not previously paid, Grantee shall disburse Grant Funds received from the State to such Subcontractor or Subgrantee within fifteen days of receipt. Excess funds shall be returned to DOLA.

Payment	Amount	
Interim Payment(s)	$2,375,000	Paid upon receipt of actual expense documentation and written Pay Requests from the Grantee for reimbursement of eligible approved expenses.
Final Payment	$125,000	Paid upon Substantial Completion of the Project (as determined by the State in its sole discretion), provided that the Grantee has submitted, and DOLA has accepted, all required reports.
Total	**$2,500,000**	

7.2. Interest. Grantee or Subgrantee may keep interest earned from Grant Funds up to $100 per year for administrative expenses.

8. ADMINISTRATIVE REQUIREMENTS

8.1. Reporting. Grantee shall submit the following reports to DOLA using the State-provided forms. DOLA may withhold payment(s) if such reports are not submitted timely.

8.1.1. Quarterly Pay Request and Status Reports. Quarterly Pay Requests shall be submitted to DOLA in accordance with **§4.5** of this **Exhibit B**.

8.1.2. Final Reports. Within 90 days after the completion of the Project, Grantee shall submit the final Pay Request and Status Report to DOLA.

8.2. Monitoring. DOLA shall monitor this Work on an as-needed basis. DOLA may choose to audit the records for activities performed under this Grant. Grantee shall maintain a complete file of all records, documents, communications, notes and other written materials or electronic media, files or communications, which pertain in any manner to the operation of activities undertaken pursuant to an executed Grant. Such books and records shall contain documentation of the Grantee's pertinent activity under this Grant in accordance with Generally Accepted Accounting Principles.

8.2.1. Subgrantee/Subcontractor. Grantee shall monitor its Subgrantees and/or Subcontractors, if any, during the term of this Grant. Results of such monitoring shall be documented by Grantee and maintained on file.

8.3. Bonds. If Project includes construction or facility improvements, Grantee and/or its contractor (or subcontractors) performing such work shall secure the bonds hereunder from companies holding certificates of authority as acceptable sureties pursuant to 31 CFR Part 223 and are authorized to do business in Colorado.

8.3.1.Bid Bond. A bid guarantee from each bidder equivalent to 5 percent of the bid price. The "bid guarantee" shall consist of a firm commitment such as a bid bond, certified check, or other negotiable instrument accompanying a bid as assurance that the bidder shall, upon acceptance of his bid, execute such contractual documents as may be required within the time specified.

8.3.2.Performance Bond. A performance bond on the part of the contractor for 100 percent of the contract price. A "performance bond" is one executed in connection with a contract to secure fulfillment of all the contractor's obligations under such contract.

8.3.3.Payment Bond. A payment bond on the part of the contractor for 100 percent of the contract price. A "payment bond" is one executed in connection with a contract to assure payment as required by statute of all persons supplying labor and material in the execution of the work provided for in the contract.

8.3.4.Substitution. The bonding requirements in this **§8.3** may be waived in lieu of an irrevocable letter of credit if the price is less than $50,000.

9. CONSTRUCTION/RENOVATION. The following subsections shall apply to construction and/or renovation related projects/activities:

9.1. Plans & Specifications. Construction plans and specifications shall be drawn up by a qualified engineer or architect licensed in the State of Colorado, or pre-engineered in accordance with Colorado law, and hired by the Grantee through a competitive selection process.

9.2. Procurement. A construction contract shall be awarded to a qualified construction firm through a formal selection process with the Grantee being obligated to award the construction contract to the lowest responsive, responsible bidder meeting the Grantee's specifications.

9.3. Subcontracts. Copies of any and all contracts entered into by the Grantee in order to accomplish this Project shall be submitted to DOLA upon request, and any and all contracts entered into by the Grantee or any of its Subcontractors shall comply with all applicable federal and state laws and shall be governed by the laws of the State of Colorado.

9.4. Standards. Grantee, Subgrantees and Subcontractors shall comply with all applicable statutory design and construction standards and procedures that may be required, including the standards required by Colorado Department of Public Health and Environment, and shall provide the State with documentation of such compliance.

THE REST OF THIS PAGE INTENTIONALLY LEFT BLANK

OPTION LETTER #Insert # Here

SIGNATURE AND COVER PAGE

State Agency Department of Local Affairs (DOLA)	**DLG Portal Number** Insert DLG Portal number for this Project	**Option Letter CMS Number** Insert CMS number for this Amendment
Grantee **Insert Grantee's Full Legal Name**	**Previous CMS #(s)** Insert CMS number for orig Agreement, and any prior chg docs	
Project Number and Name Insert DOLA's project number and name	**Grant Amount** Initial Award: $Insert orig award amt Option Letter ## and date effective/spendable: $0.00 Option Letter ## and date effective/spendable: $0.00 **Total Grant Amount: $Insert total award to date**	
DOLA Regional Manager Choose an item. **DOLA Regional Assistant** Choose an item.		
Funding Account Codes Enter CTGG1 number	**Program Name** Energy & Mineral Impact Assistance Program (Acctg Dropdwn EIAF)	
Prior Grant Agreement Expiration Date Month Day, Year	**Current Grant Agreement Expiration Date** Month Day, Year	

THE PARTIES HERETO HAVE EXECUTED THIS OPTION LETTER

Each person signing this Option Letter represents and warrants that he or she is duly authorized to execute this Option Letter and to bind the Party authorizing his or her signature.

STATE OF COLORADO
Jared S. Polis GOVERNOR
Colorado Department of Local Affairs

By: ___________________________________

Maria De Cambra, Executive Director

Date: __________________

ALL CONTRACTS REQUIRE APPROVAL BY THE STATE CONTROLLER

CRS §24-30-202 requires the State Controller to approve all State contracts. This Option Letter is not valid until signed and dated below by the State Controller or delegate.

STATE CONTROLLER
Robert Jaros, CPA, MBA, JD

By: ___________________________________

Beulah Messick, DOLA Controller Delegate

Effective Date: __________________

1) **OPTIONS:** Choose all applicable options listed in §1 and in §2
   - ☐ a. Option to extend *(use this option for Extension of Time)*
   - ☐ b. Change in the Grant Award Amount within the current term *(use this option for an Increase or Decrease in Grant Funds, including Supplemental funding awards)*
   - ☐ c. Budget Line Adjustment(s) – reallocation of awarded Grant Funds to Budget Line(s) *(use this Option to redistribute existing Grant Funds between budget lines)*

2) **REQUIRED PROVISIONS**. All Option Letters shall contain the appropriate provisions set forth below:

a. For use with Option 1(a): In accordance with **Section 2(A)** of the original Intergovernmental Grant Agreement between the State of Colorado, acting by and through the Colorado Department of Local Affairs**,** and **Grantee's Name**, the State hereby exercises its option for an additional term beginning **Insert start date** and ending on **Insert ending date**. Tables in **Sections 4.3 and 4.5.2** of **Exhibit B** are deleted and replaced with the following:

Milestone/Performance Measure	**By:**
Put Project out to bid.	Within __ days of the Effective Date of this Intergovernmental Grant Agreement.
Award and finalize subcontract(s) and/or sub-grant(s).	[give target date]
Provide DOLA with Project Timeline	Within __ days of the Effective Date of the subcontract(s).
Contractor mobilization/begin Work.	Within __ days of the Effective Date of the subcontract(s).
Submit Quarterly Pay Requests	**See §4.5.2 below**
Submit Quarterly Status Reports	**See §4.5.2 below**
Submit Project Final Report	[give date certain]

Quarter	**Year**	**Due Date**	**Pay Request**	**Status Report**
1st (Jan-Mar)	**2024**	**April 30, 2024**	**Yes**	**Yes**
2nd (Apr-Jun)	**2024**	**JULY 15, 2024***	**Yes**	**Yes**
3rd (Jul-Sep)	**2024**	**October 30, 2024**	**Yes**	**Yes**
4th (Oct-Dec)	**2024**	**January 30, 2025**	**Yes**	**Yes**
1st (Jan-Mar)	**2025**	**April 30, 2025**	**Yes**	**Yes**
2nd (Apr-Jun)	**2025**	**JULY 15, 2025***	**Yes**	**Yes**
3rd (Jul-Sep)	**2025**	**October 30, 2025**	**Yes**	**Yes**
4th (Oct-Dec)	**2025**	**January 30, 2026**	**Yes**	**Yes**
1st (Jan-Mar)	**2026**	**April 30, 2026**	**Yes**	**Yes**
2nd (Apr-Jun)	**2026**	**JULY 15, 2026***	**Yes**	**Yes**
3rd (Jul-Sep)	**2026**	**October 30, 2026**	**Yes**	**Yes**
4th (Oct-Dec)	**2026**	**January 30, 2027**	**Yes**	**Yes**

***State fiscal year runs July 1 – June 30 annually. Grantee must request reimbursement for all eligible costs incurred during a State fiscal year by July 15 annually.**

b. For use with Option 1(b): In accordance with **Section 7(A)(i)** of the original Intergovernmental Grant Agreement between the State of Colorado, acting by and through the Colorado Department of Local Affairs**,** and **Grantee's Name**, the State hereby exercises its option to increase/decrease Grant Funds awarded for this Project in an amount equal to **amt of increase or (decrease)**, from **beginning dollar amt** to **ending dollar amt**. The Grant Award Amount shown on the Summary of Terms and Conditions page of this Intergovernmental Grant Agreement is hereby changed to **ending dollar amt**. The Budget table in **Section 6.2** and the Payment Schedule in **Section 7.1**, both of **Exhibit B**, are deleted and replaced with the following:

Budget Line(s)				

Line #	**Cost Category**	**Total Project Cost**	**Grant Funds**	**Other Funds**	**Other Funds Source**
	Architectural/Engineering Services	$ 0.00			Grantee
	Construction/Improvement of Public Roadways				Grantee
	Total	**$ 0.00**	**$ 0.00**	**$ 0.00**	

Payment	**Amount**	
Interim Payment(s)		Paid upon receipt of actual expense documentation and written Pay Requests from the Grantee for reimbursement of eligible approved expenses.
Final Payment		Paid upon Substantial Completion of the Project (as determined by the State in its sole discretion), provided that the Grantee has submitted, and DOLA has accepted, all required reports.
Total		

c. For use with Option 1(c): In accordance with **Section 7(D)(i)** of the original Intergovernmental Grant Agreement between the State of Colorado, acting by and through the Colorado Department of Local Affairs**,** and **Grantee's Name**, the State hereby exercises its option to re-allocate awarded Grant Funds within the Project Budget. The Budget table in **Section 6.2** of **Exhibit B** is deleted and replaced with the following:

Budget Line(s)		**Total Project Cost**	**Grant Funds**	**Other Funds**	**Other Funds Source**
Line #	**Cost Category**				
	Architectural/Engineering Services	$ 0.00			Grantee
	Construction/Improvement of Public Roadways				Grantee
	Total	**$ 0.00**	**$ 0.00**	**$ 0.00**	

3) **Effective Date**. The effective date of this Option Letter is upon approval of the State Controller or _____, whichever is later.

THE REST OF THIS PAGE INTENTIONALLY LEFT BLANK

Attachment C: HEEHA Grant Documentation

GRANT AWARD LETTER
SUMMARY OF GRANT AWARD TERMS AND CONDITIONS

State Agency Colorado Energy Office	**Grant Amount** State Fiscal Year 2025: $1,592,000.00 State Fiscal Year 2026: Any SFY25 unspent funds State Fiscal Year 2027: $0.00 State Fiscal Year 2028: $0.00 State Fiscal Year 2029: $0.00 State Fiscal Year 2030: $0.00 **Total for all State Fiscal Years: $1,592,000.00**
Grantee City of Louisville	
Grant Issuance Date The date the State Controller or an authorized delegate signs this Grant Letter	
Grant Expiration Date December 31, 2029	**Local Match Amount** **Total for all State Fiscal Years: $1,592,000.00**
Grant Authority Authority to enter into this Grant exists in HB 22-1362.	

Grant Purpose

The Grantee was awarded funding as a result of the competitive High Efficiency Electric Heating & Appliances (HEEHA) Requests for Application.

Exhibits and Order of Precedence

The following Exhibits and attachments are included with this Grant:

1. Exhibit A, Statement of Work.
2. Exhibit B, Budget and Payment Conditions.
3. Exhibit C, Grantee's Application.

In the event of a conflict or inconsistency between this Grant and any Exhibit or attachment, such conflict or inconsistency shall be resolved by reference to the documents in the following order of priority:

1. Colorado Special Provisions in §17 of the main body of this Grant
2. The provisions of the other sections of the main body of this Grant.
3. Exhibit A, Statement of Work.
4. Exhibit B, Budget and Payment Conditions.
5. Exhibit C, Grantee's Application

Principal Representatives

For the State:	For Grantee:
Brittney Vancuran	Hannah Miller
Colorado Energy Office	City of Louisville
1600 Broadway, Suite 1960	749 Main Street
Denver, CO 80202	Louisville, CO 80027
brittney.vancuran@state.co.us	hmiller@louisvilleco.gov

SIGNATURE PAGE

THE PARTIES HERETO HAVE EXECUTED THIS AGREEMENT

Each person signing this Agreement represents and warrants that the signer is duly authorized to execute this Agreement and to bind the Party authorizing such signature.

<table>
<tr>
<td>GRANTEE
City of Louisville

____
By:

Date: _________________________</td>
<td>STATE OF COLORADO
Jared S. Polis, Governor
Colorado Energy Office
Will Toor, Executive Director

____
By: Dominique Gómez, Deputy Director

Date: _________________________</td>
</tr>
<tr>
<td colspan="2">In accordance with §24-30-202, C.R.S., this Agreement is not valid until signed and dated below by the State Controller or an authorized delegate.
STATE CONTROLLER
Robert Jaros, CPA, MBA, JD

____
By: Office of the Governor, Jonathon Bray, Controller

Effective Date:_____________________</td>
</tr>
</table>

1. GRANT

As of the Grant Issuance Date, the State Agency shown on the first page of this Grant Award Letter (the "State") hereby obligates and awards to Grantee shown on the first page of this Grant Award Letter (the "Grantee") an award of Grant Funds in the amounts shown on the first page of this Grant Award Letter. By accepting the Grant Funds provided under this Grant Award Letter, Grantee agrees to comply with the terms and conditions of this Grant Award Letter and requirements and provisions of all Exhibits to this Grant Award Letter.

2. TERM

A. Initial Grant Term and Extension

The Parties' respective performances under this Grant Award Letter shall commence on the Grant Issuance Date and shall terminate on the Grant Expiration Date shown on the Cover Page for this Grant Award Letter unless sooner terminated or further extended in accordance with the terms of this Grant Award Letter. Upon request of Grantee, the State may, in its sole discretion, extend the term of this Grant Award Letter by providing Grantee with an updated Grant Award Letter showing the new Grant Expiration Date.

B. Early Termination in the Public Interest

The State is entering into this Grant Award Letter to serve the public interest of the State of Colorado as determined by its Governor, General Assembly, or Courts. If this Grant Award Letter ceases to further the public interest of the State or if State, Federal or other funds used for this Grant Award Letter are not appropriated, or otherwise become unavailable to fund this Grant Award Letter, the State, in its discretion, may terminate this Grant Award Letter in whole or in part by providing written notice to Grantee that includes, to the extent practicable, the public interest justification for the termination. If the State terminates this Grant Award Letter in the public interest, the State shall pay Grantee an amount equal to the percentage of the total reimbursement payable under this Grant Award Letter that corresponds to the percentage of Work satisfactorily completed, as determined by the State, less payments previously made. Additionally, the State, in its discretion, may reimburse Grantee for a portion of actual, out-of-pocket expenses not otherwise reimbursed under this Grant Award Letter that are incurred by Grantee and are directly attributable to the uncompleted portion of Grantee's obligations, provided that the sum of any and all reimbursements shall not exceed the maximum amount payable to Grantee hereunder. This subsection shall not apply to a termination of this Grant Award Letter by the State for breach by Grantee.

3. DEFINITIONS

The following terms shall be construed and interpreted as follows:

A. "**Budget**" means the budget for the Work described in Exhibit B.

B. "**Business Day**" means any day in which the State is open and conducting business, but shall not include Saturday, Sunday or any day on which the State observes one of the holidays listed in §24-11-101(1) C.R.S.

C. "**CORA**" means the Colorado Open Records Act, §§24-72-200.1 *et seq.*, C.R.S.

D. **"Electric Ready"** means adequate panel capacity, dedicated electric panel space, electrical wire, electrical receptacles, and adequate physical space to accommodate future installation of high-efficiency electric appliances including heating, water heating, cooking, drying, and an electric vehicle.

E. “**Grant Award Letter**” means this letter which offers Grant Funds to Grantee, including all attached Exhibits, all documents incorporated by reference, all referenced statutes, rules and cited authorities, and any future updates thereto.

F. “**Grant Funds**” means the funds that have been appropriated, designated, encumbered, or otherwise made available for payment by the State under this Grant Award Letter.

G. “**Grant Expiration Date**” means the Grant Expiration Date shown on the first page of this Grant Award Letter.

H. “**Grant Issuance Date**” means the Grant Issuance Date shown on the first page of this Grant Award Letter.

I. “**Exhibits**” exhibits and attachments included with this Grant as shown on the first page of this Grant

J. “**Extension Term**” means the period of time by which the Grant Expiration Date is extended by the State through delivery of an updated Grant Award Letter

K. “**Goods**” means any movable material acquired, produced, or delivered by Grantee as set forth in this Grant Award Letter and shall include any movable material acquired, produced, or delivered by Grantee in connection with the Services.

L. “**Incident**” means any accidental or deliberate event that results in or constitutes an imminent threat of the unauthorized access or disclosure of State Confidential Information or of the unauthorized modification, disruption, or destruction of any State Records.

M. “**Initial Term**” means the time period between the Grant Issuance Date and the Grant Expiration Date.

N. **“IPMVP”** means International Performance Measurement and Verification Protocol

O. “**Matching Funds**” means the funds provided Grantee as a match required to receive the Grant Funds.

P. **“M&V”** means measurement and verification.

Q. “**Party**” means the State or Grantee, and “Parties” means both the State and Grantee.

R. “**PII**” means personally identifiable information including, without limitation, any information maintained by the State about an individual that can be used to distinguish or trace an individual’s identity, such as name, social security number, date and place of birth, mother’s maiden name, or biometric records; and any other information that is linked or linkable to an individual, such as medical, educational, financial, and employment information. PII includes, but is not limited to, all information defined as personally identifiable information in §§24-72-501 and 24-73-101 C.R.S. “PII” shall also mean “personal identifying information” as set forth at § 24-74-102, et. seq., C.R.S.

S. **“Quarter”** means the three (3) months periods ending March 31, June 30, September 30, and December 31 of each calendar year.

T. “**Services**” means the services to be performed by Grantee as set forth in this Grant Award Letter and shall include any services to be rendered by Grantee in connection with the Goods.

U. "**State Confidential Information**" means any and all State Records not subject to disclosure under CORA. State Confidential Information shall include, but is not limited to, PII, and State personnel records not subject to disclosure under CORA. State Confidential Information shall not include information or data concerning individuals that is not deemed confidential but nevertheless belongs to the State, which has been communicated, furnished, or disclosed by the State to Grantee which (i) is subject to disclosure pursuant to CORA; (ii) is already known to Grantee without restrictions at the time of its disclosure to Grantee; (iii) is or subsequently becomes publicly available without breach of any obligation owed by Grantee to the State; (iv) is disclosed to Grantee, without confidentiality obligations, by a third party who has the right to disclose such information; or (v) was independently developed without reliance on any State Confidential Information.

V. "**State Fiscal Rules**" means the fiscal rules promulgated by the Colorado State Controller pursuant to § 24-30-202(13)(a) C.R.S.

W. "**State Fiscal Year**" means a 12 month period beginning on July 1 of each calendar year and ending on June 30 of the following calendar year. If a single calendar year follows the term, then it means the State Fiscal Year ending in that calendar year.

X. "**State Records**" means any and all State data, information, and records, regardless of physical form, including, but not limited to, information subject to disclosure under CORA.

Y. "**Subcontractor**" means third parties, if any, engaged by Grantee to aid in performance of the Work. "Subcontractor" also includes sub-grantees.

Z. "**Work**" means the delivery of the Goods and performance of the Services described in this Grant Award Letter.

AA. "**Work Product**" means the tangible and intangible results of the Work, whether finished or unfinished, including drafts. Work Product includes, but is not limited to, documents, text, software (including source code), research, reports, proposals, specifications, plans, notes, studies, data, images, photographs, negatives, pictures, drawings, designs, models, surveys, maps, materials, ideas, concepts, know-how, and any other results of the Work. "Work Product" does not include any material that was developed prior to the Grant Issuance Date that is used, without modification, in the performance of the Work.

Any other term used in this Grant Award Letter that is defined in an Exhibit shall be construed and interpreted as defined in that Exhibit.

4. STATEMENT OF WORK

Grantee shall complete the Work as described in this Grant Award Letter and in accordance with the provisions of Exhibit A. The State shall have no liability to compensate or reimburse Grantee for the delivery of any goods or the performance of any services that are not specifically set forth in this Grant Award Letter.

5. PAYMENTS TO GRANTEE

A. Maximum Amount

Payments to Grantee are limited to the unpaid, obligated balance of the Grant Funds. The State shall not pay Grantee any amount under this Grant that exceeds the Grant Amount for each State Fiscal Year shown on the first page of this Grant Award Letter. Financial obligations of the State payable after the current State Fiscal Year are contingent upon funds for that purpose being appropriated, budgeted, and otherwise made available. The State shall not be liable to pay or reimburse Grantee for any Work performed or expense incurred before the Grant Issuance Date or after the Grant Expiration Date; provided, however, that Work performed and expenses incurred by Grantee before the Grant Issuance Date that are chargeable to an active Federal Award may be submitted for reimbursement as permitted by the terms of the Federal Award.

B. Matching Funds.

Grantee shall provide the Local Match Amount shown on the first page of this Grant Award Letter and described in Exhibit A (the "Local Match Amount"). Grantee's obligation to pay all or part of any matching funds, whether direct or contingent, only extends to funds duly and lawfully appropriated for the purpose of this Agreement by the authorized representatives of Grantee and paid into Grantee's treasury or bank account. Grantee shall appropriate and allocate all Local Match Amounts to the purpose of this Grant Award Letter each fiscal year prior to accepting any Grant Funds for that fiscal year. Grantee does not by accepting this Grant Award Letter irrevocably pledge present cash reserves for payments in future fiscal years, and this Grant Award Letter is not intended to create a multiple-fiscal year debt of Grantee. Grantee shall not pay or be liable for any claimed interest, late charges, fees, taxes or penalties of any nature, except as required by Grantee's laws or policies.

C. Reimbursement of Grantee Costs

Upon prior written approval, the State shall reimburse Grantee's allowable costs, not exceeding the maximum total amount described in this Grant Award Letter for all allowable costs described in this Grant Award Letter and shown in the Budget, except that Grantee may adjust the amounts between each line item of the Budget without formal modification to this Agreement as long as the Grantee provides notice to the State of the change, the change does not modify the total maximum amount of this Grant Award Letter or the maximum amount for any state fiscal year, and the change does not modify any requirements of the Work.. The State shall only reimburse allowable costs if those costs are: **(i)** reasonable and necessary to accomplish the Work and for the Goods and Services provided; and **(ii)** equal to the actual net cost to Grantee (i.e. the price paid minus any items of value received by Grantee that reduce the cost actually incurred).

D. Close-Out.

Grantee shall close out this Grant within 45 days after the Grant Expiration Date. To complete close out, Grantee shall submit to the State all deliverables (including documentation) as defined in this Grant Award Letter and Grantee's final reimbursement request or invoice. The State will withhold 5% of allowable costs until all final documentation has been submitted and accepted by the State as substantially complete.

6. REPORTING - NOTIFICATION

A. Performance and Final Status

Grantee shall submit all financial, performance and other reports to the State no later than the end of the close out described in **§ 5.E**, containing an evaluation and review of Grantee's performance and the final status of Grantee's obligations hereunder.

B. Violations Reporting

Grantee shall disclose, in a timely manner, in writing to the State, all violations of federal or State criminal law involving fraud, bribery, or gratuity violations potentially affecting the

Award. The State may impose any penalties for noncompliance allowed under 2 CFR Part 180 and 31 U.S.C. 3321, which may include, without limitation, suspension or debarment.

7. GRANTEE RECORDS

A. Maintenance and Inspection

Grantee shall make, keep, and maintain, all records, documents, communications, notes and other written materials, electronic media files, and communications, pertaining in any manner to this Grant for a period of three years following the completion of the close out of this Grant. Grantee shall permit the State to audit, inspect, examine, excerpt, copy and transcribe all such records during normal business hours at Grantee's office or place of business, unless the State determines that an audit or inspection is required without notice at a different time to protect the interests of the State.

B. Monitoring

The State will monitor Grantee's performance of its obligations under this Grant Award Letter using procedures as determined by the State. The State shall have the right, in its sole discretion, to change its monitoring procedures and requirements at any time during the term of this Agreement. The State shall monitor Grantee's performance in a manner that does not unduly interfere with Grantee's performance of the Work.

C. Final Audit Report

Grantee shall promptly submit to the State a copy of any final audit report of an audit performed on Grantee's records that relates to or affects this Grant or the Work, whether the audit is conducted by Grantee or a third party.

8. CONFIDENTIAL INFORMATION-STATE RECORDS

A. Confidentiality

Grantee shall hold and maintain, and cause all Subcontractors to hold and maintain, any and all State Records that the State provides or makes available to Grantee for the sole and exclusive benefit of the State, unless those State Records are otherwise publicly available at the time of disclosure or are subject to disclosure by Grantee under CORA. Grantee shall not, without prior written approval of the State, use for Grantee's own benefit, publish, copy, or otherwise disclose to any third party, or permit the use by any third party for its benefit or to the detriment of the State, any State Records, except as otherwise stated in this Grant Award Letter. Grantee shall provide for the security of all State Confidential Information in accordance with all policies promulgated by the Colorado Office of Information Security and all applicable laws, rules, policies, publications, and guidelines. If Grantee or any of its Subcontractors will or may receive the following types of data, Grantee or its Subcontractors shall provide for the security of such data according to the following: **(i)** the most recently promulgated IRS Publication 1075 for all Tax Information and in accordance with the Safeguarding Requirements for Federal Tax Information attached to this Grant as an Exhibit, if applicable, **(ii)** the most recently updated PCI Data Security Standard from the PCI Security Standards Council for all PCI, **(iii)** the most recently issued version of the U.S. Department of Justice, Federal Bureau of Investigation, Criminal Justice Information Services Security Policy for all CJI, and **(iv)** the federal Health Insurance Portability and Accountability Act for all PHI and the HIPAA Business Associate Agreement attached to this Grant, if applicable. Grantee shall immediately forward any request or demand for State Records to the State's principal representative.

B. Other Entity Access and Nondisclosure Agreements

Grantee may provide State Records to its agents, employees, assigns and Subcontractors as necessary to perform the Work, but shall restrict access to State Confidential Information to those agents, employees, assigns and Subcontractors who require access to perform their obligations under this Grant Award Letter. Grantee shall ensure all such agents, employees, assigns, and Subcontractors sign nondisclosure agreements with provisions at least as protective as those in this Grant, and that the nondisclosure agreements are in force at all times the agent, employee, assign or Subcontractor has access to any State Confidential Information. Grantee shall provide copies of those signed nondisclosure restrictions to the State upon request.

C. Use, Security, and Retention

Grantee shall use, hold and maintain State Confidential Information in compliance with any and all applicable laws and regulations in facilities located within the United States, and shall maintain a secure environment that ensures confidentiality of all State Confidential Information wherever located. Grantee shall provide the State with access, subject to Grantee's reasonable security requirements, for purposes of inspecting and monitoring access and use of State Confidential Information and evaluating security control effectiveness. Upon the expiration or termination of this Grant, Grantee shall return State Records provided to Grantee or destroy such State Records and certify to the State that it has done so, as directed by the State. If Grantee is prevented by law or regulation from returning or destroying State Confidential Information, Grantee warrants it will guarantee the confidentiality of, and cease to use, such State Confidential Information.

D. Incident Notice and Remediation

If Grantee becomes aware of any Incident, it shall notify the State immediately and cooperate with the State regarding recovery, remediation, and the necessity to involve law enforcement, as determined by the State. After an Incident, Grantee shall take steps to reduce the risk of incurring a similar type of Incident in the future as directed by the State, which may include, but is not limited to, developing and implementing a remediation plan that is approved by the State at no additional cost to the State.

E. Safeguarding PII

If Grantee or any of its Subcontractors will or may receive PII under this Agreement, Grantee shall provide for the security of such PII, in a manner and form acceptable to the State, including, without limitation, State non-disclosure requirements, use of appropriate technology, security practices, computer access security, data access security, data storage encryption, data transmission encryption, security inspections, and audits. Grantee shall be a "Third-Party Service Provider" as defined in § 24-73-103(1)(i), C.R.S. and shall maintain security procedures and practices consistent with § 24-73-101 *et seq.*, C.R.S. In addition, as set forth in § 24-74-102, et. seq., C.R.S., Grantee, including, but not limited to, Grantee's employees, agents and Subcontractors, agrees not to share any PII with any third parties for the purpose of investigating for, participating in, cooperating with, or assisting with Federal immigration enforcement.

9. CONFLICTS OF INTEREST

Grantee shall not engage in any business or activities or maintain any relationships that conflict in any way with the full performance of the obligations of Grantee under this Grant. Grantee acknowledges that, with respect to this Grant, even the appearance of a conflict of interest shall be harmful to the State's interests and absent the State's prior written approval, Grantee shall refrain from any practices, activities or relationships that reasonably appear to be in conflict with the full performance of Grantee's obligations under this Grant. If a conflict or the appearance of a conflict arises, or if Grantee is uncertain whether a conflict or the appearance of a conflict has arisen, Grantee shall submit to the State a disclosure statement setting forth the relevant details for the State's consideration. Grantee acknowledges that all State employees are subject to the ethical principles described in § 24-18-105, C.R.S. Grantee further acknowledges that State employees may be subject to the requirements of § 24-18-105, C.R.S. with regard to this Grant.

10. INSURANCE

Grantee shall maintain at all times during the term of this Grant such liability insurance, by commercial policy or self-insurance, as is necessary to meet its liabilities under the Colorado Governmental Immunity Act, § 24-10-101, *et seq.*, C.R.S. (the "GIA"). Grantee shall ensure that any Subcontractors maintain all insurance customary for the completion of the Work done by that Subcontractor and as required by the State or the GIA.

11. REMEDIES

In addition to any remedies available under any exhibit to this Grant Award Letter, if Grantee fails to comply with any term or condition of this Grant, the State may terminate some or all of this Grant and require Grantee to repay any or all Grant funds to the State in the State's sole discretion. The State may also terminate this Grant Award Letter at any time if the State has determined, in its sole discretion, that Grantee has ceased performing the Work without intent to resume performance, prior to the completion of the Work.

12. DISPUTE RESOLUTION

Except as herein specifically provided otherwise, disputes concerning the performance of this Grant that cannot be resolved by the designated Party representatives shall be referred in writing to a senior departmental management staff member designated by the State and a senior manager or official designated by Grantee for resolution.

13. NOTICES AND REPRESENTATIVES

Each Party shall identify an individual to be the principal representative of the designating Party and shall provide this information to the other Party. All notices required or permitted to be given under this Grant Award Letter shall be in writing and shall be delivered either in hard copy or by email to the representative of the other Party. Either Party may change its principal representative or principal representative contact information by notice submitted in accordance with this **§ 13**.

14. RIGHTS IN WORK PRODUCT AND OTHER INFORMATION

Grantee hereby grants to the State a perpetual, irrevocable, non-exclusive, royalty free license, with the right to sublicense, to make, use, reproduce, distribute, perform, display, create derivatives of and otherwise exploit all intellectual property created by Grantee or any Subcontractors or Subgrantees and paid for with Grant Funds provided by the State pursuant to this Grant.

15. GOVERNMENTAL IMMUNITY

Liability for claims for injuries to persons or property arising from the negligence of the Parties, their departments, boards, commissions committees, bureaus, offices, employees and officials shall be controlled and limited by the provisions of the Colorado Governmental Immunity Act, § 24-10-101, et seq., C.R.S.; the Federal Tort Claims Act, 28 U.S.C. Pt. VI, Ch. 171 and 28 U.S.C. 1346(b), and the State's risk management statutes, § 24-30-1501, *et seq*. C.R.S. No term or condition of this Agreement shall be construed or interpreted as a waiver, express or implied, of any of the immunities, rights, benefits, protections, or other provisions, contained in these statutes.

16. GENERAL PROVISIONS

A. Assignment

Grantee's rights and obligations under this Grant are personal and may not be transferred or assigned without the prior, written consent of the State. Any attempt at assignment or transfer without such consent shall be void. Any assignment or transfer of Grantee's rights and obligations approved by the State shall be subject to the provisions of this Grant Award Letter.

B. Captions and References

The captions and headings in this Grant Award Letter are for convenience of reference only, and shall not be used to interpret, define, or limit its provisions. All references in this Grant Award Letter to sections (whether spelled out or using the § symbol), subsections, exhibits or other attachments, are references to sections, subsections, exhibits or other attachments contained herein or incorporated as a part hereof, unless otherwise noted.

C. Entire Understanding

This Grant Award Letter represents the complete integration of all understandings between the Parties related to the Work, and all prior representations and understandings related to the Work, oral or written, are merged into this Grant Award Letter.

D. Modification

The State may modify the terms and conditions of this Grant by issuance of an updated Grant Award Letter, which shall be effective if Grantee accepts Grant Funds following receipt of the updated letter. The Parties may also agree to modification of the terms and conditions of the Grant in a formal amendment to this Grant, properly executed and approved in accordance with applicable Colorado State law and State Fiscal Rules.

E. Statutes, Regulations, Fiscal Rules, and Other Authority.

Any reference in this Grant Award Letter to a statute, regulation, State Fiscal Rule, fiscal policy or other authority shall be interpreted to refer to such authority then current, as may have been changed or amended since the Grant Issuance Date. Grantee shall strictly comply with all applicable Federal and State laws, rules, and regulations in effect or hereafter established, including, without limitation, laws applicable to discrimination and unfair employment practices.

F. Digital Signatures

If any signatory signs this agreement using a digital signature in accordance with the Colorado State Controller Contract, Grant and Purchase Order Policies regarding the use of digital signatures issued under the State Fiscal Rules, then any agreement or consent to use digital signatures within the electronic system through which that signatory signed shall be incorporated into this Agreement by reference.

G. Severability

The invalidity or unenforceability of any provision of this Grant Award Letter shall not affect the validity or enforceability of any other provision of this Grant Award Letter, which shall remain in full force and effect, provided that the Parties can continue to perform their obligations under the Grant in accordance with the intent of the Grant.

H. Survival of Certain Grant Award Letter Terms

Any provision of this Grant Award Letter that imposes an obligation on a Party after termination or expiration of the Grant shall survive the termination or expiration of the Grant and shall be enforceable by the other Party.

I. Third Party Beneficiaries

Except for the Parties' respective successors and assigns described above, this Grant Award Letter does not and is not intended to confer any rights or remedies upon any person or entity other than the Parties. Any services or benefits which third parties receive as a result of this Grant are incidental to the Grant, and do not create any rights for such third parties.

J. Waiver

A Party's failure or delay in exercising any right, power, or privilege under this Grant Award Letter, whether explicit or by lack of enforcement, shall not operate as a waiver, nor shall any single or partial exercise of any right, power, or privilege preclude any other or further exercise of such right, power, or privilege.

K. Accessibility

i. Grantee shall comply with and the Work Product provided under this Agreement shall be in compliance with all applicable provisions of § 24-85-101, *et seq.*, C.R.S., and the *Accessibility Standards for Individuals with a Disability,* as established by OIT pursuant to Section § 24-85-103 (2.5), C.R.S. Grantee shall also comply with all State of Colorado technology standards related to technology accessibility and with Level AA of the most current version of the Web Content Accessibility Guidelines (WCAG), incorporated in the State of Colorado technology standards.

ii. The State may require Grantee's compliance to the State's Accessibility Standards to be determined by a third party selected by the State to attest to Grantee's Work Product and software is in compliance with § 24-85-101, *et seq.*, C.R.S., and the *Accessibility Standards for Individuals with a Disability* as established by OIT pursuant to Section § 24-85-103 (2.5), C.R.S.

17. COLORADO SPECIAL PROVISIONS (COLORADO FISCAL RULE 3-3)

A. STATUTORY APPROVAL. § 24-30-202(1) C.R.S.

This Agreement shall not be valid until it has been approved by the Colorado State Controller or designee. If this Agreement is for a Major Information Technology Project, as defined in § 24-37.5-102(2.6), then this Agreement shall not be valid until it has been approved by the State's Chief Information Officer or designee.

B. FUND AVAILABILITY. § 24-30-202(5.5) C.R.S.

Financial obligations of the State payable after the current fiscal year are contingent upon funds for that purpose being appropriated, budgeted, and otherwise made available.

C. GOVERNMENTAL IMMUNITY.

Liability for claims for injuries to persons or property arising from the negligence of the Parties, its departments, boards, commissions committees, bureaus, offices, employees and officials shall be controlled and limited by the provisions of the Colorado Governmental Immunity Act, § 24-10-101, et seq., C.R.S.; the Federal Tort Claims Act, 28 U.S.C. Pt. VI, Ch. 171 and 28 U.S.C. 1346(b), and the State's risk management statutes, § 24-30-1501, et seq. C.R.S. No term or condition of this Agreement shall be construed or interpreted as a waiver, express or implied, of any of the immunities, rights, benefits, protections, or other provisions, contained in these statutes.

D. **INDEPENDENT CONTRACTOR.**

Grantee shall perform its duties hereunder as an independent contractor and not as an employee. Neither Grantee nor any agent or employee of Grantee shall be deemed to be an agent or employee of the State. Grantee shall not have authorization, express or implied, to bind the State to any agreement, liability, or understanding, except as expressly set forth herein. **Grantee and its employees and agents are not entitled to unemployment insurance or workers compensation benefits through the State and the State shall not pay for or otherwise provide such coverage for Grantee or any of its agents or employees. Grantee shall pay when due all applicable employment taxes and income taxes and local head taxes incurred pursuant to this Agreement. Grantee shall (a) provide and keep in force workers' compensation and unemployment compensation insurance in the amounts required by law, (b) provide proof thereof when requested by the State, and (c) be solely responsible for its acts and those of its employees and agents.**

E. **COMPLIANCE WITH LAW.**

Grantee shall comply with all applicable federal and State laws, rules, and regulations in effect or hereafter established, including, without limitation, laws applicable to discrimination and unfair employment practices.

F. **CHOICE OF LAW, JURISDICTION, AND VENUE.**

Colorado law, and rules and regulations issued pursuant thereto, shall be applied in the interpretation, execution, and enforcement of this Agreement. Any provision included or incorporated herein by reference which conflicts with said laws, rules, and regulations shall be null and void. All suits or actions related to this Agreement shall be filed and proceedings held in the State of Colorado and exclusive venue shall be in the City and County of Denver.

G. **PROHIBITED TERMS.**

Any term included in this Agreement that requires the State to indemnify or hold Grantee harmless; requires the State to agree to binding arbitration; limits Grantee's liability for damages resulting from death, bodily injury, or damage to tangible property; or that conflicts with this provision in any way shall be void ab initio. Nothing in this Agreement shall be construed as a waiver of any provision of §24-106-109 C.R.S.

H. **SOFTWARE PIRACY PROHIBITION.**

State or other public funds payable under this Agreement shall not be used for the acquisition, operation, or maintenance of computer software in violation of federal copyright laws or applicable licensing restrictions. Grantee hereby certifies and warrants that, during the term of this Agreement and any extensions, Grantee has and shall maintain in place appropriate systems and controls to prevent such improper use of public funds. If the State determines that Grantee is in violation of this provision, the State may exercise any remedy available at law or in equity or under this Agreement, including, without limitation, immediate termination of this Agreement and any remedy consistent with federal copyright laws or applicable licensing restrictions.

I. **EMPLOYEE FINANCIAL INTEREST/CONFLICT OF INTEREST. §§ 24-18-201 and 24-50-507 C.R.S.**

The signatories aver that to their knowledge, no employee of the State has any personal or beneficial interest whatsoever in the service or property described in this Agreement. Grantee has no interest and shall not acquire any interest, direct or indirect, that would conflict in any manner or degree with the performance of Grantee's services and Grantee shall not employ any person having such known interests.

EXHIBIT A, STATEMENT OF WORK

1. High Efficiency Electric Heating and Appliances Grant Program

The HEEHA Grant Program was created by HB 22-1362 to promote neighborhood-scale electrification projects in the State of Colorado (State). Fossil gas-powered appliances and equipment produce greenhouse gasses (GHG) and harmful indoor air pollution which can cause health problems. As a result, buildings rank in the top five biggest sources of GHG pollution in the State. Projects that support electrification and energy efficiency upgrades in Disproportionately Impacted, Low-Income, and/or Just Transition (DI / LI / JT) communities are highly encouraged. 30% of total grant funding is reserved for projects in DI / LI / JT communities.

The resulting High Efficiency Electric Heating & Appliances (HEEHA) program is a competitive, reimbursement-based grant program administered by CEO. The total funding amount distributed by HEEHA is not to exceed $10 million over the program's duration.

Funding allocations will go exclusively toward the purchase and installation of high-efficiency electric equipment for space heating, water heating, or cooking in 5 or more residential units or 3 or more commercial buildings. In the case of applicants located in DI/ LI/ JT communities, administrative costs associated with the purchase and installation of electrification equipment are eligible for additional cost coverage.

2. Project Description

The Grantee was awarded grant funding as a result of the High Efficiency Electric Heating and Appliances (HEEHA) Request for Applications (RFA). The Colorado Energy Office (hereinafter called "CEO" or the "State") agrees to provide funding to the **City of Louisville, Colorado** (hereinafter called "Grantee"), towards the costs associated and eligible with the HEEHA program.

HEEHA is a program administered by the Colorado Energy Office (CEO) to encourage use of electric equipment and appliances in buildings, because they reduce greenhouse gas emissions, promote energy security through reliance on domestic electricity, and drive an innovative market for new technology applications. The general purpose of this project is to encourage the installation of electric building equipment in residential and commercial buildings throughout the state of Colorado.

Grantee is requesting funding for the procurement and installation of electric equipment **at the Recreation & Senior Center: 900 Via Appia Way, The Police & Municipal Court: 992 West Via Appia Court, and The Sid Copeland Water Treatment: 1955 Washington Ave.**

Any dates or deadlines with the exception of the Effective Date and Grant Expiration Date of this Grant Award Letter may be adjusted by mutual written agreement of the Grantee and CEO. Exclusively for the purposes of modifying deadlines in this Statement of Work, e-mail shall suffice as written documentation. If applicable, an extension of the Grant Expiration Date of the Grant Award shall require a formal modification to the Grant Award Letter.

The Grantee shall hire and retain contractors and other professional services as needed to purchase and install necessary equipment and supporting structures.

Total award not to exceed **$1,592,000.00**

3. Grantee Tasks, Deliverables & Timeline

Grantee is subject to the following tasks, deliverables and timelines.

3.1. Grant Administration

3.1.1. Kick-off Meeting

Kick-off meeting will be held within 45 days of Grant Agreement execution and will establish expectations of grantee for implementing this agreement. The meeting shall include, but not be limited to, a review of the project implementation timeline, contingency plans should the original timeline be extended, Grantee’s strategy to implement the proposed project and associated deliverables, and a review of this agreement to ensure a clear understanding of expectations.

Deliverables: PowerPoint slides or presentation containing the project timeline and contingency plans. Other meeting materials developed as appropriate.

Timeline: Meeting will be held within 45 days of grant agreement execution and materials developed and presented in the kick-off meeting to be delivered to the grant program manager within 2 business days following the meeting.

3.1.2. Reporting & Progress Meetings

CEO & Grantee shall conduct check-in calls on a quarterly schedule (State fiscal year). The Grantee shall be responsible for ensuring that all relevant staff attend calls. Meeting agenda will include updates on relevant project tasks, challenges and barriers the Grantee is encountering, and any decisions or guidance needed from CEO. Additionally, these meetings may include identifying any needed modifications to the tasks, implementation timeline, or budgets.

- Monthly Progress Reports
  Grantee will be subject to monthly performance reporting.
  Reports shall include:
  - Financial/Expenditure – tracking of grant related expenses for the quarter (paid and unpaid) and expenditures to date by match funding source. Expenses must match the budget line items

outlined in Exhibit B. Expenditures of funds must reconcile with CEO's files and may also include unpaid invoices.

- Programmatic – narrative report; including progress made toward project goals and objectives, obstacles encountered to date and possible solutions, photos indicative of construction progress for the quarter, planned activities for the next month.

Deliverables: Monthly progress report with financial/expenditure tracking and programmatic narrative update.

Timeline: Monthly reports will be submitted to the grant program manager by the 15th of each month.

- Annual Performance Reporting

  Grantee shall submit a report to the Colorado Energy Office the first five years after receiving the grant award. This report shall include description of the project and measures funded using grant funds and operational data of electric equipment on gas and electricity use, cost, and emissions. Reporting template will be provided by the Colorado Energy Office.

Deliverables: Annual report with financial/expenditure tracking, programmatic narrative update, and impact reporting on energy use.

Timeline: Annual report will be due each year in December.

- Final Report
  - The Grantee shall complete reimbursable work within 12 months of the Grant Agreement Effective Date and submit a final report. This report will demonstrate the completion of the project and installation of the electric equipment. To be acceptable, the final report must explain the Grantee's procurement and installation process, and it must identify the location of the equipment accompanied with a picture of the installed unit. The Grantee shall provide an invoice to CEO for the purchase of the unit and associated equipment, permitting costs, and the labor costs associated with the installation. To be acceptable, the invoice must be supported by receipts or invoices for all equipment, permits, and labor. The invoice must include an itemized list of all project costs being considered under the grant, including a breakdown of those covered under HEEHA and by any match funding.

Deliverables: Final report providing a summary of key accomplishments from the past year, including project completion and final reporting requirements.

Timeline: Due at final reimbursement request within 12 months of Grant Effective Date.

Budget: $0.00

3.1.3. Payment Requests/Reimbursements

- Grantee shall submit a finance/expenditure report including receipts/invoices detailing eligible project expenditures and pictures of operational equipment, along with the monthly progress report detailing installation and operation of electric equipment per unit complete. The electric equipment will be acceptable to the CEO if they are installed, operational, and available for use. The Grantee's invoice to CEO will be acceptable if it is properly supported by invoices or receipts and the costs are associated with procurement of electric equipment, construction materials, permitting, construction labor costs, and installation costs.
- The reimbursement report will be acceptable to CEO if it explains the Grantee's procurement and installation process, and it identifies the location of the electric equipment accompanied with a picture of the installed units. If the units, invoice, and report are acceptable, the CEO Program Manager will submit the invoice to the accounting department for payment.
    - If the units, invoice, and report are unacceptable, the CEO Program Manager will work with the Grantee to correct, modify, or replace as needed.

Deliverables: The following documentation is required for CEO to reimburse eligible costs on the project:

- Reimbursement Report
- Summary Invoice/Reimbursement Request
- Legible copies of all sales invoices showing the purchase price and amount paid by the applicant for the equipment, number of units purchased and serial numbers from the units.
- Legible copies of all invoices/receipts showing installation costs and number of labor hours spent by the installers and any subcontractors on the project.
- Date(s) of installation, installation completion and when the unit(s) are operational and available for use.
- Digital photograph(s) of the completed unit(s).

- Photographs must demonstrate adherence to the design standards. Additional photographs may be requested prior to reimbursement being finalized if this is not clearly demonstrated.
- All deliverables shall be adjusted to the final approval and discretion of the CEO.

3.2. Equipment Installation & Commissioning

3.2.1. Equipment Installation

The following activities will be performed and equipment will be purchased, installed, and operational:

- Space Heating & Cooling
    - Heat Pump rooftop units for the recreation & senior center (8)
    - Heat Pump rooftop units for the police & municipal court (2)
    - Heat Pump rooftop unit for the Sid Copeland Water Treatment Facility (1)
    - Installation and associated labor of heat pump rooftop units (11)
    - Associated equipment and labor costs required for equipment installation.

Deliverables: Installation of approved appliances with supporting documentation including paid invoices and photos

Budget: $1,592,000.00

3.2.2. Commissioning & Operational Verification

Grantee shall undertake a process to ensure all systems & equipment are designed, installed, tested, operated, and maintained according to the operational requirements to ensure proper installation and operation. Grantee shall also clearly demonstrate installed equipment is primarily used over fossil fuel driven redundancy boiler(s).

Deliverables: Supporting documentation including a commissioning logbook, IPMVP Option B compliant M&V plan and report and any supporting data and primary information to be provided within 1 year of project completion date.

3.2.3. Final Project Design

Grantee is tasked with finalizing the detailed design of this project and providing CEO with a copy of such design.

Deliverables: Copy of final project design development and construction documents upon completion.

3.3. Local Match Amount

Grantee shall submit to the Colorado Energy Office details on any federal and local tax benefits received for the property that constitute grant match requirements.

- Evidence of City of Louisville Capital Improvement Funds utilized for the project ($1,592,000.00)

Deliverables: Evidence of federal tax credit/benefits or local rebates received for this project. Evidence of general reserve funds and budgeted capital expenditure allocated for the project.

3.4. Acceptance Criteria

Deliverables will be accepted upon timely submission and review by the CEO grant manager to ensure they meet all criteria in the above tasks and are included in the monthly reports from the Grantee. CEO shall notify the Grantee in writing within ten (10) calendar days of receiving a deliverable whether it accepts or rejects that deliverable. If no notification is delivered to the Grantee within this period, the deliverable shall be considered accepted. Any deliverable rejection notice shall specify in reasonable detail the way the deliverable does not materially conform to the specifications set forth in this Exhibit A. Grantee shall then implement such changes as reasonably required to bring the deliverable into material conformity with this Exhibit A. If, at the time the Grant is closed-out or terminated, it is determined that the Work is unfinished, incomplete, or unsatisfactory, or if Grantee fails to complete its obligations under this Statement of Work, in the State's sole discretion, the State shall have the right to recover from Grantee up to 100% of the Grant Funds that have been expended.

EXHIBIT B, BUDGET & PAYMENT CONDITIONS

1. Eligible Costs

The following items are eligible for reimbursement:

- Energy audit(s) of ASHRAE Level II or equivalent to help an applicant determine electrification equipment type and sizing for the project.
- The purchase and installation of high efficiency electric equipment for space heating, water heating, or cooking.
- Utility and electric infrastructure upgrades that are necessary to install high efficiency electric equipment. This includes wiring, transformers, breaker boxes, electrical panels, and circuits.
- The purchase and installation of other innovative high efficiency building technologies that the CEO decides will likely be the same or better efficiency as high efficiency heat pumps.
- DI / LI / JT Communities Only: Community organizing time associated with the planning of the neighborhood-scale electrification project. Up to 30 hours of community organizing to recruit homeowners, organizing energy audits, and other tasks associated with the planning grant may be reimbursed through the grant.
- DI / LI / JT Communities Only: Administrative costs associated with the implementation of the neighborhood-scale electrification project may be reimbursed through the grant funding. Administrative costs may include but are not limited to reimbursement for staff time for managing or coordinating the implementation and installation of the equipment, working with contractors to complete projects, or other implementation-focused activities.

2. Project Budget

Table 1. HEEHA Budget Form Summary

Planning Phase Budget Request	**Measure**	**Total Cost**	**CEO Grant Coverage Percentage**
	Energy Audits/	$0	0%

	Analysis Costs:		
	Community Organizing Costs:	$0	0%
	Total Request	**$0**	0%
Implementation Phase Budget Request	**Measure**	**Total Cost**	**CEO Grant Coverage Percentage**
	Electrification Equipment Costs:	$3,184,000	50%*
	Electric Service/Panel Upgrade Costs:	$0.00	0%
	Administrative Costs:	$0.00	0%
	Total Request before Training:	$1,592,000.00	
	Total Request Cover by Grant after Training:	**$1,592,000.00**	
Total Project Costs Covered before Training (Planning & Implementation)		$1,592,000.00	
Total Project Costs Covered by Grant after Training (Planning & Implementation)		$1,592,000.00	

*Grantees who elect to participate in CEO's electrification training course receive a 5% discount on match requirement for electrification equipment costs.

High Efficiency and Electrification Heating Appliances Implementation Only Grant Application Form

Grant Program Overview

The HEEHA Grant Program was created by HB 22-1362[1] to promote neighborhood-scale electrification projects in the State of Colorado (State). Fossil gas-powered appliances and equipment produce greenhouse gas (GHG) and harmful indoor air pollution which can cause health problems. As a result, buildings rank in the top five biggest sources of GHG pollution in the State, according to the Colorado Greenhouse Gas Pollution Reduction Roadmap. In addition, over one million Coloradans spend five percent or more of their household income on energy costs – a situation known as "energy-burdened."

High efficiency electric appliance upgrades can reduce indoor air pollutants, reduce energy costs, and improve comfort, but present a significant cost to implement. The HEEHA Grant Program intends to reduce this cost barrier.

Projects that support electrification and energy efficiency upgrades in Disproportionately Impacted, Low-Income, and/or Just Transition (DI / LI / JT) communities are highly encouraged. 30% of total grant funding is reserved for projects in DI / LI / JT communities.

Program Goals

The objectives of the HEEHA Grant Program are to:

1. Scale up beneficial electrification in projects across Colorado, specifically in DI / LI / JT communities.
2. Support electrification and energy efficiency projects in DI / LI / JT communities.
3. Reduce harmful indoor air pollution and GHGs associated with burning natural gas and other fossil fuels, which disproportionately harm DI / LI / JT communities.
4. Reduce energy burden and energy use, with the intent to save money spent on energy bills for DI / LI / JT communities.[2]
5. Advance the goals of the State's GHG Pollution Reduction Roadmap.
6. Increase demand and publicity for innovative, climate-smart building technology.

[1] In 2022, the Colorado State Legislature passed House Bill (HB) 22-1362, the Building Greenhouse Gas Emissions Act. Section 24-38.5-405 of this bill directed the Colorado Energy Office (CEO) to create a grant program, the High Efficiency Electric Heating and Appliances (HEEHA) Grant Program.
[2] https://rmi.org/insight/the-new-economics-of-electrifying-buildings

Preparing your Implementation Only Grant Application

BEFORE YOU BEGIN: Please read through the HEEHA Grant Program Guidelines and Resource pages to understand the program objectives, eligibility, and requirements. To complete your application, please DOWNLOAD OR MAKE A COPY of this Google Doc and fill out all applicable fields.

To self-identify your community as a DI / JT / LI community for this grant funding opportunity, please:

1. Follow the guidance in the Community Identification Resource;
2. Prepare all documentation described in the resource; and
3. Provide the documentation outlined in Section 2 Community Information.

Note: A community is considered eligible for the DI / JT / LI allotment if they qualify for one or more of the community identifiers.

Implementation Only Grant Application Overview

The purpose of the grant application is to provide the Review Committee with an understanding of the applicant's proposed project, the project's commitment to full beneficial electrification, any demonstrated need for funding support, and preparedness to implement the proposed project.

To submit your application and documentation, **DOWNLOAD OR MAKE A COPY of this Google Doc, fill out all applicable fields,** then follow submission instructions on the Colorado Energy Office's HEEHA Grant Webpage. The applicant should review the HEEHA Grant Program Guidelines in full prior to completing an application.

Implementation Only Grant Application Form

Please DOWNLOAD OR MAKE A COPY of this Google Doc and fill out all applicable fields.

1. Contact Information and Project Summary

Project Title: City of Louisville Municipal Decarbonization Project

Applicant Organization/Entity: City of Louisville

Applicant Type:

Private/non-profit organization	Business district/association
Local government	Utilities
Institution of higher education	Tribal government
Apartment/condominium complex	HOA
Housing developer	Other, please explain

Lead Applicant Name/Title: Kayla Betzold, Sustainability Manager

Lead Applicant Email Address: kbetzold@louisvilleco.gov

Lead Applicant Phone Number: 720-765-7006

Lead Organization/Entity Mailing Address: 749 Main Street, Louisville CO, 80027

Total Funding Amount Requested: $1,592,000

Estimated Total Project Cost: $3,184,000

Project Timeline (anticipated start and end dates, any potential reason for delay):

3 months for final design – anticipated start date of April 2024, anticipated construction timeline of 18 months, due to supply chain constraints.

Brief Project Description (750 word limit):

In December 2021, the City of Louisville experienced the most destructive wildfire in the state's history, with 550 homes and businesses destroyed. Almost two years after the devastating Marshall Fire, the City of Louisville continues to rebuild. In addition to pre-disaster planning, the City is focused on improving its climate resiliency and lessening its carbon footprint. The City developed and adopted an Internal Decarbonization Plan, which includes a roadmap to decarbonization and electrification of City facilities, fleet and equipment. The roadmap's recommendations are outlined in phases – near term, mid term and long term. The near term recommendations in the Plan include energy efficiency and load reduction at all 10 facility sites, 2.3 MW of onsite solar at seven facility sites, electric vehicle charging at five facility sites and mechanical electrification at five facility sites. The five near term sites were chosen due to their equipment nearing the end of its useful life. The Recreation & Senior Center, Police & Municipal Court and Sid Copeland Water Treatment Plant are all facilities included in the near term scope outlined in the Internal Decarbonization Plan.

The transition from natural gas to electric heating and water systems is a crucial step towards reducing the carbon footprint associated with energy consumption. This project not only aligns with the City's commitment to environmental stewardship but also contributes to the broader goals of the state of Colorado in addressing climate change.

The benefits of this project extend beyond energy efficiency; it also promotes cleaner air, improved indoor air quality, and a healthier environment for patrons and staff. Furthermore, the successful implementation of this grant will undoubtedly contribute to the facilities' long-term operational efficiency and cost savings, reflecting a proactive approach to managing energy needs while fostering a positive impact on the community.

Electrifying the rooftop units at the Recreation & Senior Center, Police & Courts and Sid Copeland Water Treatment Plant is an integral part of achieving the goals outlined in the Internal Decarbonization Plan and grant funding will allow the City to implement the Plan's recommendations without reduction in scope, realizing the greatest decarbonization potential.

2. Community Information

Community Location

County: Boulder

City/Town: Louisville

Neighborhood Address: Recreation & Senior Center: 900 Via Appia Way, Police & Municipal Court: 992 West Via Appia Court, Sid Copeland Water Treatment: 1955 Washington Ave

OR

[UPLOAD] Neighborhood Map: You may also upload a screenshot of your neighborhood instead of providing an address.

Neighborhood Description: Please provide a written narrative/description of the neighborhood that captures location and other relevant information. (500 word limit)

The Recreation and Senior Center and Police & Municipal Court buildings are located on the same street, a well-traveled east-west street through the north central neighborhood of Louisville. Both buildings are located directly across the street from one of the hardest hit neighborhoods in the Marshall Fire, with more than 100 homes being rebuilt in the surrounding area. The Sid Copeland Water Treatment Plant is located on the north side of the city, south of South Boulder Road.

Disproportionately Impacted, Just Transition, and/or Low-Income Communities

1. Are you self-identifying your community as a Disproportionately Impacted, Just Transition, or Low-Income (DI / JT / LI) Community?

   Yes

   No

2. If yes, do you anticipate needing assistance with project management and/or administration of the grant if awarded? *Note: DI / JT / LI communities qualify for free technical assistance from CEO if the grant is awarded.*

   Yes

   No

3. **[UPLOAD]** If you are self-identifying your community as DI /JT /LI (answered "yes" in Question 1 of this section), please upload the documentation requested in the Community Identification resource to demonstrate applicability with the DI / JT / LI requirements.

Project Narrative. Please keep answers to a 500 word limit for each question.

1. Please describe why HEEHA grant funds are necessary for your community/organization/entity and if the project would be able to move forward without grant funding.

In addition to the COVID-19 pandemic, Boulder County and the City of Louisville have experienced numerous disasters in recent years. The 2013 Flood resulted in extensive damage to residential and commercial property, as well as roads, bridges creeks and open space and the 2021 Marshall Fire was the most destructive wildfire in Colorado history, with over 1,200 structures damaged or destroyed countywide. As the City of Louisville continues to rebuild from the fire, City leadership are working to become more resilient through climate mitigation and adaptation efforts.
The first large step was the City's Internal Decarbonization Plan which includes building and infrastructure upgrades, energy efficiency, clean energy and sustainable transportation. The

City is also hiring a Resiliency Program Manager and Mitigation Coordinator to further increase resiliency work within the City. Through these efforts, the City of Louisville is doing its part to prepare, mitigate and adapt to climate change and reduce the impacts of future natural disasters, while also reducing emissions in an effort to reduce the intensity and frequency of these disasters in the future. This endeavor is important, impactful and expensive. The full decarbonization plan cost is $51M and the costs for the near term recommendations in the Plan are $27M.

Currently, the City has $3M budgeted in the Capital Improvement Fund to support this project and needs grants and other funding to implement the full decarbonization recommendations in the Plan. If this project is not awarded grant funds, the City would have to significantly reduce the scope, delay the project, or look for other ways to slowly implement measures over time. CEO funding for this project will enable the project to move forward as it currently exists. This project is an unprecedented opportunity for Louisville to achieve its resiliency, facility, and climate goals while continuing to provide on-going programming services to the community of Louisville.

2. In general, how will this project benefit your community? Please describe all potential associated co-benefits of this project.

Through electrification and EV charging, the City will adapt to potential shifts in energy sources and technology advancements and will be more resilient to fluctuating fossil fuel prices due to global economic instability. Energy efficiency measures ensure ongoing energy savings and resiliency in the face of economic uncertainty.

The project enhances the community's health and well-being by improving indoor air quality, reducing carbon emissions and upgrading building infrastructure which preserves a community resource used for programs and meetings. It improves the local economy by reducing operational costs allowing the City to allocate funds to other essential services.

Through implementation of this project, the community will be able to reduce its energy consumption, produce more clean energy on-site and reduce the reliance on gas through building electrification. As a result of the project, the City will reduce GHG emissions, reduce current and future utility costs, lessen global warming, and -in turn - produce a healthier environment for present and future generations. In addition, this project focuses on extending the life of the current facilities within Louisville versus building new which produces less embodied carbon and fewer lifecycle carbon emissions. It enhances project benefits by providing sustainable improvements for both present and future generations to enjoy.

During the bidding of the project's scope of work, all subcontractors in the local community will be encouraged to respond, including smaller companies that may be more at-risk due to the financial impacts of climate change. This project will help to promote social equity of clean energy across the Louisville community by sharing knowledge and education of the process and helping to make the transition to a clean energy economy a more holistic, state-wide solution. By preserving and enhancing a key publicly accessible community hub, Louisville will be providing equitable access and maintaining resources within the library for all residents and community members – regardless of background.

Required Uploads

- Neighborhood Map, if applicable.
- DI / LI / JT documentation, if applicable.

3. Project Information

Please indicate the targeted number of dwelling units, commercial units, and/or buildings, etc. in the project. *Note: Applicants must represent a minimum of five (5) homes or dwelling units, or at least three (3) businesses/building units.*

This project will fund building electrification at three (3) facilities – the Recreation & Senior Center, Police & Municipal Court and Sid Copeland Water Treatment Plant.

[UPLOAD] Please fill out the "Project Information Spreadsheet" with the following information for each building and/or unit in the proposed project. *Note: If any information is unavailable, please include a description in the space provided indicating why the applicant could not find the information.*

1. Property Street Address(es).
    - Unit Numbers (as applicable)
2. Utility companies serving the building(s) for natural gas and electricity.
3. Description of the facilities:
    - Approximate Square Footage
    - Age of Building
    - Uses and/or Occupancy Type
    - Fuel Types Used (electricity, propane, natural gas, etc)
    - HVAC System - Space Heating
    - HVAC System - Domestic Water Heating
    - Other Applicable Gas-Fueled Appliance(s):
        - *Note: This may include but is not limited to clothes dryers, stoves, ovens, and/or fireplaces.*
4. Note any retrofits or equipment upgrades were completed within the last 10 years, if known or applicable. (500 word limit)

COLORADO
Energy Office

- *This may include but is not limited to energy efficiency or weatherization retrofits and upgrades, including any prior work completed with a CEO program such as the Weatherization Assistance Program.*

5. Description of the all electric systems that will be installed with the grant funding.
    - Note if any of the following electric service upgrades will be needed to complete the project.
        - Electric Panel Upgrade
        - Electric Utility Service Upgrade

[UPLOAD] Provide 12 Months of Energy Bills. Provide bills from Gas, Propane, Electricity, or other energy source providers for each unit and/or building. *Note: This can be compiled in a separate spreadsheet or submitted as separate PDFs of each energy bill. Ensure all uploaded documents are clearly titled.*

[UPLOAD] Natural Gas and Electricity Rates. If NOT included in the submitted 12 months of energy bills, provide gas and electric rate documentation. *Note: This may be a screenshot or PDF of one gas and electric rate documentation each.*

[UPLOAD] All-Electric Systems Information: Please fill out the tab in the "Building Information Spreadsheet" titled "All-Electric Systems Information Spreadsheet" to provide information on the all-electric systems you are installing for each building and/or unit included in the project.

Required Uploads

- Project Information Spreadsheet
- 12 Months of Energy Bills (electric, natural gas, propane, stationary diesel, etc).
- Gas and Electric Rate Documentation, if not included in the 12 months of Energy Bills submitted.
- All-Electric Systems Information Spreadsheet

4. Project Details

Project Beneficiaries

1. **[UPLOAD]** Please attach all written approvals from participants for whom this application represents.
2. **Optional, unless you are a DI / LI / JT community seeking to use grant funds to cover community organizing**: Please describe any community organizing activities completed to recruit participants for this project. Attach any supporting documentation as applicable. (500 word limit and/or **UPLOAD**)

Electrification Project Scope

1. **[UPLOAD]** Provide all energy audits of ASHRAE Level II or equivalent or analysis completed for the project that evaluated the electrification of fossil gas equipment and/or any electric service and electric panel upgrades.
    a. **[UPLOAD]** If not included in the energy audits or analysis provided in Question 1 of this section, submit documentation that justifies the selected size and type of equipment or installation with the quote. This may include but is not limited to an energy audit, a report from an energy analyst, or a set of Manual J calculations.
2. Provide a description in narrative form of the full project scope including which electrification measures will be implemented and electric service upgrades needed if applicable. (750 word limit)

This project will fund building electrification at the Louisville Recreation & Senior Center, Police & Municipal Court and Sid Copeland Water Treatment Plant. At the Recreation & Senior Center, this project scope includes funding to convert eight (8) natural gas rooftop units to heat pump rooftop units.

Existing

RTU 1 – 5 ton gas DX

RTU 2 – 5 ton gas DX

RTU 3 – 6 ton gas DX

RTU 4 – 10 ton gas DX

RTU 5 – 4 ton gas DX

RTU 6 – 3 ton gas DX

RTU 7 – 7.5 ton gas DX

RTU 8 – 6 ton gas DX

Replacement

RTU 1 - 5-ton heat pump with gas backup

RTU 2 - 5-ton heat pump with gas backup

RTU 3 – 6-ton heat pump with gas backup

RTU 4 – 10 ton heat pump with gas backup

RTU 5 – 5 ton heat pump with gas backup

RTU 6 – 3 ton heat pump with gas backup

RTU 7 – 7.5 ton heat pump with gas backup

RTU 8 – 6 ton heat pump with gas backup

At Police & Municipal Court, this project scope includes funding to convert two (2) natural gas rooftop units to heat pump rooftop units.

Existing

RTU 1 – 30 ton gas DX

RTU 2 – 20 ton gas DX

Replacement

RTU 1 – 30 ton heat pump with electric backup

RTU 2 – 20 ton heat pump with electric backup

At Sid Copeland Water Treatment Plant, this project scope includes funding to convert one (1) natural gas rooftop unit to a heat pump rooftop unit.

Existing

RTU 1 – 3 ton gas DX

Replacement

RTU 1 – 3 ton heat pump with electric backup

Additional Energy Work within Project Scope - Implementation Phase

For each facility or unit in the proposed project, please describe if the project will be paired with renewable energy, energy storage, and/or other energy efficiency improvements. If so, please describe those improvements here and attach any relevant documentation. (500 word limit and/or **UPLOAD**)

This grant project scope is part of a larger implementation plan for the City's Internal Decarbonization Plan.

At the Recreation & Senior Center, the building electrification will be paired with energy efficiency and load reduction measures including: pool covers, sauna scheduling, window replacements, building automation system scheduling, controls optimization/retro-commissioning, duct air sealing/insulation, envelope air sealing, lighting controls/vacancy sensors and advanced plug load reduction. Additionally, there will be a 380 kW agrivoltaic ground mounted solar array installed on site with native and pollinator friendly plants underneath the panels.

At the Police & Municipal Court, the building electrification will be paired with energy efficiency and load reduction measures including: HVAC occupancy sensors, building automation scheduling, controls optimization/retro-commissioning, duct air sealing/insulation, envelope air sealing, lighting controls/vacancy sensors and advanced plug load reduction. Additionally, there will be a 257 kW ground mounted solar array installed on site.

At the Sid Copeland Water Treatment Plant, the building electrification will be paired with energy efficiency and load reduction measures including: Envelope air sealing, lighting controls/vacancy sensors and LED lighting. Additionally, there will be a 376 kW ground mounted solar array installed on site.

Through the Internal Decarbonization Plan, geothermal and energy storage were considered at all sites, but were not recommended due to cost and payback timelines.

New Construction Projects

If you are applying for grant funding of a new construction project, your application must also demonstrate the following:

1. **[UPLOAD]** Properly calculated HVAC loads for future electric HVAC equipment serving each unit and/or building.
2. **[UPLOAD]** REScheck, ERI, or comparable modeling pathway detail that demonstrates the new construction project meets the standards of the 2018 IECC OR the most recent version of the International Energy Conservation Code adopted by the project's jurisdiction, whichever is more stringent. If your project does not meet these code requirements, please contact the HEEHA Program Manager.

(OPTIONAL - for Commercial Properties Only) Commissioning Plan

Project commissioning is not required but highly encouraged. If you are pursuing commissioning, please provide the following detail.

Commissioning will be completed during the construction period of the project and will be administered by the energy service company.

Name of Certified Commissioning Agent:

Timeline for Commissioning:

Systems being Commissioned:

[UPLOAD] Commissioning Plan.

Implementation Project Team

Who will be involved in this project? List any contractors, community staff/stakeholders, facilities managers, building owners, etc., along with relevant certifications and/or licenses (if applicable).

[**UPLOAD**] You may either fill out the table below or upload a document with your project team's information.

Project Team Member	Role	Company/ Organization	Certification/ Licenses (if applicable)
Kayla Betzold	Sustainability Manager/Project Manager	City of Louisville	
Kevin Frey	Facilities Superintendent/Project Manager	City of Louisville	
Kurt Kowar	Public Works Director	City of Louisville	
ESCO	Construction Management	TBD	
Ryder Bailey	Finance Director	City of Louisville	

OPTIONAL: Additional Relevant Information

Note: This section is optional and not required for the grant application. Projects that do not provide information in this section will not be penalized.

1. Is there any additional information that will assist the Review Committee in understanding the proposed project and need? (500 word limit)

2. [**UPLOAD**] Please attach any additional documents that would support your application (i.e., neighborhood sustainability plans, site design documents / photos, letters of recommendation, etc.). Include a brief description of the documents attached. (500 word limit)

Required Uploads

- Participant Written Approvals.
- Community Organizing Documentation (if applicable).
- Energy Audit or Analysis (ASHRAE Level II or equivalent).
- Size and Type Justification Analysis, if information is not included in the energy audit OR for new construction projects.
- For new construction projects, documentation demonstrating the minimum requirements of the International Energy Conservation Code and all applicable local jurisdictional code requirements have been met. This should be an ERI or ResCheck.
- Commissioning Plan, if applicable.
- Project Team Documentation, if provided table is not filled out.
- Any additional documents that support your application.

5. Project Budget

Project Budget

[**UPLOAD**] Complete the "Project Budget" Spreadsheet, detailing each project expense for which you anticipate using project funding, and upload. See HEEHA Grant Program Guidelines for additional information on eligible costs and community match allowances for each phase.

[**UPLOAD**] Please attach all quote(s) and specification sheets for the proposed high-efficiency electric equipment and/or any electric service and electric-panel upgrades necessary for project execution. You must include at least two (2) quotes per service or equipment type, as applicable, and indicate which vendor was selected to perform the work.

For community match, please detail the cash match contribution and provide both description and cost for any in-kind match contribution. In addition, include details on any leveraged rebates and incentives that will be used to contribute towards the community match.

DI / LI / JT Communities
DI / LI / JT Applicants may use grant funds to cover up to 40 hours of administrative time. Please provide detail on the administrative cost and the number of hours needed. *Note: You may not double count between administrative time covered with grant funding and any in-kind support that contributes to the community match.*

Required Uploads

- Project Budget Spreadsheet.
- Project Quotes/Estimates.
- Equipment Specification Sheets.

6. Reporting Plan and Final Documentation - Implementation Phase

Reporting Plan

Briefly describe the plan for grant reporting and document submission, including roles, responsibilities, methods, and approvals from participants. If you are self-identifying your community as a DI/JT/LI community and plan to use grant funding to cover administrative costs, be sure to include the estimated administrative costs associated with grant reporting in the project budget. (500 word limit)

If awarded funding, the City of Louisville team will effectively manage the grant reporting and community progress and outcomes to the Colorado Energy Office. Kayla Betzold will act as the Project Manager and will oversee the project and its reporting. Kayla will compile information, ensure accuracy and provide a comprehensive overview of the project status and outcomes. Kayla will also be the City of Louisville point of contact and will communicate with other city team members through the project. Ryder Bailey and his Finance team will be responsible for providing accurate financial data related to grant expenditures and other financial documentation required by the state. Kevin Frey and the Public Works team will be directly involved with the project's implementation and will provide details about project activities, milestones achieved, challenges faced and success stories.

Upon completion of the project, the following information will be required to be submitted to CEO:

1. Final budget sheet including all project expenses and matched income.
2. Legible copies of all sales/invoices showing the purchase price and amount paid by the applicant for the HEEHA equipment and installation, the number and type of units purchased, and the coefficient of performance or efficiency rating for all units purchased.
3. Date(s) of installation, installation completion, and when the units were operational.
4. If available, energy use data/energy bills for each building for the months following the installation of the high-efficiency electric equipment.

To submit documentation, follow submission instructions on the Colorado Energy Office's HEEHA Grant Webpage.

7. Required Uploads

Uploads and Documentation

Please ensure all the following documents have been uploaded with your application:

Section 2: Neighborhood map, if applicable.
Section 2: DI/JT/LI documentation, if applicable.
Section 3: Project Information Spreadsheet.
Section 3: 12 months of Energy Bills (electric, natural gas, propane, stationary diesel, etc).
Section 3: Gas and Electric Rate Documentation, if not included in the 12 months of Energy Bills submitted.
Section 4: Participant Written Approvals.
Section 4: Community Organizing Documentation, if applicable.
Section 4: Energy Audit or Analysis (ASHRAE Level II or equivalent).
Section 4: Size and Type Justification Analysis, if information is not included in the energy audit OR for new construction projects.
Section 4: For new construction projects, documentation demonstrating the minimum requirements of the most recent version of the International Energy Conservation Code have been met. This must be an ERI or ResCheck.
Section 4: Commissioning Plan, if applicable.
Section 4: Project Team Roster, if provided table is not filled out.
Section 4: Any additional documents that support your application.
Section 5: Project Budget Spreadsheet.
Section 5: Project Quotes/Estimates.
Section 5: Equipment Specification Sheets.

To submit documentation, follow submission instructions on the Colorado Energy Office’s HEEHA Grant Webpage.

Attachment D: PBEG Grant Documentation

GRANT AWARD LETTER
SUMMARY OF GRANT AWARD TERMS AND CONDITIONS

State Agency Colorado Energy Office	**Grant Amount** State Fiscal Year 2025: $677,500.00 State Fiscal Year 2026: Any SFY25 unspent funds State Fiscal Year 2027: $0.00 State Fiscal Year 2028: $0.00 State Fiscal Year 2029: $0.00 State Fiscal Year 2030: $0.00 **Total for all State Fiscal Years: $677,500.00**
Grantee City of Louisville	
Grant Issuance Date The date the State Controller or an authorized delegate signs this Grant Letter	
Fund Expenditure End Date November 30, 2029 **Grant Expiration Date** November 30, 2029	**Local Match Amount** **Total for all State Fiscal Years: $677,500.00**
Grant Authority Authority to enter into this Grant exists in HB 22-1362.	

Grant Purpose

The Grantee was awarded funding as a result of the competitive Public Building Electrification Grant (PBEG) Requests for Application released in October 2023.

Exhibits and Order of Precedence

The following Exhibits and attachments are included with this Grant:

1. Exhibit A, Statement of Work.
2. Exhibit B, Budget and Payment Conditions.
3. Exhibit C, Grantee’s Application.

In the event of a conflict or inconsistency between this Grant and any Exhibit or attachment, such conflict or inconsistency shall be resolved by reference to the documents in the following order of priority:

1. Colorado Special Provisions in §17 of the main body of this Grant
2. The provisions of the other sections of the main body of this Grant.
3. Exhibit A, Statement of Work.
4. Exhibit B, Budget and Payment Conditions.
5. Exhibit C, Grantee’s Application

Principal Representatives

For the State:	For Grantee:
Brittney Vancuran Colorado Energy Office 1600 Broadway, Suite 1960 Denver, CO 80202 brittney.vancuran@state.co.us	Hannah Miller City of Louisville 749 Main Street Louisville, CO 80027 hmiller@louisvilleco.gov

SIGNATURE PAGE

THE PARTIES HERETO HAVE EXECUTED THIS AGREEMENT

Each person signing this Agreement represents and warrants that the signer is duly authorized to execute this Agreement and to bind the Party authorizing such signature.

GRANTEE City of Louisville ____ By: Date: _________________________	**STATE OF COLORADO** Jared S. Polis, Governor Colorado Energy Office Will Toor, Executive Director ____ By: Dominique Gómez, Deputy Director Date: _________________________

In accordance with §24-30-202, C.R.S., this Agreement is not valid until signed and dated below by the State Controller or an authorized delegate.

STATE CONTROLLER
Robert Jaros, CPA, MBA, JD

____
By: Office of the Governor, Jonathon Bray, Controller

Effective Date:_____________________

1. GRANT

As of the Grant Issuance Date, the State Agency shown on the first page of this Grant Award Letter (the "State") hereby obligates and awards to Grantee shown on the first page of this Grant Award Letter (the "Grantee") an award of Grant Funds in the amounts shown on the first page of this Grant Award Letter. By accepting the Grant Funds provided under this Grant Award Letter, Grantee agrees to comply with the terms and conditions of this Grant Award Letter and requirements and provisions of all Exhibits to this Grant Award Letter.

2. TERM

A. Initial Grant Term and Extension

The Parties' respective performances under this Grant Award Letter shall commence on the Grant Issuance Date, and the Grant Funds shall be expended by the Fund Expenditure End Date, and shall terminate on the Grant Expiration Date shown on the Cover Page for this Grant Award Letter unless sooner terminated or further extended in accordance with the terms of this Grant Award Letter. Upon request of Grantee, the State may, in its sole discretion, extend the term of this Grant Award Letter by providing Grantee with an updated Grant Award Letter showing the new Grant Expiration Date.

B. Early Termination in the Public Interest

The State is entering into this Grant Award Letter to serve the public interest of the State of Colorado as determined by its Governor, General Assembly, or Courts. If this Grant Award Letter ceases to further the public interest of the State or if State, Federal or other funds used for this Grant Award Letter are not appropriated, or otherwise become unavailable to fund this Grant Award Letter, the State, in its discretion, may terminate this Grant Award Letter in whole or in part by providing written notice to Grantee that includes, to the extent practicable, the public interest justification for the termination. If the State terminates this Grant Award Letter in the public interest, the State shall pay Grantee an amount equal to the percentage of the total reimbursement payable under this Grant Award Letter that corresponds to the percentage of Work satisfactorily completed, as determined by the State, less payments previously made. Additionally, the State, in its discretion, may reimburse Grantee for a portion of actual, out-of-pocket expenses not otherwise reimbursed under this Grant Award Letter that are incurred by Grantee and are directly attributable to the uncompleted portion of Grantee's obligations, provided that the sum of any and all reimbursements shall not exceed the maximum amount payable to Grantee hereunder. This subsection shall not apply to a termination of this Grant Award Letter by the State for breach by Grantee.

3. DEFINITIONS

The following terms shall be construed and interpreted as follows:

A. "**Budget**" means the budget for the Work described in Exhibit B.

B. "**Business Day**" means any day in which the State is open and conducting business, but shall not include Saturday, Sunday or any day on which the State observes one of the holidays listed in §24-11-101(1) C.R.S.

C. "**CORA**" means the Colorado Open Records Act, §§24-72-200.1 *et seq.*, C.R.S.

D. **"Electric Ready"** means adequate panel capacity, dedicated electric panel space, electrical wire, electrical receptacles, and adequate physical space to accommodate future installation of high-efficiency electric appliances including heating, water heating, cooking, drying, and an electric vehicle.

E. “**Grant Award Letter**” means this letter which offers Grant Funds to Grantee, including all attached Exhibits, all documents incorporated by reference, all referenced statutes, rules and cited authorities, and any future updates thereto.

F. “**Grant Funds**” means the funds that have been appropriated, designated, encumbered, or otherwise made available for payment by the State under this Grant Award Letter.

G. “**Grant Expiration Date**” means the Grant Expiration Date shown on the first page of this Grant Award Letter.

H. “**Grant Issuance Date**” means the Grant Issuance Date shown on the first page of this Grant Award Letter.

I. “**Exhibits**” exhibits and attachments included with this Grant as shown on the first page of this Grant

J. “**Extension Term**” means the period of time by which the Grant Expiration Date is extended by the State through delivery of an updated Grant Award Letter

K. “**Goods**” means any movable material acquired, produced, or delivered by Grantee as set forth in this Grant Award Letter and shall include any movable material acquired, produced, or delivered by Grantee in connection with the Services.

L. “**Incident**” means any accidental or deliberate event that results in or constitutes an imminent threat of the unauthorized access or disclosure of State Confidential Information or of the unauthorized modification, disruption, or destruction of any State Records.

M. “**Initial Term**” means the time period between the Grant Issuance Date and the Grant Expiration Date.

N. **“IPMVP”** means International Performance Measurement and Verification Protocol

O. “**Matching Funds**” means the funds provided Grantee as a match required to receive the Grant Funds.

P. **“M&V”** means measurement and verification.

Q. “**Party**” means the State or Grantee, and “Parties” means both the State and Grantee.

R. “**PII**” means personally identifiable information including, without limitation, any information maintained by the State about an individual that can be used to distinguish or trace an individual’s identity, such as name, social security number, date and place of birth, mother’s maiden name, or biometric records; and any other information that is linked or linkable to an individual, such as medical, educational, financial, and employment information. PII includes, but is not limited to, all information defined as personally identifiable information in §§24-72-501 and 24-73-101 C.R.S. “PII” shall also mean “personal identifying information” as set forth at § 24-74-102, et. seq., C.R.S.

S. **“Quarter”** means the three (3) months periods ending March 31, June 30, September 30, and December 31 of each calendar year.

T. “**Services**” means the services to be performed by Grantee as set forth in this Grant Award Letter, and shall include any services to be rendered by Grantee in connection with the Goods.

U. "**State Confidential Information**" means any and all State Records not subject to disclosure under CORA. State Confidential Information shall include, but is not limited to, PII, and State personnel records not subject to disclosure under CORA. State Confidential Information shall not include information or data concerning individuals that is not deemed confidential but nevertheless belongs to the State, which has been communicated, furnished, or disclosed by the State to Grantee which (i) is subject to disclosure pursuant to CORA; (ii) is already known to Grantee without restrictions at the time of its disclosure to Grantee; (iii) is or subsequently becomes publicly available without breach of any obligation owed by Grantee to the State; (iv) is disclosed to Grantee, without confidentiality obligations, by a third party who has the right to disclose such information; or (v) was independently developed without reliance on any State Confidential Information.

V. "**State Fiscal Rules**" means the fiscal rules promulgated by the Colorado State Controller pursuant to §24-30-202(13)(a) C.R.S.

W. "**State Fiscal Year**" means a 12 month period beginning on July 1 of each calendar year and ending on June 30 of the following calendar year. If a single calendar year follows the term, then it means the State Fiscal Year ending in that calendar year.

X. "**State Records**" means any and all State data, information, and records, regardless of physical form, including, but not limited to, information subject to disclosure under CORA.

Y. "**Subcontractor**" means third-parties, if any, engaged by Grantee to aid in performance of the Work. "Subcontractor" also includes sub-grantees.

Z. "**Work**" means the delivery of the Goods and performance of the Services described in this Grant Award Letter.

AA. "**Work Product**" means the tangible and intangible results of the Work, whether finished or unfinished, including drafts. Work Product includes, but is not limited to, documents, text, software (including source code), research, reports, proposals, specifications, plans, notes, studies, data, images, photographs, negatives, pictures, drawings, designs, models, surveys, maps, materials, ideas, concepts, know-how, and any other results of the Work. "Work Product" does not include any material that was developed prior to the Grant Issuance Date that is used, without modification, in the performance of the Work.

Any other term used in this Grant Award Letter that is defined in an Exhibit shall be construed and interpreted as defined in that Exhibit.

4. STATEMENT OF WORK

Grantee shall complete the Work as described in this Grant Award Letter and in accordance with the provisions of Exhibit A. The State shall have no liability to compensate or reimburse Grantee for the delivery of any goods or the performance of any services that are not specifically set forth in this Grant Award Letter.

5. PAYMENTS TO GRANTEE

A. Maximum Amount

Payments to Grantee are limited to the unpaid, obligated balance of the Grant Funds. The State shall not pay Grantee any amount under this Grant that exceeds the Grant Amount for each State Fiscal Year shown on the first page of this Grant Award Letter. Financial obligations of the State payable after the current State Fiscal Year are contingent upon funds for that purpose being appropriated, budgeted, and otherwise made available. The State shall not be liable to pay or reimburse Grantee for any Work performed or expense incurred before the Grant Issuance Date or after the Grant Expiration Date; provided, however, that Work performed and expenses incurred by Grantee before the Grant Issuance Date that are chargeable to an active Federal Award may be submitted for reimbursement as permitted by the terms of the Federal Award.

B. Matching Funds.

Grantee shall provide the Local Match Amount shown on the first page of this Grant Award Letter and described in Exhibit A (the "Local Match Amount"). Grantee's obligation to pay all or part of any matching funds, whether direct or contingent, only extends to funds duly and lawfully appropriated for the purpose of this Agreement by the authorized representatives of Grantee and paid into Grantee's treasury or bank account. Grantee shall appropriate and allocate all Local Match Amounts to the purpose of this Grant Award Letter each fiscal year prior to accepting any Grant Funds for that fiscal year. Grantee does not by accepting this Grant Award Letter irrevocably pledge present cash reserves for payments in future fiscal years, and this Grant Award Letter is not intended to create a multiple-fiscal year debt of Grantee. Grantee shall not pay or be liable for any claimed interest, late charges, fees, taxes or penalties of any nature, except as required by Grantee's laws or policies.

D. Reimbursement of Grantee Costs

Upon prior written approval, the State shall reimburse Grantee's allowable costs, not exceeding the maximum total amount described in this Grant Award Letter for all allowable costs described in this Grant Award Letter and shown in the Budget, except that Grantee may adjust the amounts between each line item of the Budget without formal modification to this Agreement as long as the Grantee provides notice to the State of the change, the change does not modify the total maximum amount of this Grant Award Letter or the maximum amount for any state fiscal year, and the change does not modify any requirements of the Work.. The State shall only reimburse allowable costs if those costs are: **(i)** reasonable and necessary to accomplish the Work and for the Goods and Services provided; and **(ii)** equal to the actual net cost to Grantee (i.e. the price paid minus any items of value received by Grantee that reduce the cost actually incurred).

E. Close-Out.

Grantee shall close out this Grant within 45 days after the Grant Expiration Date. To complete close out, Grantee shall submit to the State all deliverables (including documentation) as defined in this Grant Award Letter and Grantee's final reimbursement request or invoice. The State will withhold 5% of allowable costs until all final documentation has been submitted and accepted by the State as substantially complete.

6. REPORTING - NOTIFICATION

A. Performance and Final Status

Grantee shall submit all financial, performance and other reports to the State no later than the end of the close out described in **§5.E**, containing an evaluation and review of Grantee's performance and the final status of Grantee's obligations hereunder.

B. Violations Reporting

Grantee shall disclose, in a timely manner, in writing to the State, all violations of federal or State criminal law involving fraud, bribery, or gratuity violations potentially affecting the

Award. The State may impose any penalties for noncompliance allowed under 2 CFR Part 180 and 31 U.S.C. 3321, which may include, without limitation, suspension or debarment.

7. GRANTEE RECORDS

A. Maintenance and Inspection

Grantee shall make, keep, and maintain, all records, documents, communications, notes and other written materials, electronic media files, and communications, pertaining in any manner to this Grant for a period of three years following the completion of the close out of this Grant. Grantee shall permit the State to audit, inspect, examine, excerpt, copy and transcribe all such records during normal business hours at Grantee's office or place of business, unless the State determines that an audit or inspection is required without notice at a different time to protect the interests of the State.

B. Monitoring

The State will monitor Grantee's performance of its obligations under this Grant Award Letter using procedures as determined by the State. The State shall have the right, in its sole discretion, to change its monitoring procedures and requirements at any time during the term of this Agreement. The State shall monitor Grantee's performance in a manner that does not unduly interfere with Grantee's performance of the Work.

C. Final Audit Report

Grantee shall promptly submit to the State a copy of any final audit report of an audit performed on Grantee's records that relates to or affects this Grant or the Work, whether the audit is conducted by Grantee or a third party.

8. CONFIDENTIAL INFORMATION-STATE RECORDS

A. Confidentiality

Grantee shall hold and maintain, and cause all Subcontractors to hold and maintain, any and all State Records that the State provides or makes available to Grantee for the sole and exclusive benefit of the State, unless those State Records are otherwise publicly available at the time of disclosure or are subject to disclosure by Grantee under CORA. Grantee shall not, without prior written approval of the State, use for Grantee's own benefit, publish, copy, or otherwise disclose to any third party, or permit the use by any third party for its benefit or to the detriment of the State, any State Records, except as otherwise stated in this Grant Award Letter. Grantee shall provide for the security of all State Confidential Information in accordance with all policies promulgated by the Colorado Office of Information Security and all applicable laws, rules, policies, publications, and guidelines. If Grantee or any of its Subcontractors will or may receive the following types of data, Grantee or its Subcontractors shall provide for the security of such data according to the following: **(i)** the most recently promulgated IRS Publication 1075 for all Tax Information and in accordance with the Safeguarding Requirements for Federal Tax Information attached to this Grant as an Exhibit, if applicable, **(ii)** the most recently updated PCI Data Security Standard from the PCI Security Standards Council for all PCI, **(iii)** the most recently issued version of the U.S. Department of Justice, Federal Bureau of Investigation, Criminal Justice Information Services Security Policy for all CJI, and **(iv)** the federal Health Insurance Portability and Accountability Act for all PHI and the HIPAA Business Associate Agreement attached to this Grant, if applicable. Grantee shall immediately forward any request or demand for State Records to the State's principal representative.

B. Other Entity Access and Nondisclosure Agreements

Grantee may provide State Records to its agents, employees, assigns and Subcontractors as necessary to perform the Work, but shall restrict access to State Confidential Information to those agents, employees, assigns and Subcontractors who require access to perform their obligations under this Grant Award Letter. Grantee shall ensure all such agents, employees, assigns, and Subcontractors sign nondisclosure agreements with provisions at least as protective as those in this Grant, and that the nondisclosure agreements are in force at all times the agent, employee, assign or Subcontractor has access to any State Confidential Information. Grantee shall provide copies of those signed nondisclosure restrictions to the State upon request.

C. Use, Security, and Retention

Grantee shall use, hold and maintain State Confidential Information in compliance with any and all applicable laws and regulations in facilities located within the United States, and shall maintain a secure environment that ensures confidentiality of all State Confidential Information wherever located. Grantee shall provide the State with access, subject to Grantee's reasonable security requirements, for purposes of inspecting and monitoring access and use of State Confidential Information and evaluating security control effectiveness. Upon the expiration or termination of this Grant, Grantee shall return State Records provided to Grantee or destroy such State Records and certify to the State that it has done so, as directed by the State. If Grantee is prevented by law or regulation from returning or destroying State Confidential Information, Grantee warrants it will guarantee the confidentiality of, and cease to use, such State Confidential Information.

D. Incident Notice and Remediation

If Grantee becomes aware of any Incident, it shall notify the State immediately and cooperate with the State regarding recovery, remediation, and the necessity to involve law enforcement, as determined by the State. After an Incident, Grantee shall take steps to reduce the risk of incurring a similar type of Incident in the future as directed by the State, which may include, but is not limited to, developing and implementing a remediation plan that is approved by the State at no additional cost to the State.

E. Safeguarding PII

If Grantee or any of its Subcontractors will or may receive PII under this Agreement, Grantee shall provide for the security of such PII, in a manner and form acceptable to the State, including, without limitation, State non-disclosure requirements, use of appropriate technology, security practices, computer access security, data access security, data storage encryption, data transmission encryption, security inspections, and audits. Grantee shall be a "Third-Party Service Provider" as defined in §24-73-103(1)(i), C.R.S. and shall maintain security procedures and practices consistent with §§24-73-101 *et seq.*, C.R.S. In addition, as set forth in § 24-74-102, et. seq., C.R.S., Grantee, including, but not limited to, Grantee's employees, agents and Subcontractors, agrees not to share any PII with any third parties for the purpose of investigating for, participating in, cooperating with, or assisting with Federal immigration enforcement..

9. CONFLICTS OF INTEREST

Grantee shall not engage in any business or activities, or maintain any relationships that conflict in any way with the full performance of the obligations of Grantee under this Grant. Grantee acknowledges that, with respect to this Grant, even the appearance of a conflict of interest shall be harmful to the State's interests and absent the State's prior written approval, Grantee shall refrain from any practices, activities or relationships that reasonably appear to be in conflict with the full performance of Grantee's obligations under this Grant. If a conflict or the appearance of a conflict arises, or if Grantee is uncertain whether a conflict or the appearance of a conflict has arisen, Grantee shall submit to the State a disclosure statement setting forth the relevant details for the State's consideration. Grantee acknowledges that all State employees are subject to the ethical principles described in §24-18-105, C.R.S. Grantee further acknowledges that State employees may be subject to the requirements of §24-18-105, C.R.S. with regard to this Grant.

10. INSURANCE

Grantee shall maintain at all times during the term of this Grant such liability insurance, by commercial policy or self-insurance, as is necessary to meet its liabilities under the Colorado Governmental Immunity Act, §24-10-101, *et seq.*, C.R.S. (the "GIA"). Grantee shall ensure that any Subcontractors maintain all insurance customary for the completion of the Work done by that Subcontractor and as required by the State or the GIA.

11. REMEDIES

In addition to any remedies available under any exhibit to this Grant Award Letter, if Grantee fails to comply with any term or condition of this Grant, the State may terminate some or all of this Grant and require Grantee to repay any or all Grant funds to the State in the State's sole discretion. The State may also terminate this Grant Award Letter at any time if the State has determined, in its sole discretion, that Grantee has ceased performing the Work without intent to resume performance, prior to the completion of the Work.

12. DISPUTE RESOLUTION

Except as herein specifically provided otherwise, disputes concerning the performance of this Grant that cannot be resolved by the designated Party representatives shall be referred in writing to a senior departmental management staff member designated by the State and a senior manager or official designated by Grantee for resolution.

13. NOTICES AND REPRESENTATIVES

Each Party shall identify an individual to be the principal representative of the designating Party and shall provide this information to the other Party. All notices required or permitted to be given under this Grant Award Letter shall be in writing, and shall be delivered either in hard copy or by email to the representative of the other Party. Either Party may change its principal representative or principal representative contact information by notice submitted in accordance with this **§13**.

14. RIGHTS IN WORK PRODUCT AND OTHER INFORMATION

Grantee hereby grants to the State a perpetual, irrevocable, non-exclusive, royalty free license, with the right to sublicense, to make, use, reproduce, distribute, perform, display, create derivatives of and otherwise exploit all intellectual property created by Grantee or any Subcontractors or Subgrantees and paid for with Grant Funds provided by the State pursuant to this Grant.

15. GOVERNMENTAL IMMUNITY

Liability for claims for injuries to persons or property arising from the negligence of the Parties, their departments, boards, commissions committees, bureaus, offices, employees and officials shall be controlled and limited by the provisions of the Colorado Governmental Immunity Act, §24-10-101, et seq., C.R.S.; the Federal Tort Claims Act, 28 U.S.C. Pt. VI, Ch. 171 and 28 U.S.C. 1346(b), and the State's risk management statutes, §§24-30-1501, *et seq*. C.R.S. No term or condition of this Agreement shall be construed or interpreted as a waiver, express or implied, of any of the immunities, rights, benefits, protections, or other provisions, contained in these statutes.

16. GENERAL PROVISIONS

A. Assignment

Grantee's rights and obligations under this Grant are personal and may not be transferred or assigned without the prior, written consent of the State. Any attempt at assignment or transfer without such consent shall be void. Any assignment or transfer of Grantee's rights and obligations approved by the State shall be subject to the provisions of this Grant Award Letter.

B. Captions and References

The captions and headings in this Grant Award Letter are for convenience of reference only, and shall not be used to interpret, define, or limit its provisions. All references in this Grant Award Letter to sections (whether spelled out or using the § symbol), subsections, exhibits or other attachments, are references to sections, subsections, exhibits or other attachments contained herein or incorporated as a part hereof, unless otherwise noted.

C. Entire Understanding

This Grant Award Letter represents the complete integration of all understandings between the Parties related to the Work, and all prior representations and understandings related to the Work, oral or written, are merged into this Grant Award Letter.

D. Modification

The State may modify the terms and conditions of this Grant by issuance of an updated Grant Award Letter, which shall be effective if Grantee accepts Grant Funds following receipt of the updated letter. The Parties may also agree to modification of the terms and conditions of the Grant in a formal amendment to this Grant, properly executed and approved in accordance with applicable Colorado State law and State Fiscal Rules.

E. Statutes, Regulations, Fiscal Rules, and Other Authority.

Any reference in this Grant Award Letter to a statute, regulation, State Fiscal Rule, fiscal policy or other authority shall be interpreted to refer to such authority then current, as may have been changed or amended since the Grant Issuance Date. Grantee shall strictly comply with all applicable Federal and State laws, rules, and regulations in effect or hereafter established, including, without limitation, laws applicable to discrimination and unfair employment practices.

F. Digital Signatures

If any signatory signs this agreement using a digital signature in accordance with the Colorado State Controller Contract, Grant and Purchase Order Policies regarding the use of digital signatures issued under the State Fiscal Rules, then any agreement or consent to use digital signatures within the electronic system through which that signatory signed shall be incorporated into this Agreement by reference.

G. Severability

The invalidity or unenforceability of any provision of this Grant Award Letter shall not affect the validity or enforceability of any other provision of this Grant Award Letter, which shall remain in full force and effect, provided that the Parties can continue to perform their obligations under the Grant in accordance with the intent of the Grant.

H. Survival of Certain Grant Award Letter Terms

Any provision of this Grant Award Letter that imposes an obligation on a Party after termination or expiration of the Grant shall survive the termination or expiration of the Grant and shall be enforceable by the other Party.

I. Third Party Beneficiaries

Except for the Parties' respective successors and assigns described above, this Grant Award Letter does not and is not intended to confer any rights or remedies upon any person or entity other than the Parties. Any services or benefits which third parties receive as a result of this Grant are incidental to the Grant, and do not create any rights for such third parties.

J. Waiver

A Party's failure or delay in exercising any right, power, or privilege under this Grant Award Letter, whether explicit or by lack of enforcement, shall not operate as a waiver, nor shall any single or partial exercise of any right, power, or privilege preclude any other or further exercise of such right, power, or privilege.

K. Accessibility

i. Grantee shall comply with and the Work Product provided under this Agreement shall be in compliance with all applicable provisions of §§24-85-101, *et seq.*, C.R.S., and the *Accessibility Standards for Individuals with a Disability*, as established by OIT pursuant to Section §24-85-103 (2.5), C.R.S. Grantee shall also comply with all State of Colorado technology standards related to technology accessibility and with Level AA of the most current version of the Web Content Accessibility Guidelines (WCAG), incorporated in the State of Colorado technology standards.

ii. The State may require Grantee's compliance to the State's Accessibility Standards to be determined by a third party selected by the State to attest to Grantee's Work Product and software is in compliance with §§24-85-101, *et seq.*, C.R.S., and the *Accessibility Standards for Individuals with a Disability* as established by OIT pursuant to Section §24-85-103 (2.5), C.R.S.

17. COLORADO SPECIAL PROVISIONS (COLORADO FISCAL RULE 3-3)

A. STATUTORY APPROVAL. §24-30-202(1) C.R.S.

This Agreement shall not be valid until it has been approved by the Colorado State Controller or designee. If this Agreement is for a Major Information Technology Project, as defined in

§24-37.5-102(2.6), then this Agreement shall not be valid until it has been approved by the State's Chief Information Officer or designee.

B. **FUND AVAILABILITY. §24-30-202(5.5) C.R.S.**

Financial obligations of the State payable after the current fiscal year are contingent upon funds for that purpose being appropriated, budgeted, and otherwise made available.

C. **GOVERNMENTAL IMMUNITY.**

Liability for claims for injuries to persons or property arising from the negligence of the Parties, its departments, boards, commissions committees, bureaus, offices, employees and officials shall be controlled and limited by the provisions of the Colorado Governmental Immunity Act, §24-10-101, et seq., C.R.S.; the Federal Tort Claims Act, 28 U.S.C. Pt. VI, Ch. 171 and 28 U.S.C. 1346(b), and the State's risk management statutes, §§24-30-1501, et seq. C.R.S. No term or condition of this Agreement shall be construed or interpreted as a waiver, express or implied, of any of the immunities, rights, benefits, protections, or other provisions, contained in these statutes.

D. **INDEPENDENT CONTRACTOR.**

Grantee shall perform its duties hereunder as an independent contractor and not as an employee. Neither Grantee nor any agent or employee of Grantee shall be deemed to be an agent or employee of the State. Grantee shall not have authorization, express or implied, to bind the State to any agreement, liability, or understanding, except as expressly set forth herein. **Grantee and its employees and agents are not entitled to unemployment insurance or workers compensation benefits through the State and the State shall not pay for or otherwise provide such coverage for Grantee or any of its agents or employees. Grantee shall pay when due all applicable employment taxes and income taxes and local head taxes incurred pursuant to this Agreement. Grantee shall (a) provide and keep in force workers' compensation and unemployment compensation insurance in the amounts required by law, (b) provide proof thereof when requested by the State, and (c) be solely responsible for its acts and those of its employees and agents.**

E. **COMPLIANCE WITH LAW.**

Grantee shall comply with all applicable federal and State laws, rules, and regulations in effect or hereafter established, including, without limitation, laws applicable to discrimination and unfair employment practices.

F. **CHOICE OF LAW, JURISDICTION, AND VENUE.**

Colorado law, and rules and regulations issued pursuant thereto, shall be applied in the interpretation, execution, and enforcement of this Agreement. Any provision included or incorporated herein by reference which conflicts with said laws, rules, and regulations shall be null and void. All suits or actions related to this Agreement shall be filed and proceedings held in the State of Colorado and exclusive venue shall be in the City and County of Denver.

G. **PROHIBITED TERMS.**

Any term included in this Agreement that requires the State to indemnify or hold Grantee harmless; requires the State to agree to binding arbitration; limits Grantee's liability for damages resulting from death, bodily injury, or damage to tangible property; or that conflicts with this provision in any way shall be void ab initio. Nothing in this Agreement shall be construed as a waiver of any provision of §24-106-109 C.R.S.

H. **SOFTWARE PIRACY PROHIBITION.**

State or other public funds payable under this Agreement shall not be used for the acquisition, operation, or maintenance of computer software in violation of federal copyright laws or applicable licensing restrictions. Grantee hereby certifies and warrants that, during the term of this Agreement and any extensions, Grantee has and shall maintain in place appropriate systems and controls to prevent such improper use of public funds. If the State determines that Grantee is in violation of this provision, the State may exercise any remedy available at law or in equity or under this Agreement, including, without limitation, immediate termination of this Agreement and any remedy consistent with federal copyright laws or applicable licensing restrictions.

I. **EMPLOYEE FINANCIAL INTEREST/CONFLICT OF INTEREST. §§24-18-201 and 24-50-507 C.R.S.**

The signatories aver that to their knowledge, no employee of the State has any personal or beneficial interest whatsoever in the service or property described in this Agreement. Grantee has no interest and shall not acquire any interest, direct or indirect, that would conflict in any manner or degree with the performance of Grantee’s services and Grantee shall not employ any person having such known interests.

EXHIBIT A, STATEMENT OF WORK

1. Public Building Electrification Grant Program

The Public Building Electrification Grant (PBEG) Program was created by HB 22-1362 to promote greenhouse gas emissions reductions from public buildings in the State of Colorado. Emissions from heating buildings are one of the five major sources of greenhouse gas pollution in the State, according to the State's Greenhouse Gas Pollution Reduction Roadmap. Furthermore, public buildings tend to be older buildings whose systems have high energy needs and high energy costs. Energy upgrades to public buildings often remain cost-prohibitive and are a lower priority than the execution of public services. In recognition of these challenges, the PBEG Program was designed to support public buildings in need of financial and technical assistance to transition fossil fuel powered HVAC systems, water heating systems, or fossil fuel-powered appliances to highly efficient electric equipment and appliances.

The resulting Public Building Electrification Grant Program (PBEG) program is a competitive, reimbursement-based grant program administered by CEO. The total funding amount distributed by PBEG is not to exceed $10 million over the program's duration. Projects that support electrification and energy efficiency upgrades in Disproportionately Impacted, Low-Income, and/or Just Transition (DI / LI / JT) communities are highly encouraged. 30% of total grant funding is reserved for projects in DI / LI / JT communities.

Funding allocations will go exclusively toward the purchase and installation of high-efficiency electric equipment for space heating, water heating, or cooking in public buildings. In the case of applicants located in DI/ LI/ JT communities, administrative costs associated with the purchase and installation of electrification equipment are eligible for additional cost coverage.

2. Project Description

The Grantee was awarded grant funding as a result of the Public Building Electrification Grant (PBEG) Request for Applications (RFA). The Colorado Energy Office (hereinafter called "CEO" or the "State") agrees to provide funding to the **City of Louisville, Colorado** (hereinafter called "Grantee"), towards the costs associated and eligible with the PBEG program.

PBEG is a program administered by the Colorado Energy Office (CEO) to encourage use of electric equipment and appliances in buildings, because they reduce greenhouse gas emissions, promote energy security through reliance on domestic electricity, and drive an innovative market for new technology applications. The general purpose of this project is to encourage the installation of electric building equipment in public buildings throughout the state of Colorado.

Grantee is requesting funding for the planning and installation of electric equipment in **the City of Louisville Library buildings at 951 Spruce Street Louisville, Colorado.**

Any dates or deadlines with the exception of the Effective Date, Fund Expenditure End Date, and Grant Expiration Date of this Grant Award Letter may be adjusted by mutual written agreement of the Grantee and CEO. Exclusively for the purposes of modifying deadlines in this Statement of Work, e-mail shall suffice as written documentation. If applicable, an extension of the Fund Expenditure End Date or Grant Expiration Date of the Grant Award shall require a formal modification to the Grant Award Letter.

The Grantee shall hire and retain contractors and other professional services as needed to purchase and install necessary equipment and supporting structures.

Total project grant award not to exceed **$677,500.00**

3. Grantee Tasks, Deliverables & Timeline

Grantee is subject to the following tasks, deliverables and timelines.

3.1. Grant Administration

3.1.1. Kick-off Meeting

Kick-off meeting will be held within 45 days of Grant Award Letter execution and will establish expectations of Grantee for implementing this agreement. The meeting shall include, but not be limited to, a review of the project implementation timeline, contingency plans should the original timeline be extended, Grantee's strategy to implement the proposed project and associated deliverables, and a review of this agreement to ensure a clear understanding of expectations.

Deliverables: PowerPoint slides or presentation containing the project timeline and contingency plans. Other meeting materials developed as appropriate.

Timeline: Meeting will be held within 45 days of Grant Award Letter execution and materials developed and presented in the kick-off meeting to be delivered to the grant program manager within 2 business days following the meeting.

3.1.2. Reporting & Progress Meetings

CEO & Grantee shall conduct check-in calls on a quarterly schedule (State Fiscal Year). The Grantee shall be responsible for ensuring that all relevant staff attend calls. Meeting agenda will include updates on relevant project tasks, challenges and barriers the Grantee is encountering, and any decisions or guidance needed from CEO. Additionally, these meetings may include identifying any needed modifications to the tasks, implementation timeline, or budgets.

- Monthly Progress Reports

Grantee will be subject to monthly performance reporting.
Reports shall include:

- Financial/Expenditure – tracking of grant related expenses for the quarter (paid and unpaid) and expenditures to date by match funding source. Expenses must match the budget line items outlined in Exhibit B. Expenditures of funds must reconcile with CEO's files and may also include unpaid invoices.
- Programmatic – narrative report; including progress made toward project goals and objectives, obstacles encountered to date and possible solutions, photos indicative of construction progress for the quarter, planned activities for the next month.

Deliverables: Monthly progress report with financial/expenditure tracking and programmatic narrative update.

Timeline: Monthly reports will be submitted to the CEO grant program manager by the 15th of each month.

- Annual Performance Reporting

  Grantee shall submit a report to the Colorado Energy Office the first five years after receiving the grant award. This report shall include description of the project and measures funded using grant funds and operational data of electric equipment on gas and electricity use, cost, and emissions. Reporting template will be provided by the Colorado Energy Office.

  Deliverables: Annual report with financial/expenditure tracking, programmatic narrative update, and impact reporting on energy use.

  Timeline: Annual report will be due each year in December.

- Final Report
  - The Grantee shall complete reimbursable work within 12 months of the Grant Agreement Effective Date and submit a final report. This report will demonstrate the completion of the project and installation of the electric equipment. To be acceptable, the final report must explain the Grantee's procurement and installation process, and it must identify the location of the equipment accompanied with a picture of the installed unit. The Grantee shall provide an invoice to CEO for the purchase of the unit and associated equipment, permitting costs, and the labor costs associated with the installation. To be acceptable, the invoice must be supported by receipts or invoices for all equipment, permits, and labor. The invoice must include an itemized list of

all project costs being considered under the grant, including a breakdown of those covered under PBEG and by any match funding.

Deliverables: Final report providing a summary of key accomplishments from the past year, including project completion and final reporting requirements.

Timeline: Due at final reimbursement request and by the Fund Expenditure End Date.

Budget: $0.00

3.1.3. Payment Requests/Reimbursements

- Grantee shall submit a finance/expenditure report including receipts/invoices detailing eligible project expenditures and pictures of operational equipment, along with the monthly progress report detailing installation and operation of electric equipment per unit complete. The electric equipment will be acceptable to the CEO if they are installed, operational, and available for use by Fund Expenditure End Date. The Grantee's invoice to CEO will be acceptable if it is properly supported by invoices or receipts and the costs are associated with procurement of electric equipment, construction materials, permitting, construction labor costs, and installation costs.
- The reimbursement report will be acceptable to CEO if it explains the Grantee's procurement and installation process, and it identifies the location of the electric equipment accompanied with a picture of the installed units. If the units, invoice, and report are acceptable, the CEO Program Manager will submit the invoice to the accounting department for payment.
    - If the units, invoice, and report are unacceptable, the CEO Program Manager will work with the Grantee to correct, modify, or replace as needed.

Deliverable/s: The following documentation is required for CEO to reimburse eligible costs on the project:

- Reimbursement Report
- Summary Invoice/Reimbursement Request
- Legible copies of all sales invoices showing the purchase price and amount paid by the applicant for the equipment, number of units purchased and serial numbers from the units.

- Legible copies of all invoices/receipts showing installation costs and number of labor hours spent by the installers and any subcontractors on the project.
- Date(s) of installation, installation completion and when the unit(s) are operational and available for use.
- Digital photograph(s) of the completed unit(s).
- Photographs must demonstrate adherence to the design standards. Additional photographs may be requested prior to reimbursement being finalized if this is not clearly demonstrated.
- All deliverables shall be adjusted to the final approval and discretion of the CEO.

3.2. Equipment Installation & Commissioning

3.2.1. Equipment Installation
The following activities will be performed and equipment will be purchased, installed, and operational:

- ○ Space Heating & Cooling
  - Heat pump rooftop units (2)
  - Associated equipment and labor costs required for equipment installation (2)
- ○ Water Heating
  - High efficiency electric water heater (1)
  - Associated equipment and labor costs required for equipment installation (1)

Deliverables: Installation of approved appliances with supporting documentation including paid invoices and photos

Budget: $677,500.00

3.2.2. Commissioning & Operational Verification
Grantee shall undertake a process to ensure all systems & equipment are designed, installed, tested, operated, and maintained according to the operational requirements to ensure proper installation and operation. Grantee shall also clearly demonstrate installed equipment is primarily used over fossil fuel driven redundancy boiler(s).

Deliverable/s: Supporting documentation including a commissioning logbook, IPMVP Option B compliant M&V plan and report and any supporting data and primary information to be provided within 1 year of project completion date.

3.2.3. Final Project Design

Grantee is tasked with finalizing the detailed design of this project and providing CEO with a copy of such design.

Deliverable/s: Copy of final project design development and construction documents upon completion.

3.3. Local Match Amount

Grantee shall submit to the Colorado Energy Office details on any federal and local tax benefits received for the property that constitute grant match requirements.

Deliverable/s: Evidence of City of Louisville Capital Improvement Funds utilized for the project ($677,500.00)

3.4. Acceptance Criteria

Deliverables will be accepted upon timely submission and review by the CEO grant manager to ensure they meet all criteria in the above tasks and are included in the monthly reports from the Grantee. CEO shall notify the Grantee in writing within ten (10) calendar days of receiving a deliverable whether it accepts or rejects that deliverable. If no notification is delivered to the Grantee within this period, the deliverable shall be considered accepted. Any deliverable rejection notice shall specify in reasonable detail the way the deliverable does not materially conform to the specifications set forth in this Exhibit A. Grantee shall then implement such changes as reasonably required to bring the deliverable into material conformity with this Exhibit A. If, at the time the Grant is closed-out or terminated, it is determined that the Work is unfinished, incomplete, or unsatisfactory, or if Grantee fails to complete its obligations under this Statement of Work, in the State's sole discretion, the State shall have the right to recover from Grantee up to 100% of the Grant Funds that have been expended.

EXHIBIT B, BUDGET & PAYMENT CONDITIONS

1. Eligible Costs

The following items are eligible for reimbursement:

- Energy audit(s) of ASHRAE Level II or equivalent to help an applicant determine electrification equipment type and sizing for the project.
- The purchase and installation of high efficiency electric equipment for space heating, water heating, or cooking.
- Utility and electric infrastructure upgrades that are necessary to install high efficiency electric equipment. This includes wiring, transformers, breaker boxes, electrical panels, and circuits.
- The purchase and installation of other innovative high efficiency building technologies that the CEO decides will likely be the same or better efficiency as high efficiency heat pumps.
- DI / LI / JT Communities Only: Community organizing time associated with the planning of the neighborhood-scale electrification project. Up to 30 hours of community organizing to recruit homeowners, organizing energy audits, and other tasks associated with the planning grant may be reimbursed through the grant.
- DI / LI / JT Communities Only: Administrative costs associated with the implementation of the neighborhood-scale electrification project may be reimbursed through the grant funding. Administrative costs may include but are not limited to reimbursement for staff time for managing or coordinating the implementation and installation of the equipment, working with contractors to complete projects, or other implementation-focused activities.

2. Project Budget

Table 1. HEEHA Budget Form Summary

Planning Phase Budget Request	**Measure**	**Total Cost**	**CEO Grant Coverage Percentage**
	Energy Audits/	$0	0%

	Analysis Costs:		
	Community Organizing Costs:	$0	0%
	Total Request	**$0**	0%
Implementation Phase Budget Request	**Measure**	**Total Cost**	**CEO Grant Coverage Percentage**
	Electrification Equipment Costs:	$1,235,000.00	50%*
	Electric Service/Panel Upgrade Costs:	$120,000	50%
	Administrative Costs:	$0	0%
	Total Request before Training:	$677,500	
	Total Request Cover by Grant after Training:	**$677,500**	
Total Project Costs Covered before Training (Planning & Implementation)		$677,500	
Total Project Costs Covered by Grant after Training (Planning & Implementation)		$677,500	

*Grantees who elect to participate in CEO's electrification training course receive a 5% discount on match requirement for electrification equipment costs.

COLORADO
Energy Office

PUBLIC BUILDING ELECTRIFICATION GRANT PROGRAM

Implementation Only Grant Application Form

Grant Program Overview

The Public Building Electrification Grant (PBEG) Program was created by HB 22-1362[1], to promote greenhouse gas emissions (GHGs) reductions from public buildings in the State of Colorado (State). Emissions from heating buildings are one of the five major sources of greenhouse gas pollution in the State, according to the State's Greenhouse Gas Pollution Reduction Roadmap. Furthermore, public buildings tend to be older buildings whose systems have high energy needs and high energy costs. Energy upgrades to public buildings often remain cost-prohibitive and are a lower priority than the execution of public services. In recognition of these challenges, the PBEG Program was designed to support public buildings in need of financial and technical assistance to transition fossil fuel powered HVAC systems, water heating systems, or fossil fuel-powered appliances to highly efficient electric equipment and appliances.

Projects that support electrification and energy efficiency projects for public buildings in Disproportionately Impacted, Low-Income, and/or Just Transition (DI / LI / JT) communities are highly encouraged. 30% of total grant funding is reserved for projects in DI / LI / JT communities.

Program Goals

The objectives of the PBEG Program are to:

1. Scale up beneficial electrification in projects across Colorado, specifically in DI / LI / JT communities.
2. Reduce energy consumption in public buildings in Colorado.
3. Reduce harmful indoor air pollution and greenhouse gas emissions associated with burning natural gas and other fossil fuels that disproportionately impact low-income communities.
4. Reduce energy burden for public entities, with the intent of saving money spent on energy bills and reallocating those to other public services.
5. Support State-wide adoption of Colorado's updated Energy Code.
6. Spur electrification market transformation and technology advancement to accelerate the deployment of net-zero buildings.

[1] House Bill (HB) 22-1362, the Building Greenhouse Gas Emissions Act, directed the Colorado Energy Office (CEO) to create a grant program that supports the electrification of public buildings called the Public Building Electrification Grant (PBEG) program. The development of the Grant Program is outlined in Section 24-38.5-405 of the House Bill.

Preparing your Implementation Only Grant Application

BEFORE YOU BEGIN: Please read through the PBEG Program Guidelines and Resource pages to understand the program objectives, eligibility, and requirements. To complete your application, please DOWNLOAD OR MAKE A COPY of this Google Doc and fill out all applicable fields.

To identify your community as a DI / JT / LI community for this grant funding opportunity, please:

1. Follow the guidance in the Community Identification Resource;
2. Prepare all documentation described in the resource; and
3. Provide the documentation outlined in Section 2 Community Information.

Note: A community is considered eligible for the DI / JT / LI allotment if they qualify for one or more of the community identifiers.

Implementation Only Grant Application Overview

The purpose of the grant application is to provide the Review Committee with an understanding of the applicant's proposed project, the project's commitment to full equipment electrification, any demonstrated need for funding support, and preparedness to implement the proposed project.

To submit your application and documentation, **DOWNLOAD OR MAKE A COPY of this Google Doc, fill out all applicable fields, DOWNLOAD OR MAKE A COPY of this Google Doc, fill out all applicable fields**, then follow submission instructions on the Colorado Energy Office's PBEG Grant Webpage. The applicant should review these guidelines in full prior to completing an application.

COLORADO
Energy Office

Please DOWNLOAD OR MAKE A COPY of this Google Doc and fill out all applicable fields.

1. Contact Information and Project Summary

Project Title: City of Louisville Public Library Building Electrification Retrofit

Applicant Organization/Entity: City of Louisville

Organization Type:

- State agency
- Local government
- Institution of higher education
- Special district
- School district
- Tribal government
- Other, please specify

Lead Applicant Name/Title: Kayla Betzold, Sustainability Manager

Lead Applicant Email Address: kbetzold@louisvilleco.gov

Lead Applicant Phone Number: 720-765-7006

Lead Organization Mailing Address: 749 Main Street, Louisville CO, 80027

Total Funding Amount Requested: $677,500

Estimated Total Project Cost: 1,355,000

Project Timeline (anticipated start and end dates, any potential reason for delay):

3 months for final design – anticipated start date of April 2024, anticipated completion date of December 2024 (due to supply chain constraints).

Brief Project Description (750 words):

In December 2021, the City of Louisville experienced the most destructive wildfire in the state's history, with 550 homes and businesses destroyed. Almost two years after the devastating Marshall Fire, the City of Louisville continues to rebuild. In addition to pre-disaster planning, the City is focused on improving its climate resiliency and lessening its carbon footprint. The City developed and adopted an Internal Decarbonization Plan, which includes a roadmap to decarbonization and electrification of City facilities, fleet and equipment. The roadmap's recommendations are outlined in phases – near term, mid term and long term. The near term recommendations in the Plan include energy efficiency and load reduction at all 10 facility sites, 2.3 MW of onsite solar at seven facility sites, electric vehicle charging at five facility sites and mechanical electrification at five facility sites. The five near term sites were chosen due to their equipment nearing the end of its useful life. The Louisville Public Library is one of five near term building electrification sites outlined in the Internal Decarbonization Plan and electrifying the rooftop units and domestic hot water heater at the library is an integral part of achieving the goals outlined in the Internal Decarbonization Plan and grant funding will allow the City to implement the Plan's recommendations without reduction in scope, realizing the greatest decarbonization potential.

The transition from natural gas to electric heating and water systems is a crucial step towards reducing the carbon footprint associated with energy consumption. This project not only aligns with the City's commitment to environmental stewardship but also contributes to the broader goals of the state of Colorado in addressing climate change.

The benefits of this project extend beyond energy efficiency; it also promotes cleaner air, improved indoor air quality, and a healthier environment for patrons and staff. Furthermore, the successful implementation of this grant will undoubtedly contribute to the facilities' long-term operational efficiency and cost savings, reflecting a proactive approach to managing energy needs while fostering a positive impact on the community.

2. Community Information

Description of Community Location:

County: Boulder

City/Town: Louisville

Community Population: 19,394

Disproportionately Impacted, Just Transition, and/or Low Income Communities

Are you self-identifying your community as a Disproportionately Impacted, Just Transition, or Low-Income (DI/JT/LI) Community?

Yes

No

If yes, do you anticipate needing assistance with project management or administration of the grant if awarded? *Note: DI / JT / LI communities qualify for free technical and administrative assistance if the grant is awarded.*

Yes

COLORADO Energy Office

No

[UPLOAD] If you are self-identifying your community as DI/JT/LI (checked "yes") please provide the documentation requested in the Community Identification resource, in this section, to demonstrate applicability with the DI / JT / LI requirements.

Project Narrative. Please keep answers to a 500 word limit for each question.

1. Please describe why grant funds are necessary for your community/organization/entity and if the project would be able to move forward without the grant funding.

In addition to the COVID-19 pandemic, Boulder County and the City of Louisville have experienced numerous disasters in recent years. The 2013 Flood resulted in extensive damage to residential and commercial property, as well as roads, bridges creeks and open space and the 2021 Marshall Fire was the most destructive wildfire in Colorado history, with over 1,200 structures damaged or destroyed countywide. As the City of Louisville continues to rebuild from the fire, City leadership are working to become more resilient through climate mitigation and adaptation efforts.

The first large step was the City's Internal Decarbonization Plan which includes building and infrastructure upgrades, energy efficiency, clean energy and sustainable transportation. The City is also hiring a Resiliency Program Manager and Mitigation Coordinator to further increase resiliency work within the City. Through these efforts, the City of Louisville is doing its part to prepare, mitigate and adapt to climate change and reduce the impacts of future natural disasters, while also reducing emissions in an effort to reduce the intensity and frequency of these disasters in the future. This endeavor is important, impactful and expensive.

If this project is not awarded grant funds, the City would have to significantly reduce the scope, delay the project, or look for other ways to slowly implement measures over time. CEO funding for this project will enable the project to move forward as it currently exists. This project is an unprecedented opportunity for Louisville to achieve its resiliency, facility, and climate goals while continuing to provide on-going programming services to the community of Louisville.

2. In general, how will this project benefit your community? Please include all associated co-benefits on this project.

Through electrification and EV charging, the City will adapt to potential shifts in energy sources and technology advancements and will be more resilient to fluctuating fossil fuel prices due to global economic instability. Energy efficiency measures ensure ongoing energy savings and resiliency in the face of economic uncertainty.

The project enhances the community's health and well-being by improving indoor air quality, reducing carbon emissions and upgrading building infrastructure which preserves a community resource used for programs and meetings. It improves the local economy by reducing operational costs allowing the City to allocate funds to other essential services.

Through implementation of this project, the community will be able to reduce its energy consumption, produce more clean energy on-site and reduce the reliance on gas through building electrification. As a result of the project, the City will reduce GHG emissions, reduce current and future utility costs, lessen global warming, and -in turn - produce a healthier environment for present and future generations. In addition, this project focuses on extending the life of the current facilities within Louisville versus building new which produces less embodied carbon and fewer lifecycle carbon emissions. It enhances project benefits by providing sustainable improvements for both present and future generations to enjoy.

During the bidding of the project's scope of work, all subcontractors in the local community will be encouraged to respond, including smaller companies that may be more at-risk due to the financial impacts of climate change. This project will help to promote social equity of clean energy across the Louisville community by sharing knowledge and education of the process and helping to make the transition to a clean energy economy a more holistic, state-wide solution. By preserving and enhancing a key publicly accessible community hub, Louisville will be providing equitable access and maintaining resources within the library for all residents and community members – regardless of background.

3. Are you working to achieve any sustainability goals or to implement strategies from other community plans (such as a comprehensive plan, etc)?

In 2019, City Council advanced its commitment to climate action by unanimously adopting Resolution 25-2019, setting clean energy and carbon emission reduction goals for the municipality and larger community. The municipal climate action goals are as follows:

- Meet all of Louisville’s municipal electric needs with 100% carbon-free sources by 2025
- Reduce core municipal greenhouse gas (GHG) emissions annually below the 2016 baseline through 2025 (2016 baseline is 4,016 mtCO2)

As of March 2020, all City facility electricity comes from carbon-free sources, which is supplied as a premium charge added to each premise’s monthly electricity consumption through utility billing (Renewable*Connect and Windsource). City facilities also participate in community solar gardens in Boulder and Weld counties and on-site solar at the Water and Wastewater Treatment Plants.

Currently, the City is not meeting the municipal goal to decrease GHG emissions from building energy use and fleet fuel annually from the 2016 baseline. In 2022, municipal greenhouse gas emissions associated with building energy use and fleet fuel decreased, but are significantly higher than the baseline year of 2016, likely due to the Recreation Center expansion in 2018.

The City's Strategic Plan calls out 'Complete and implement Internal Decarbonization Plan for City facilities, fleet and equipment in an effort to support the City's renewable energy and carbon emission reduction goals and to serve as a role model for the community' as a priority initiative. The 2023 City Council Work Plan identifies 'City climate change/greenhouse gas reduction initiatives' as a high priority with "Completion and implementation of the Internal Decarbonization Plan" listed.

The City's adopted Sustainability Action Plan lists several energy, climate and transportation goals that are being achieved through the creation and implementation of the Internal Decarbonization Plan.

Required Uploads

- DI/JT/LI documentation, if applicable.

3. Building Information

[UPLOAD] Please fill out the spreadsheet titled "Building Information Spreadsheet" with the following information for the proposed project:

- Property Street Address
- Utility companies serving the building for natural gas and electricity.
- Description of the current facility:
    - Uses / Occupancy Type
    - Age of Building
    - Building square footage
    - Fuel Types Used
    - HVAC System - Space Heating
    - HVAC System - Domestic Water Heating
    - Other Applicable Gas-Fueled Appliance(s)
    - Note any retrofits or equipment upgrades within the last 10 years, if known or applicable.
- Description of the all electric systems that will be installed with the grant funding.
    - Note if electric service upgrades will be needed for the building to complete the project.
        - Electric panel upgrade.
        - Electric utility service upgrade.

[UPLOAD] Provide 12 Months of Energy Bills. Provide bills from Gas, Propane, Electricity, or other energy source providers. This can be in spreadsheet form or you may submit PDFs of the energy bills. Ensure all uploaded documents are clearly titled.

[UPLOAD] Natural Gas and Electric Rates: Gas and electric rate documentation (if not included in the 12 months of Energy Bills submitted).

[UPLOAD] All-Electric Systems Information: Please fill out the tab in the "Building Information Spreadsheet" titled "All-Electric Systems Information Spreadsheet" to provide information on the all-electric systems you are installing for the project.

Required Uploads

- Building Information Spreadsheet.
- 12 months of Energy Bills (electric, natural gas, propane, stationary diesel, etc).
- Gas and Electric Rate Documentation if not included in the 12 months of Energy Bills submitted.
- All-Electric Systems Information Spreadsheet.

4. Project Details

Electrification Project Scope

[UPLOAD] Provide all energy audits of ASHRAE Level II or equivalent or analysis completed for the project that evaluated the electrification of fossil gas equipment and/or any electric-service and electric-panel upgrades.

[UPLOAD] Submit documentation that justifies the selected size and type of equipment or installation with the quote. This may include but is not limited to an energy audit, a report from an energy analyst, or a set of Manual J calculations.

Provide a description in narrative form of the full project scope including which electrification measures will be implemented and electric service upgrades needed if applicable. (750 word limit)

Through this PGEB funded project at the Louisville Public Library, the City will transition two natural gas 80% efficient rooftop units (RTU) to two 50-ton air to air heat pump RTUs. One of the heat pump RTUs will have a coefficient of performance (COP) of 3.33 with heat recovery at 47 degrees Fahrenheit and the second heat pump RTU will have a COP of 3.18 with heat recovery at 17 degrees Fahrenheit. Additionally, a natural gas 80% efficient domestic hot water heater will be transitioned to an 80 gallon, 18kW electric water heater with a COP of 1 with electric resistance backup heating. Since the City will not be electrifying the natural gas boiler, a service upgrade is not needed at the site at this time.

Additional Energy Work within Project Scope

For each facility in the proposed project, please describe if the project will be paired with renewable energy, energy storage, and/or other energy efficiency improvements. If so, please describe those improvements here and attach any relevant documentation. (500 word limit, and/or **UPLOAD)**

There are several other aspects of decarbonization at the public library site that will be implemented in conjunction with the mechanical electrification. The following energy efficiency and load reduction measures will be implemented: variable frequency drives, snow melt system retro-commissioning, controls optimization/retro-commissioning, duct air sealing/insulation, envelope air sealing, lighting controls/vacancy sensors, advanced plug load reduction. Additionally, a 128 kW-DC flat roof solar system will be installed on the roof to further decarbonization efforts and produce renewable electricity onsite.

Energy Performance Contracting

Are you planning on pairing grant funding with EPC financing?

Yes

No

Implementation Project Team

Who will be involved in the implementation project? List any contractors, facilities managers, building owners, etc. along with relevant certifications and/or licenses (if applicable).

[UPLOAD] You may either fill out the table below or upload a document with your project team's information.

Project Team Member	Role	Company/ Organization	Certification/ Licenses (if applicable)
Kayla Betzold	Sustainability Manager/Project Manager	City of Louisville	
Kevin Frey	Facilities	City of Louisville	

	Superintendent/Project Manager		
Kurt Kowar	**Public Works Director**	**City of Louisville**	
ESCO	**Construction management**	**TBD**	
Ryder Bailey	**Finance Director**	**City of Louisville**	

Commissioning Plan

Project commissioning is not required but highly encouraged. If you are pursuing commissioning, please provide the following detail.

Name of Certified Commissioning Agent: TBD

Timeline for Commissioning: 2024

Systems being Commissioned: Commissioning will be completed after installation of the electric units through the EPC.

[UPLOAD] Commissioning Plan.

Additional Relevant Information

Note: Projects that do not provide information in this section will not be penalized.

1. Is there any additional information that will assist the Evaluation Committee in understanding the proposed project and need? (500 word limit)

2. **[UPLOAD]** Please attach any additional documents that would support your application (i.e., design documents, energy analysis, letters of recommendation, letters of support, etc.) and include a brief description of the documents attached. (500 word limit)

Required Uploads

- Energy Audit or Analysis (ASHRAE Level II or equivalent).

- Size and Type of Electric Systems Justification Report.
- Commissioning Plan, if applicable.
- Project team documentation, if not filling out the provided table.
- Any additional documents that support your application.

5. Project Budget

Project Budget

[UPLOAD] Complete the "Project Budget" Spreadsheet and upload it.

> **DI / LI / JT Communities**
> DI / LI / JT Applicants may have up to 40 hours of administrative time covered under the Implementation Grant. Please provide details on the administrative cost and the number of hours needed. Note, there cannot be double counting between administrative time covered with grant funding and any in-kind support that contributes to the community match.

[UPLOAD] Please attach a quote(s) and all specification sheets for the proposed high-efficiency electric equipment and/or any electric service and electric-panel upgrades necessary for project execution. You must include at least two (2) quotes per service or equipment type, as applicable, and must indicate which vendor was selected to perform the work.

[UPLOAD] Confirmation a project team member has signed up or completed the Electrification Training for the match contribution.

Required Uploads

- Project Budget Form.
- Project Quotes/Estimates.
- Equipment Specification Sheets.
- Confirmation of Electrification Training.

COLORADO
Energy Office

6. Required Uploads for Supporting Documentation

Supporting Uploads and Documentation

Please ensure all the following documents have been attached to your application:

Section 2: DI/JT/LI documentation, if applicable.
Section 3: Building Information Spreadsheet.
Section 3: 12 months of Energy Bills (electric, natural gas, propane, stationary diesel, etc).
Section 3: Gas and Electric Rate Documentation if not included in the 12 months of Energy Bills submitted.
Section 3: All-Electric Systems Information Spreadsheet.
Section 4: Energy Audit or Analysis (ASHRAE Level II or equivalent)
Section 4: Size and Type Justification Analysis if information is not included in the energy audit.
Section 4: Commissioning Plan, if applicable.
Section 4: Any additional documents that support your application.
Section 4: Project team documentation, if not filling out the provided table.
Section 5: Project Budget Form.
Section 5: Project Quotes/Estimates.
Section 5: Equipment Specification Sheets.
Section 5: Confirmation of Electrification Training.

COLORADO
Energy Office

7. Reporting Plan and Final Documentation - Implementation

Reporting Plan

Briefly describe the plan for grant reporting, including roles, responsibilities, and methods. If you are self-identifying your community as a DI/JT/LI community and plan to use grant funding to cover administrative costs, be sure to include the estimated administrative costs associated with grant reporting in the project budget. (500 word limit)

If awarded funding, the City of Louisville team will effectively manage the grant reporting and community progress and outcomes to the Colorado Energy Office. Kayla Betzold will act as the Project Manager and will oversee the project and its reporting. Kayla will compile information, ensure accuracy and provide a comprehensive overview of the project status and outcomes. Kayla will also be the City of Louisville point of contact and will communicate with other city team members through the project. Ryder Bailey and his Finance team will be responsible for providing accurate financial data related to grant expenditures and other financial documentation required by the state. Kevin Frey and the Public Works team will be directly involved with the project's implementation and will provide details about project activities, milestones achieved, challenges faced and success stories.

Upon completion of the project, the following documentation will be required:

1. Final budget sheet including all project expenses and matched income.
2. Legible copies of all sales/invoices showing the purchase price and amount paid by the applicant for the PBEG equipment and installation, the number and type of units purchased, and the coefficient of performance or efficiency rating for all units purchased.
3. Date(s) of installation, installation completion, and when the units were operational.
4. If available, energy use data/energy bills for each building for the months following the installation of the high-efficiency electric equipment.

To submit documentation, follow submission instructions on the [Colorado Energy Office's PBEG Grant Program webpage.]

Attachment E: Professional Services Agreement

INDEPENDENT CONTRACTOR AGREEMENT
BY AND BETWEEN THE CITY OF LOUISVILLE
AND ______________________________
FOR ______________ SERVICES

1.0 PARTIES

This INDEPENDENT CONTRACTOR AGREEMENT (this "Agreement") is made and entered into this _____ day of ____________, 20__ (the "Effective Date"), by and between the **City of Louisville**, a Colorado home rule municipal corporation, hereinafter referred to as the "City", and ______________________, [Name of Contractor] a ________________________[State of Formation and Type of Entity], hereinafter referred to as the "Contractor".

2.0 RECITALS AND PURPOSE

2.1 The City desires to engage the Contractor for the purpose of providing ________________________ services as further set forth in the Contractor's Scope of Services set forth in Section 3.0 of this Agreement (which services are hereinafter referred to as the "Services").

2.2 The Contractor represents that it has the special expertise, qualifications and background necessary to complete the Services.

3.0 SCOPE OF SERVICES

The Contractor agrees to provide the City with the specific Services and to perform the specific tasks, duties and responsibilities set forth in Scope of Services attached hereto as Exhibit "A" and incorporated herein by reference. Contractor shall furnish all tools, labor and supplies in such quantities and of the proper quality as are necessary to professionally and timely perform the Services. Contractor acknowledges that this Agreement does not grant any exclusive privilege or right to supply Services to the City.

4.0 COMPENSATION

4.1 The City shall pay the Contractor for Services under this Agreement a total not to exceed the amounts set forth in Exhibit "A" attached hereto and incorporated herein by this reference. For Services compensated at hourly or per unit rates, or on a per-task basis, such rates or costs per task shall not exceed the amounts set forth in Exhibit A. The City shall not pay mileage and other reimbursable expenses (such as meals, parking, travel expenses, necessary memberships, etc.), unless such expenses are (1) clearly set forth in the Scope of Services, and (2) necessary for performance of the Services ("Pre-Approved Expenses"). The foregoing amounts of compensation shall be inclusive of all costs of whatsoever nature associated with the Contractor's efforts, including but not limited to salaries, benefits, overhead, administration, profits, expenses, and outside Contractor fees. The Scope of Services and payment therefor shall only be changed by a properly authorized amendment to this Agreement. No City employee has the authority to bind the City with regard to any payment for any Services which exceeds the amount payable under the terms of this Agreement.

4.2 The Contractor shall submit monthly an invoice to the City for Services rendered and a detailed expense report for Pre-Approved Expenses incurred during the previous month.

The invoice shall document the Services provided during the preceding month, identifying by work category and subcategory the work and tasks performed and such other information as may be required by the City. The Contractor shall provide such additional backup documentation as may be required by the City. The City shall pay the invoice within thirty (30) days of receipt unless the Services or the documentation therefor are unsatisfactory. Payments made after thirty (30) days may be assessed an interest charge of one percent (1%) per month unless the delay in payment resulted from unsatisfactory work or documentation therefor.

5.0 PROJECT REPRESENTATION

5.1 The City designates __________________ as the responsible City staff to provide direction to the Contractor during the conduct of the Services. The Contractor shall comply with the directions given by ________________ and such person's designees.

5.2 The Contractor designates _____________ as its project manager and as the principal in charge who shall be providing the Services under this Agreement. Should any of the representatives be replaced, particularly ________________, and such replacement require the City or the Contractor to undertake additional reevaluations, coordination, orientations, etc., the Contractor shall be fully responsible for all such additional costs and services.

6.0 TERM

6.1 The term of this Agreement shall be from the Effective Date to ___________________, 20___, unless sooner terminated pursuant to Section 13, below. The Contractor's Services under this Agreement shall commence on [(the Effective Date) or (on another date desired by the City, after the Effective Date)] and Contractor shall proceed with diligence and promptness so that the Services are completed [in a timely fashion consistent with the City's requirements] [on or before ___________________].

6.2 Nothing in this Agreement is intended or shall be deemed or construed as creating any multiple-fiscal year direct or indirect debt or financial obligation on the part of the City within the meaning of Colorado Constitution Article X, Section 20 or any other constitutional or statutory provision. All financial obligations of the City under this Agreement are subject to annual budgeting and appropriation by the Louisville City Council, in its sole discretion. Notwithstanding anything in this Agreement to the contrary, in the event of non-appropriation, this Agreement shall terminate effective December 31 of the then-current fiscal year.

7.0 INSURANCE

7.1 The Contractor agrees to procure and maintain, at its own cost, the policies of insurance set forth in Subsections 7.1.1 through 7.1.4. The Contractor shall not be relieved of any liability, claims, demands, or other obligations assumed pursuant to this Agreement by reason of its failure to procure or maintain insurance, or by reason of its failure to procure or maintain insurance in sufficient amounts, durations, or types. The coverages required below shall be procured and maintained with forms and insurers acceptable to the City. All coverages shall be continuously maintained from the date of commencement of Services hereunder. The required coverages are:

7.1.1 Workers' Compensation insurance as required by the Labor Code of the State of Colorado and Employers Liability Insurance. Evidence of qualified self-insured status may be substituted.

7.1.2 General Liability insurance with minimum combined single limits of $1,000,000 each occurrence and $2,000,000 aggregate. The policy shall include the City of Louisville, its officers and its employees, as additional insureds, with primary coverage as respects the City of Louisville, its officers and its employees, and shall contain a severability of interests provision.

7.1.3 Comprehensive Automobile Liability insurance with minimum combined single limits for bodily injury and property damage of not less than $400,000 per person in any one occurrence and $1,000,000 for two or more persons in any one occurrence, and auto property damage insurance of at least $50,000 per occurrence, with respect to each of Contractor’s owned, hired or non-owned vehicles assigned to or used in performance of the Services. If the Contractor has no owned automobiles, the requirements of this paragraph shall be met by each officer or employee of the Contractor providing services to the City of Louisville under this contract.

7.2 The Contractor’s general liability insurance and automobile liability and physical damage insurance shall be endorsed to include the City, and its elected and appointed officers and employees, as additional insureds, unless the City in its sole discretion waives such requirement. Every policy required above shall be primary insurance, and any insurance carried by the City, its officers, or its employees, shall be excess and not contributory insurance to that provided by the Contractor. Such policies shall contain a severability of interests provision. The Contractor shall be solely responsible for any deductible losses under each of the policies required above.

7.3 Certificates of insurance shall be provided by the Contractor as evidence that policies providing the required coverages, conditions, and minimum limits are in full force and effect, and shall be subject to review and approval by the City. No required coverage shall be cancelled, terminated or materially changed until at least 30 days prior written notice has been given to the City. The City reserves the right to request and receive a certified copy of any policy and any endorsement thereto.

7.4 Failure on the part of the Contractor to procure or maintain policies providing the required coverages, conditions, and minimum limits shall constitute a material breach of contract upon which the City may immediately terminate this Agreement, or at its discretion may procure or renew any such policy or any extended reporting period thereto and may pay any and all premiums in connection therewith, and all monies so paid by the City shall be repaid by Contractor to the City upon demand, or the City may offset the cost of the premiums against any monies due to Contractor from the City.

7.5 The parties understand and agree that the City is relying on, and does not waive or intend to waive by any provision of this contract, the monetary limitations or any other rights, immunities, and protections provided by the Colorado Governmental Immunity Act, § 24-10-101 et seq., C.R.S., as from time to time amended, or otherwise available to the City, its officers, or its employees.

8.0 INDEMNIFICATION

To the fullest extent permitted by law, the Contractor agrees to indemnify and hold harmless the City, and its elected and appointed officers and its employees, from and against all liability, claims, and demands, on account of any injury, loss, or damage, which arise out of or are connected with the Services hereunder, if such injury, loss, or damage is caused by the negligent act, omission, or other fault of the Contractor or any subcontractor of the Contractor, or any officer, employee, or agent of the Contractor or any subcontractor, or any other person for whom Contractor is responsible. The Contractor shall investigate, handle, respond to, and provide defense for and defend against any such liability, claims, and demands. The Contractor shall further bear all other costs and expenses incurred by the City or Contractor and related to any such liability, claims and demands, including but not limited to court costs, expert witness fees and attorneys' fees if the court determines that these incurred costs and expenses are related to such negligent acts, errors, and omissions or other fault of the Contractor. The City shall be entitled to its costs and attorneys' fees incurred in any action to enforce the provisions of this Section 8.0. The Contractor's indemnification obligation shall not be construed to extend to any injury, loss, or damage which is caused by the act, omission, or other fault of the City.

9.0 QUALITY OF WORK

Contractor's Services shall be performed in accordance with the highest professional workmanship and service standards in the field to the satisfaction of the City.

10.0 INDEPENDENT CONTRACTOR

It is the expressed intent of the parties that the Contractor is an independent contractor and not the agent, employee or servant of the City, and that:

10.1. **CONTRACTOR SHALL SATISFY ALL TAX AND OTHER GOVERNMENTALLY IMPOSED RESPONSIBILITIES INCLUDING, BUT NOT LIMITED TO, PAYMENT OF STATE, FEDERAL AND SOCIAL SECURITY TAXES, UNEMPLOYMENT TAXES, WORKERS' COMPENSATION AND SELF-EMPLOYMENT TAXES. NO STATE, FEDERAL OR LOCAL TAXES OF ANY KIND SHALL BE WITHHELD OR PAID BY THE CITY.**

10.2. **<u>CONTRACTOR IS NOT ENTITLED TO WORKERS' COMPENSATION BENEFITS EXCEPT AS MAY BE PROVIDED BY THE INDEPENDENT CONTRACTOR NOR TO UNEMPLOYMENT INSURANCE BENEFITS UNLESS UNEMPLOYMENT COMPENSATION COVERAGE IS PROVIDED BY THE INDEPENDENT CONTRACTOR OR SOME ENTITY OTHER THAN THE CITY.</u>**

10.3. Contractor does not have the authority to act for the City, or to bind the City in any respect whatsoever, or to incur any debts or liabilities in the name of or on behalf of the City.

10.4. Contractor has and retains control of and supervision over the performance of Contractor's obligations hereunder and control over any persons employed by Contractor for performing the Services hereunder.

10.5. The City will not provide training or instruction to Contractor or any of its employees regarding the performance of the Services hereunder.

10.6. Neither the Contractor nor any of its officers or employees will receive benefits of any type from the City.

10.7. Contractor represents that it is engaged in providing similar services to other clients and/or the general public and is not required to work exclusively for the City.

10.8. All Services are to be performed solely at the risk of Contractor and Contractor shall take all precautions necessary for the proper and sole performance thereof.

10.9. Contractor will not combine its business operations in any way with the City's business operations and each party shall maintain their operations as separate and distinct.

11.0 ASSIGNMENT

Contractor shall not assign or delegate this Agreement or any portion thereof, or any monies due to or become due hereunder without the City's prior written consent.

12.0 DEFAULT

Each and every term and condition hereof shall be deemed to be a material element of this Agreement. In the event either party should fail or refuse to perform according to the terms of this Agreement, such party may be declared in default.

13.0 TERMINATION

13.1 This Agreement may be terminated by either party for material breach or default of this Agreement by the other party not caused by any action or omission of the other party by giving the other party written notice at least thirty (30) days in advance of the termination date. Termination pursuant to this subsection shall not prevent either party from exercising any other legal remedies which may be available to it.

13.2 In addition to the foregoing, this Agreement may be terminated by the City for its convenience and without cause of any nature by giving written notice at least fifteen (15) days in advance of the termination date. In the event of such termination, the Contractor will be paid for the reasonable value of the Services rendered to the date of termination, not to exceed a pro-rated daily rate, for the Services rendered to the date of termination, and upon such payment, all obligations of the City to the Contractor under this Agreement will cease. Termination pursuant to this Subsection shall not prevent either party from exercising any other legal remedies which may be available to it.

14.0 INSPECTION AND AUDIT

The City and its duly authorized representatives shall have access to any books, documents, papers, and records of the Contractor that are related to this Agreement for the purpose of making audits, examinations, excerpts, and transcriptions.

15.0 DOCUMENTS

All computer input and output, analyses, plans, documents photographic images, tests, maps, surveys, electronic files and written material of any kind generated in the performance of this Agreement or developed for the City in performance of the Services are and shall remain the sole and exclusive property of the City. All such materials shall be promptly provided to the City upon request therefor and at the time of termination of this Agreement, without further charge or expense to the City and in hardcopy or an electronic format acceptable to the City, or both, as the City shall determine. Contractor shall not provide copies of any such material to any other party without the prior written consent of the City. Contractor shall not use or disclose confidential information of the City for purposes unrelated to performance of this Agreement without the City's written consent.

16.0 ENFORCEMENT

16.1 In the event that suit is brought upon this Agreement to enforce its terms, the parties shall each bear and be responsible for their own attorneys' fees and court costs.

16.2 This Agreement shall be deemed entered into in Boulder County, Colorado, and shall be governed by and interpreted under the laws of the State of Colorado. Any action arising out of, in connection with, or relating to this Agreement shall be filed in the courts of Boulder County or the federal district court for the District of Colorado, and in no other court. [If out of state contractor: Contractor hereby waives its right to challenge the personal jurisdiction of the courts of Boulder County and the federal district court for the District of Colorado over it.] Colorado law shall apply to the construction and enforcement of this Agreement.

17.0 COMPLIANCE WITH LAWS

Contractor shall be solely responsible for compliance with all applicable federal, state, and local laws, including the ordinances, resolutions, rules, and regulations of the City; for payment of all applicable taxes; and obtaining and keeping in force all applicable permits and approvals.

18.0 INTEGRATION AND AMENDMENT

This Agreement represents the entire Agreement between the parties and there are no oral or collateral agreements or understandings. This Agreement may be amended only by an instrument in writing signed by the parties.

19.0 NOTICES

All notices required or permitted under this Agreement shall be in writing and shall be given by hand delivery, by United States first class mail, postage prepaid, registered or certified, return receipt requested, by national overnight carrier, or by email transmission, addressed to the party for whom it is intended at the following address:

If to the City:

City of Louisville
Attn: _____________
749 Main Street
Louisville, CO 80027
e-mail: ____________________

If to the Contractor:

____
____
____
____

Except for notices by email transmission, any notice required or permitted under this Agreement shall be effective when received as indicated on the delivery receipt, if by hand delivery or overnight carrier; on the United States mail return receipt, if by United States mail. Notices by email transmission shall be effective on transmission, so long as no message of error or non-receipt is received by the party giving notice. Either party may by similar notice given, change the address to which future notices or other communications shall be sent.

20.0 EQUAL OPPORTUNITY EMPLOYER

a) Contractor will not discriminate against any employee or applicant for employment because of age 40 and over, race, sex, color, religion, national origin, disability, genetic information, sexual orientation, veteran status, or any other applicable status protected by state or local law. Contractor will take affirmative action to ensure that applicants are employed and that employees are treated during employment without regard to any status set forth in the preceding sentence. Such action shall include but not be limited to the following: employment, upgrading, demotion or transfer, recruitment or recruitment advertising, layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. Contractor agrees to post in conspicuous places, available to employees and applicants for employment, notice to be provided by an agency of the federal government, setting forth the provisions of the Equal Opportunity Laws.

b) Contractor shall be in compliance with the applicable provisions of the American with Disabilities Act as enacted and from time to time amended and any other applicable federal, state, or local laws and regulations. A signed, written certificate stating compliance with the Americans with Disabilities Act may be requested at any time during the life of this Agreement or any renewal thereof.

21.0 NO THIRD PARTY BENEFICIARIES

It is expressly understood and agreed that enforcement of the terms and conditions of this Agreement, and all rights of action relating to such enforcement, shall be strictly reserved to City and Contractor, and nothing contained in this Agreement shall give or allow any such claim or right of action by any other third party on such Agreement. It is the express intention of the parties that any person other than City or Contractor receiving services or benefits under this Agreement shall be deemed to be an incidental beneficiary only.

22.0 SUBCONTRACTORS

Contractor may utilize subcontractors identified in its qualifications submittal to assist with non-specialized works as necessary to complete projects. Contractor will submit any proposed subcontractor and the description of its services to the City for approval. The City will not work directly with subcontractors.

23.0 AUTHORITY TO BIND

Each of the persons signing below on behalf of any party hereby represents and warrants that such person is signing with full and complete authority to bind the party on whose behalf of whom such person is signing, to each and every term of this Agreement.

In witness whereof, the parties have executed this Agreement to be effective as of the day and year first above written.

CITY OF LOUISVILLE

By:______________________________
Chris Leh, Mayor

Attest:__________________________
Genny Kline, Interim City Clerk

CONTRACTOR:
____

By:_____________________________
Title:____________________________