

**CPRG Implementation Grants Competition
COVER PAGE FOR APPLICATION**

APPLICANT INFORMATION

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TYPE OF APPLICATION ☒ Individual Applicant ☐ Lead Applicant for a Coalition

FUNDING REQUESTED: \$500,000,000

APPLICATION TITLE: Pole Position – Putting Small Town America in the Driver’s Seat of the EV Revolution: The Bainbridge EV Supply Chain Accelerator Fund to Support the Manufacture of Raw Materials and Intermediate and Finished Products for the Domestic EV Supply Chain

BRIEF DESCRIPTION OF GHG MEASURES:

Measure 1: Creation of Bainbridge EV Supply Chain Accelerator Fund to stoke the manufacture of raw materials and intermediate and finished products to provide the supplies necessary to support EV uptake through access to enabling capital, financing, and coordination.

The current domestic supply of raw materials and intermediate products needed to ensure the uptake of electric vehicles (EVs) is not materializing at the pace and scale necessary to meet the state and national EV market share targets required to meet the massive portion of GHG emission reductions on which Georgia’s and the entire nation’s climate targets depend. The challenge includes building an EV supply chain from scratch in a matter of years versus decades, not only to catch up with but to outcompete incumbents who have had the backing of authoritarian regimes and who have been allowed to ignore environmental and human rights protections. Challenges like these are where America thrives, and Bainbridge is in a position to do the hard work needed to take on this challenge and put the U.S. EV raw material and component industry into a position of strength.

Bainbridge, GA, a primarily rural community designated as a low income and disadvantaged community (LIDAC), is pivotally located and equipped to serve as the linchpin for Georgia and the U.S.’s entire EV strategy. Funding at the levels requested from the CPRG program will make it possible for Bainbridge to assure that the EV supply chain is built in time and at the scale needed to meet U.S. production targets. This project will design and operate a fund to play this pivotal role by financing domestic manufacturing operations, and/or providing direct capital to EV-related manufacturing facilities currently located in Bainbridge or which Bainbridge is working to attract. The fund will be managed in a highly strategic way so as to accelerate production of low-GHG footprint materials from Bainbridge-incumbent manufacturers and attract new manufacturers and facilities to create a cluster of material suppliers to hasten EV production and adoption as envisioned in Georgia’s Voluntary Emission Reduction Plan.

The **Bainbridge EV Supply Chain Accelerator Fund’s** (the “**Bainbridge Accelerator Fund’s**”) primary purposes will be to (1) accelerate construction timelines and hence auto manufacturers’ access to American-sourced materials by filling financing gaps, (2) drive down the EV emissions footprint by

providing access to funds to decarbonize industrial process(es) at Bainbridge manufacturing facilities that supply national EV markets and by ensuring access to distributed renewable energy resources, and (3) enable access to the utilization of new technologies and processes, such as re-using waste heat or taking advantage of other externalities to produce electricity either for the manufacturing facilities' own consumption or for contribution to and supplementation of the local grid, which has benefits in terms of reliability and resiliency in the face of climate change and addresses increasing demands of the power sector which is striving to keep up with increased demand owing to electrification, the need to rapidly industrialize, and the proliferation of data centers while meeting ambitious GHG reduction targets.

Of singular focus for the fund will be standing up the American EV supply chain, without which U.S. climate targets cannot be met. By providing the level of support requested, heretofore absent from the policy toolbox, the **Bainbridge Accelerator Fund** will be equipped with the wherewithal to address the single biggest impediment to meeting GHG reduction targets related to the transportation sector, which is the lack of affordable and accessible American-sourced raw materials and EV components needed to bring affordable EVs to market. By driving down the cost to produce EVs, a major impediment to U.S. auto suppliers and EV uptake generally, will be removed. Moreover, a battery supply chain more focused on reduction of GHG emissions from within will improve the overall footprint contributed by the automotive market by driving increased adoption of EVs which in turn will also lower the GHG profile of the overall effort. The Fund will have the discretion to provide grants or loans, depending on the particular needs and circumstances of the business(es) and project(s) involved.

SECTORS:

- ☐ Industry ☐ Commercial and Residential Buildings
☐ Electricity Generation ☐ Agriculture/Natural and Working Lands
☒ Transportation ☐ Waste and Materials Management
☐ Other (please describe)

EXPECTED TOTAL CUMULATIVE GHG EMISSION REDUCTIONS

Estimated cumulative GHG reductions for 2025-2030 (in metric tons): 1,554,167 mtCO_{2e}

Estimated cumulative GHG reductions from 2025-2050 (in metric tons): 27,974,785 mtCO_{2e}

LOCATIONS: City of Bainbridge, Georgia, Decatur County, Georgia

APPLICABLE PRIORITY CLIMATE ACTION PLAN(S) (PCAP) REFERENCES

PCAP Lead Organization(s): Georgia

PCAP Title(s): Peach State Voluntary Emission Reduction Plan

PCAP Website link(s) (if applicable): <https://epd.georgia.gov/georgia-climate-pollution-reduction-grant>

List of GHG reduction measures and PCAP page reference for each measure:

Measure	PCAP Title(s) and Page Numbers
Manufacture of raw materials and intermediate and finished products to provide the supplies necessary to support EV uptake through access to enabling capital, financing, and coordination	Peach State Voluntary Emission Reduction Plan, page 31 – 32; page 36-37

WORKPLAN NARRATIVE [limited to 25 pages]

1. OVERALL PROJECT SUMMARY AND APPROACH

The City of Bainbridge proposes to create the **Bainbridge EV Supply Chain Accelerator Fund** to reduce greenhouse gas (GHG) emissions through lowering emissions across the supply chain and increasing EV adoption. Roles and responsibilities of each coalition member are described in Table 1.

Table 1 Coalition Roles and Responsibilities

Entity	Roles and Responsibilities
City of Bainbridge	<ul style="list-style-type: none">• Issuing subawards to subrecipients, and/or contractors or vendors in accordance with EPA's Subaward Policy• Coordinating on the selection of a program administrator through a competitive procurement process• Overseeing subrecipients, and/or contractors and vendors• Tracking and reporting on project progress on expenditures and purchases• Tracking, measuring, and reporting accomplishments on proposed timelines and milestones• Submitting semi-annual progress reports on grant implementation and planned activities to EPA• Submitting detailed final report to EPA within 120 calendar days of the completion of the period of performance• Community and stakeholder outreach and education within the City of Bainbridge

a. Description of GHG Reduction Measures

Measure 1: Creation of Bainbridge EV Supply Chain Accelerator Fund to stoke the manufacture of raw materials and intermediate and finished products to provide the supplies necessary to support EV uptake through access to enabling capital, financing, and coordination.

The City of Bainbridge proposes to establish a \$500M fund (the “**Bainbridge EV Supply Chain Accelerator Fund**” or the “**Bainbridge Accelerator Fund**”) specifically designed and dedicated to the financing of large-scale initiatives that will accelerate and reduce the cost of the manufacturing of raw materials, intermediate, and finished products necessary for the uptake of Electric Vehicles (EVs) and to reduce the carbon footprint associated with those materials and products to achieve a lower carbon intensity across the domestic supply chain. The Fund will be designed to strategically address gaps in financing that are causing significant delays in plant construction, which lead to lack of availability of material and parts production required by EV battery and vehicle manufacturers, a problem similar to the supply chain issues faced by manufacturers during the COVID outbreak. The Bainbridge Accelerator Fund also will be available for helping material and parts manufacturers access renewable distributed energy resources and waste-heat re-use, technological advancements in industrial processes, and capacity building to make them more resilient to climate change, stabilize energy costs and access to power in the face of massive load growth, and be more competitive by offering materials that drive down the overall GHG emissions profile of EVs at a lower cost.

The Bainbridge Accelerator Fund takes into account the need to realize industrialization without creating more greenhouse gas emissions. Thus, the Fund will prioritize those projects that will make it possible to avoid new energy loads or reduce energy demand while increasing manufacturing capability. This measure is in alignment with Georgia’s Peach State Voluntary Emission Reduction Plan, Measure 1.5:

Manufacturing of raw materials and intermediate and finished products to support EV uptake. Depending on whether funds are used to decarbonize industrial processes through increased renewable energy adoption, the measure may also support Georgia's Peach State Voluntary Emission Reduction Plan, Measure 3.2 Increasing renewable energy.¹

This measure is a critical priority, because (1) it represents significant, long term GHG emissions reductions in Georgia and across the United States, and (2) it increases capacity for the manufacture of key domestic content for EVs, which accelerates the achievement of U.S. policy to build an economically competitive EV material supply chain and enhances national security by ensuring the U.S. transportation sector is not reliant upon raw materials and products from "foreign entities of concern" that currently dominate critical mineral production and processing. This measure was selected as a priority because the State of Georgia anticipates that manufacturing products to support EV uptake will account for the largest potential GHG emissions reduction to meet the state's climate ambitions as well as U.S. climate targets, accounting for a reduction of 160,048,000 mtCO₂e or 21.9% of Georgia's potential GHG emissions reductions by 2050² and facilitating the anticipated 384,000,000 mtCO₂e GHG emission reductions by 2030 from the transition to EVs³ under the Administration's latest targets.⁴ Access to capital for supply chain participants that are focused on reduced GHG emissions will drive a significant improvement in emissions; while this Fund represents a portion of that anticipated reduction, we calculate that the financing and grants provided by the Bainbridge Accelerator Fund will yield up to 27,974,785 mtCO₂e by 2050 (see Technical Appendix).

The estimated reductions result from both lower GHG emissions in the domestic manufacture of raw materials as well as the lowering of the cost of raw materials and inputs, making them cheaper and accelerating their uptake by original equipment manufacturers (OEMs). The lower costs of materials will in turn be reflected in lower cost of EVs, helping to drive demand for EVs generally and accelerate EV uptake, a fundamental aspect of the U.S.' climate strategy.

It cannot be understated that key and significant investments in low-carbon intensity EV material manufacturing are vital to the achievement of U.S. GHG emissions reductions targets and must be made to achieve climate goals. To illustrate this fact, Bainbridge has studied synthetic graphite, a crucial material for EV batteries and a material that the company Anovion intends to manufacture in Bainbridge. Graphite represents 25-28% of EV lithium-ion batteries by weight. Seizing U.S. graphite manufacturing capability ensures several important GHG emission reduction outcomes. With respect to driving down graphite's carbon footprint, by domestically producing graphite, the per volume carbon intensity of graphite would be reduced by 50% as compared to non-U.S. (mostly Chinese) supplies, from 23.4 kg CO₂e per kg anode-grade graphite currently manufactured in China⁵ and dominating the domestic supply chain to 11.7 kg CO₂e per kg anode-grade graphite. Given that a single facility in the U.S. could manufacture up to 40,000 metric tons of graphite annually, enough to produce approximately 500,000 EV batteries in a year, the CPRG-facilitated Bainbridge Accelerator Fund could achieve emission reductions of 8,775,000 mtCO₂e by

¹ State of Georgia, [Peach State Voluntary Emission Reduction Plan](#).

² State of Georgia, [Peach State Voluntary Emission Reduction Plan](#), at 24-25.

³ Extrapolating from [Woody et al. 2023](#), reaching a goal of 50% EV sales by 2030 would result in a decrease in emissions of 24% with business-as-usual grid carbon intensity compared to 2005 levels (1,600 mtCO₂e).

⁴ White House (2023), [FACT SHEET: Biden-Harris Administration Announces New Private and Public Sector Investments for Affordable Electric Vehicles](#).

⁵ Prospective life cycle assessment study of Anovion Technologies lithium ion battery grade synthetic graphite manufacturing, 31 Oct 2023

2050, which accounts only for the improved materials production emissions profile and not the increased EV adoption that would come with domesticating EV raw materials production. If we consider that graphite accounts for at least 8% of EV materials costs, domestic production of synthetic graphite could reduce EV prices by 1%. This could increase EV sales by an additional 3,278,357 battery electric vehicles (BEVs) and plug-in hybrid electric vehicles (PHEVs) by 2050 over the business-as-usual scenario, replacing internal combustion engine (ICE) vehicles at a scale and pace that would yield reductions in the realm of 19,199,785 mtCO₂e.⁶

With respect to ensuring that the U.S. can meet domestic manufacturing goals, it is important to understand the challenge facing U.S. suppliers in competing in the U.S. EV market. Simply put, China has long dominated the EV materials market and the EV market globally. In the U.S., China's dominance has been a direct result of Chinese government support dating back to the country's Tenth Five Year Plan (2001-2005), which included EV technology as a priority science project. Since then, the Chinese EV industry has benefitted from "government subsidies, tax breaks, procurement contracts, and other policy incentives, [so] a slew of homegrown EV brands have emerged and continued to optimize new technologies."⁷ As of 2023 Chinese brands account for half of all EVs sold worldwide. To provide perspective, 800,000 EVs were sold in the US in 2022, compared to 6.8 million sold in China in that same year.^{8,9} To compete with Chinese manufactures, domestic US manufacturers must be more cost competitive and scale up operations in line with Chinese competitors. The domestic EV industry simply cannot make up this ground without assistance from federal, state, and local governments as proposed in this application.

Domesticating the EV market also addresses critical national security concerns. China is the dominant player in refining minerals used in batteries, claiming refining capacity of 95% of global cobalt, and around 60% of lithium and nickel.¹⁰ As China is categorized as a "foreign entity of concern," in December 2023 the Biden Administration proposed new rules that would cut subsidies for vehicles that contain Chinese-made battery components. This would significantly further decrease the number of EV models that are eligible for tax credits from the already low rate of 20% of EV models, which in turns hampers the sales that drive demand for EVs, thereby impeding the final approval — in many cases even conditional approval — of volume purchase contracts from OEMs on which U.S. material and parts manufacturers rely to move forward with construction and production.¹¹ It is this chicken-or-egg issue that will finally be addressed via CPRG funding for the proposed sufficiently capitalized Bainbridge Accelerator Fund.

As of February 2024, the U.S. Commerce Department has also opened an investigation into whether Chinese vehicle imports represent a national security risk, given the large amounts of sensitive data that cars collect.¹² Chinese vehicles currently represent over half the EVs on the road, worldwide.¹³ Increasing the domestic manufacture of EV parts while decreasing costs, can also decrease the overall prices of American-manufactured EVs, making them more cost competitive and representing an alternative EV

⁶ Energy Innovation, [Energy Policy Simulator](#), accessed Mar. 20, 2024.

⁷ MIT Technology Review, [How did China come to dominate the world of electric cars?](#) (Feb. 21, 2023).

⁸ MIT Technology Review. [How did China come to dominate the world of electric cars?](#) (Feb. 21, 2023).

⁹ Bloomberg UK. [How China's Car Companies Built So Wide a Lead in the Race to Make EVs](#). (Nov. 1, 2023).

¹⁰ IEA, [Energy Technology Perspectives 2023](#).

¹¹ CNN, [New US rules on Chinese batteries could push up price of electric cars](#).

¹² Reuters, [US to probe if Chinese cars pose national data security risks](#).

¹³ IEA, [Global EV Outlook 2023](#).

pipeline should the U.S. Commerce Department advise that restrictions be imposed on Chinese vehicles. Domesticating manufacturing of raw materials and intermediate and finished products to support EV uptake can address these critical national security concerns while keeping EV costs low.

Despite the emission reduction and national security value that manufacturing raw materials and products needed to support domestic EV manufacturing provides, the ability to access financing at the crucial points in facility development quickly enough and at the levels required to build the facilities and process equipment is not yet available from the private sector. This is why Bainbridge – located at the epicenter of the EV raw material supply chain – must be equipped with the financial wherewithal to quickly assist with these financing gaps – to get the facilities up and running, thereby securing offtake agreements, thereby securing private capital. Domesticating manufacture of raw materials and intermediate and finished products is core to the Administration’s Investing in America initiative and for reaching President Biden’s ambitious goal of having 50% of all new vehicle sales be electric by 2030.¹⁴ Crucially, however, building out the manufacturing infrastructure to realize those goals at the pace that will maximize emission reductions cannot be achieved without additional and highly strategic public investment like the Bainbridge Accelerator Fund described in this proposal. Even with the promise of tax credits and expectation of demand, access to private capital remains limited given the nascent stage of the EV supply chain and domestic producers and the reticence of OEMs to enter into purchase contracts with domestic suppliers. Investment at the levels requested thus will unlock private capital, as has been seen by the entry of \$161 billion in commitments from the private sector in EVs and batteries alone since 2020 prompted by the first round of funding through the Bipartisan Infrastructure Legislation and the Administration’s focus on the EV supply chain.¹⁵ It is a fund at the level proposed in the instant application that is needed to bring the remaining necessary private sector investment into the fold.

With respect to the need for additional strategic investment and, as described above, despite the significant strides that have been made, the reality is that the establishment of the U.S. EV supply chain will not occur without more public investment. Manufacturing companies today struggle to secure the financing required to initiate large-scale projects, despite their anticipated long-term return on investment, because building a domestic supply chain requires a first mover. Manufacturing plants can only solicit conditional offtake agreements until manufacture is underway, and major financing is required to begin breaking ground on manufacturing facilities. The core objective of this project is to crack this chicken-and-egg problem by bridging the financial gap that hinders the growth of EV-related manufacturing processes. By doing so, the Bainbridge Accelerator Fund secures the transition towards more sustainable transportation solutions, a key component of U.S. strategy to reduce GHG emissions. Importantly and with respect to the responsible use of public funds, the Bainbridge Accelerator Fund will be established as a recirculating fund and not a give-away, thus providing manufacturers access to capital quickly enough and at pivotal points in their development to enable them to seize offtake opportunities, which will allow them to have the capital necessary to pay back loans as production climbs, contracts materialize, and private investment determines that new EV supply chain entrants are secure.

With respect to the structure of the Bainbridge Accelerator Fund, because the aim of the Fund is to catalyze EV supply chain manufacturing while and through reducing energy use, improving the carbon intensity of the materials, and reducing the ultimate cost of U.S.-sourced materials and components, the

¹⁴ White House, [Investing in America](#); White House, [FACT SHEET: Biden-Harris Administration Announces New Private and Public Sector Investments for Affordable Electric Vehicles](#).

¹⁵ White House, [Investing in America](#).

Fund will have the flexibility to support EV materials and products manufacturers to meet a variety of financing needs and project types. The Bainbridge Accelerator Fund will be designed to ensure the highly strategic use of funds, including the establishment of a steering group of public and state managers, technical advisors, community representatives, and existing manufacturers so that distribution of funds is carried out in a highly intentional and results-oriented approach. With respect to distribution, Bainbridge plans to make an annual call for applicants to present proposals to the City of Bainbridge that will be evaluated on the proposals ability to fill supply chain gaps, reduce material and component costs, attract offtake agreements, alleviate power demand and increase grid resiliency, and decarbonize EV manufacturing processes and the supply chain generally. Applicants for the Fund should be able to demonstrate a viable business plan that meets the needs of the economic development of the community and GHG reduction as appropriate. Funds should be used to keep projects on target for both completion and to successfully execute the inherent GHG reduction strategy as well as the broader purpose of the Bainbridge Accelerator Fund, which is to fill deficiencies in financing of the EV supply chain that are impeding EV uptake.

Bainbridge intends to establish the Bainbridge Accelerator Fund in the model of a revolving loan fund for EV material manufacturing and related supply chains to support existing manufacturers and attract key entrants to establish the cluster of EV material and component suppliers that the U.S. EV sector requires. Bainbridge anticipates the majority of funding will be provided in the form of loans, with the annual interest received from the disbursed loans being used to establish new loans that will be utilized following the same criteria as the initial awards, thereby extending the funding to more recipients. Based on the type of business, stage of development and overall project need, funds may be allocated as grants from time to time at the discretion of the City of Bainbridge.

PROJECT TYPES

The Bainbridge Accelerator Fund will be strategically employed to support a variety of projects, including but not limited to, the development and expansion of facilities for the processing and production of EV-specific raw materials and critical minerals and/or other inputs such as graphite, lithium, cobalt, and nickel. It will also be available for the financing of the manufacturing of intermediate products such as battery cells and modules, as well as the assembly of finished EV products.

Examples of how funds are expected to be utilized include:

- Equipment for production process (e.g., scrubbers for smokestacks or waste heat capture and re-use in the manufacturing process or for energy production)
- More efficient furnace technologies or other energy-intensive building improvements and long-lived equipment
- Equipment for advanced energy storage and power co-generation
- Supporting companies in securing power purchase agreements (PPAs) with solar projects, renewable, or other zero-emission energy projects to reduce GHG emissions of manufacturing
- Industrial decarbonization related to improving the efficiency of the manufacturing process, thereby reducing cost of finished products and improving the carbon intensity of the overall battery and end products, addressing Scope 3 emissions.

Moreover, the Fund will encourage innovation to discover more efficient and sustainable manufacturing processes, aiming to reduce the environmental impact further and increase the performance and affordability of EVs. Lowering the costs of EVs will ultimately increase EV adoption rates, contributing to improved air quality and driving down GHG emissions.

LOCATION & LEADERSHIP

The City of Bainbridge already has a demonstrated connection to the EV industry and is located and equipped such that it can serve as the epicenter that is needed to catapult EV material manufacturing from concept to reality. As the epicenter of EV material manufacturing, Bainbridge is already finding ways to achieve positive spillover effects from siting EV supply chain facilities in close proximity to each other.

By way of example, in May 2023, Georgia Governor Brian Kemp announced that the City of Bainbridge had attracted synthetic graphite anode manufacturer Anovion Technologies to Bainbridge, which translated to an \$800 million investment by Anovion in manufacturing facilities in Bainbridge which would tie in to other aspects of the EV supply chain Georgia has been building.¹⁶ One of the major challenges facing EV manufacturers and keeping domestic manufacturing at a disadvantage is a lack of easy access to a complex supply chain. Currently, suppliers are often in different countries.¹⁷ Enterprise cluster scholarship has found that geographic concentrations of related firms and industries can confer competitive advantages through economies of scale, shared labor pools, knowledge spillovers, and other agglomeration benefits.¹⁸ Attracting other EV supply chain companies to the City of Bainbridge will catalyze a dramatic increase in domestic EV manufacturing capacity; improving and making more efficient supply chain communication, collaboration, and partnership; sharing and attracting resources such as distributed renewable energy generation facilities and interconnection points; decreasing transportation costs; and creating synergies in workforce development and employee services. For example, workforce development and education programs could benefit multiple portions of the supply chain simultaneously and help to cultivate EV manufacturing expertise in the region. It will also have significant beneficial effects on Bainbridge as a LIDAC.

The award of a dedicated fund to Bainbridge to support EV supply chain build out fills an essential yet still lagging part of the U.S.'s climate strategy. The CPRG funding requested by this proposal would address strategically significant gaps that need to be filled to enable U.S. manufacturing of EVs to succeed, manufacturing that also will ensure a far lower material emissions profile in addition to achieving GHG emission reductions by allowing for the transition to EV dominance of the transportation sector. Several EV supply chain companies have announced investments in the state, and the Bainbridge Accelerator Fund will provide the additional and strategic resources needed to fully and speedily build up capacity. The existing foundation that the CPRG-capitalized Bainbridge Accelerator Fund will leverage includes programs such as Georgia's incentives to support EV expansion via the Job Tax Credit for manufacturers, the Electric Vehicle Charger Tax Credit (for businesses), and Georgia's Electric Transportation Make-Ready Program (for residential customers), among others.¹⁹ These incentives have motivated companies such as Rivian, Kia, and Hyundai to base their battery and EV manufacturing facilities in the state.²⁰ It is in these manufacturers' interest to be close to raw material suppliers. To meet the Biden Administration's ambitious EV targets, flexible and sufficiently capitalized CPRG-provided financial incentives will fill critical

¹⁶ Office of the Governor, [Gov. Kemp: Anovion Technologies to Create Over 400 Jobs in Bainbridge, Invest \\$800M in Manufacturing Facility](#) (May 15, 2023).

¹⁷ EY, Addressing electric vehicle manufacturing challenges: A deep dive to understand innovation and efficiency driven by EV contract manufacturing (2023).

¹⁸ Warwick, K. (2013-04-05), "[Beyond Industrial Policy: Emerging Issues and New Trends](#)", OECD Science, Technology and Industry Policy Papers, No. 2, OECD Publishing, Paris.

¹⁹ Georgia.org, [Electric Mobility Innovation Alliance \(EMIA\) Policy & Initiatives.](#); DOE. Alternative Fuels Data Center, [Georgia Laws and Incentives.](#)

²⁰ Georgia.org. [Georgia Electric Mobility Manufacturing.](#)

gaps that Georgia's state government has been working to fill but does not have the budget to fully support.

Addressing CPRG Implementation Grant Goals

This proposal addresses the primary goals of the CPRG Implementation Grant of implementing ambitious measures that will achieve significant cumulative GHG reductions by 2030 and beyond; pursuing measures that will achieve substantial community benefits (such as reduction of criteria air pollutants (CAPs) and hazardous air pollutants (HAPs), particularly in low-income and disadvantaged communities (LIDAC); complementing other funding sources to maximize these GHG reductions and community benefits; and pursuing innovative policies and programs that are replicable and can be "scaled up" across multiple jurisdictions.

1. Implementing ambitious measures that will achieve significant cumulative GHG reductions by 2030 and beyond

GHG emissions will be reduced through two mechanisms: first, producing EV materials at a lower carbon emissions intensity than the Chinese-incumbent alternatives; and second, by lowering materials production costs, thereby reducing EV prices and increase EV adoption. Through both mechanisms, we anticipate that this measure will reduce 1,554,167 mt CO₂e by 2030 and 27,974,785 mtCO₂e by 2050 (Table 6). This emissions figure is critical to meeting the U.S. climate targets. Of transportation emissions, on-road vehicles account for 1,377,600,000 mtCO₂e (as of 2020).²¹ This means that providing Bainbridge the wherewithal to fill the lack of support for EV supply chain creation would lead to a 2% reduction in total transportation emissions. The importance and urgency of providing funding now means that the U.S. achieves these reductions faster, which is the ultimate key to meeting the 1.5 degree climate targets.

Slower initial increases in emissions through 2030 may also be offset by funding that addresses emissions in production processes (such as waste heat capture used for the production of zero-emission power) or supporting companies in securing power purchase agreements (PPAs) with renewable energy projects, discussed further in Section 2. Impact of GHG Emissions Reductions and in the Technical Appendix, which provides data and calculations setting forth how production of raw materials for the EV supply chain at the scale enabled by the proposed funding achieves these reductions.

2. Pursuing measures that will achieve substantial community benefits (such as reduction of criteria air pollutants (CAPs) and hazardous air pollutants (HAPs)), particularly in low-income and disadvantaged communities

This proposal offers significant and substantial community benefits, including nationwide reduction of criteria air pollutants (CAPs), as well as increasing high-quality jobs and improving local air pollution in LIDAC communities. In terms of air pollution, the proliferation of EVs has the capacity to drastically reduce CAPs. Using Energy Innovation's Energy Policy Simulator, we calculate CAP reductions from a scenario in which the Bainbridge Accelerator Fund catalyzes investment in synthetic graphite manufacturing at a lower cost than importing Chinese synthetic graphite. The scenario assumptions are the same: namely, that a 10% reduction in production costs from the 2022-2023 price of Chinese synthetic graphite

²¹ EPA, [Why we need to decarbonize transportation.](#)

(\$2,750/mt)²² through lower transportation and logistics costs would be able to lower the cost of EV manufacture by 1%. Assuming those costs reductions are entirely passed on to the consumer, we introduce a 1% EV subsidy in the Energy Policy Simulator, adjusting the implementation schedule so that EV prices are not affected until 2027, not fully in effect until 2030 and then in effect until 2050. This is to reflect the period of constructing and initial manufacturing before prices are impacted.

The nationwide reduction in CAPs is as follows:

- PM2.5: -5.79 mt from 2025-2030; 34.59 mt from 2025-2050
- PM10: 47.60 mt from 2025-2030; 54,930.00 mt from 2025-2050
- CO: 12,590.90 mt from 2025-2030; 1,542,377.70 mt from 2025-2050
- SOx: -34.03 mt from 2025-2030; 187,066.82 mt from 2025-2050
- NOx: 1108.00 mt from 2025-2030; 360,492.60 mt from 2025-2050

Further details on modeling assumptions are provided in the Technical Appendix.

These CAP reductions have real impacts not only on the LIDAC populations of southwestern Georgia but also on the health and wellbeing of the entire U.S. population. Even a single manufacturer of raw materials or EV products could have a measurable impact on CAPs. To illustrate, using the Environmental Protection Agency's (EPA's) CO-Benefits Risk Assessment Health Impacts Screening Tool (COBRA), it is estimated that merely the additional EVs placed in service as a result of bringing a single battery materials manufacturer on line could provide between \$1,279,984,399 and \$2,884,200,091 per year in health benefits due to reduced PM2.5, SO2, NOx, NH3, and VOC. In Decatur County, Georgia alone, a LIDAC-designated region, those savings translate to \$50,966-\$114,998 in health benefits annually.²³

CAP reductions due to EV adoption also have an outsized impact on LIDACs. Researchers modeling a 100% carbon-free highway vehicle scenario using EPA's COBRA tool found that decarbonizing transportation was the only scenario modeled that met the Justice40 Initiative, thereby "fulfilling the 2021 commitment by U.S. President Biden that federal investments in clean energy are designed to allocate at least 40% of benefits to disadvantaged communities."²⁴ Section 3 provides a more in depth discussion of Environmental Results – Outputs, Outcomes and Performance Measures on air pollutant benefits and calculations.

In addition to nationwide reductions in CAPs and as referenced above, this emission reduction measure has the potential to benefit LIDACs in Bainbridge and across the State of Georgia. Decatur County, the home of Bainbridge, experiences a range of health and economic challenges, according to EPA's EJ Screen data.²⁵ Forty-eight per cent of Bainbridge's population qualifies as low-income, and unemployment is at 6%. The county is a food desert and faces challenges accessing transportation. In terms of climate risk, Bainbridge also experiences high flood and wildfire risk, and suffers above average indicators of low life

²² Viachem: [China's anode market tilts toward synthetic graphite amid supply shake-up](#).

²³ Assuming 2.97% reduction in all pollutants, as a reflection of number of EVs on the road that could be supplied by single synthetic graphite manufacturer. See Technical Appendix and GHG Emissions Reduction Calculations Spreadsheet for further assumptions.

²⁴ Gallagher, Ciaran L. & Holloway, Tracey. [U.S. decarbonization impacts on air quality and environmental justice](#). Environmental Research. Letters (Oct. 25, 2022).

²⁵ EPA. [EJScreen: Environmental Justice Screening and Mapping Tool](#).

expectancy (86th percentile in the U.S.), heart disease (80th percentile), and asthma (75th percentile). Health issues are partly a reflection of above average exposure to particulate matter, air pollution, and ozone.

This measure, which aims to attract EV and EV materials manufacturers to the City of Bainbridge to enable an EV material sourcing cluster, will provide a range of potential benefits to LIDAC communities in the region. Those benefits are outlined in Table 2, which provides a summary of the potential benefits associated with the two priority reduction measures relevant to this proposal.²⁶ The measures include Georgia’s Peach State Voluntary Emission Reduction Plan: Measure 1.5 Manufacturing of Raw Materials and intermediate and finished products to support EV uptake, and Measure 3.2 Increasing renewable energy. Further discussion of these benefits is available in Section 4. Low-Income and Disadvantaged Communities.

Table 2: Qualitative Assessment of Potential LIDAC Benefits

PCAP Priority Measure	Potential Benefit							
	Improved Air Quality	Transportation Improvements	Housing Affordability	Community Beautification	Community resilience	Reduced Noise Pollution	Workforce Development	Lower Utility Bills
Measure 1.5 Manufacturing of Raw Materials and intermediate and finished products to support EV uptake	*	*	--	--	X	*	X	--
Measure 3.2 Increasing renewable energy	*	--	--	--	X	--	X	*

In addition to improving air quality through expanding the domestic EV supply chain, the Bainbridge Accelerator Fund will also create high-quality and well-paying jobs in Decatur County, Georgia, which is home to three LIDAC census tracts. Raw materials and EV product manufacturers are already the originators of hundreds of high-quality jobs in Georgia and the City of Bainbridge. Recently, synthetic graphite manufacturer Anovion announced that 400 jobs would be created as a result of the construction of Anovion’s \$800 million facility in Bainbridge. Elsewhere in Georgia, 49 EV-related projects have already been announced since 2020, representing over \$25.5 billion in investment and 28,000 jobs. Battery manufacturers, recyclers and supplies represent approximately \$8.5 billion in investment and 6,000 of those jobs.²⁷

For a more thorough discussion of community benefits, LIDAC-relevant benefits, and information about potential workforce improvements owing to building the EV material supply chain, see Section 4. Low-Income and Disadvantaged Communities and Section 5. Job Quality.

3. Complement other funding sources to maximize these GHG reductions and community benefits;

²⁶ Measures capable of offering direct benefits are denoted by a capital x (“X”), those with potential indirect benefits are denoted by a star (“*”), and measures not relevant to a particular benefit are denoted by a dash (“--”).

²⁷ City of Bainbridge, [Gov. Kemp: Anovion Technologies to Create Over 400 Jobs in Bainbridge, Invest \\$800M in Manufacturing Facility](#); State of Georgia, [Electric Mobility Manufacturing](#).

The City of Bainbridge is leveraging initiatives like the \$117 million grant awarded to Anovion Technologies by the U.S. Department of Energy to attract further investment for the establishment of the battery and EV sector. Anovion's grant, aimed at constructing a commercial lithium battery materials production line using Anovion's U.S.-based synthetic graphite technology, demonstrates Bainbridge's prime positioning for companies seeking to capitalize on federal funding for domestic battery supply chain development. With this anchor investment from the Bipartisan Infrastructure Law coupled with the Bainbridge Accelerator Fund, the city can attract more manufacturers to join the emerging hub ripe for additional private capital injections and public-private partnerships focused on advancing next-generation battery manufacturing and innovation crucial to the nation's energy transition. Anovion's multi-million-dollar project lays the groundwork for Bainbridge to crowd in complementary businesses across the EV battery ecosystem.²⁸

4. Pursuing innovative policies and programs that are replicable and can be “scaled up” across multiple jurisdictions.

While the fund outlined in this measure would focus exclusively on manufacturing located in Bainbridge, Georgia, it would contribute to the State of Georgia's wider aim to become the capital of EV manufacturing in the U.S. The state has seen 49 e-mobility-projects and over \$25.5 billion in investments since 2020, including investments from major manufacturers such as Kia and Hyundai.²⁹ Providing a revolving loan fund to meet the financing gap for manufacturing EV materials in Bainbridge, Georgia, supports the wider EV manufacturing ecosystem. Additionally, the success of the Bainbridge Accelerator Fund to address the “chicken-and-egg” issue of building domestic EV supply chains could act as a pilot for bigger-scale financing across the state or across multiple states.

Table 3 details tasks and milestones for implementation of the proposed Bainbridge Accelerator Fund. The period of performance is October 2024 – October 2029. Table 4 details anticipated risks associated by implementation measure and strategies to mitigate each risk.

Table 3 Tasks and Milestones

Task #	Task Description	Anticipated Milestone Dates	Assumptions
1	Selection of a program administrator; Creation of Electric Vehicle Supply Chain Task Force	Dec 2024-Jan 2025	Disbursement of Award to City of Bainbridge by Nov 2024
2	Issue Request for Applications to the Fund	Feb 2025	
3	Deadline for Applications to the Fund	April 2025	
4	Selecting Successful Applicant(s)	May 2025	
5	Notification of Funding Selection	May 2025	
6	Disbursement of Initial Tranche of Funds	Aug 2025	
7	Issue Request for Applications to the Fund	Feb 2026-29	The remaining funds are then disbursed on an annual basis
8	Deadline for Applications to the Fund	April 2026-29	The remaining funds are then disbursed on an annual basis

²⁸ Anovion Technologies, [Anovion Technologies Selected to Receive \\$117 Million Grant Under the Bipartisan Infrastructure Law for Battery Materials Processing and Manufacturing.](#)

²⁹ State of Georgia, [Electric Mobility Manufacturing.](#)

9	Selecting Successful Applicant(s)	May 2026-29	The remaining funds are then disbursed on an annual basis
10	Notification of Funding Selection	May 2026-29	The remaining funds are then disbursed on an annual basis
11	Submitting semi-annual progress reports on grant implementation and planned activities to EPA	Dec 2024-Dec 2029	
12	Community and stakeholder outreach and education within the City of Bainbridge	Dec 2024-Dec 2029	Outreach takes place in coordination with the successful applicant(s)
13	Tracking, measuring, and reporting accomplishments on proposed timelines and milestones	Dec 2024-Dec 2029	
14	Submitting detailed final report to EPA within 120 calendar days of the completion of the period of performance	April 2030	Principal capital targets to be depleted by 2029

Table 4 - Risks and Mitigation Strategies

Risk	Effect on GHG emission reductions	Mitigation Strategy
Administrative burden of the Fund exceeds the capacity available at the City of Bainbridge	Moderate	The City of Bainbridge will employ a consultancy firm to manage the Fund, so as to allow flexibility in how funds are disbursed (through grants, low-cost loans, etc.)
No appropriate applications are submitted, and the funds are unable to be dispersed	Severe	The City of Bainbridge has already built relationships with EV materials companies and discussed interest with companies considering Measure 1.5 of Georgia's PCAP. At the outset of the Fund, the City of Bainbridge will invite companies that have expressed interest to submit an application, alongside the public call for proposals
Funds are insufficient to initiate project	Severe	Successful bids will have to demonstrate that funds sufficiently cover the proposed projects, and/or that additionally required funds are already secured

Table 5 demonstrates how this proposed measure relates to GHG reduction measures in coalition member PCAPs.

Table 5 - Alignment with Member PCAPs

Measure	PCAP Title(s) and Page Numbers
Manufacture of raw materials and intermediate and finished products to provide the supplies necessary to support EV uptake through access to enabling capital, financing, and coordination	Peach State Voluntary Emission Reduction Plan, page 31 – 32; page 36-37

b. Demonstration of Funding Need

While the City of Bainbridge has made strides in crowding in investment to support the battery and EV sector, as demonstrated by the \$117 million grant awarded to Anovion Technologies from the U.S. Department of Energy's Office of Manufacturing and Energy Supply Chain, significantly more funding is

required to build a robust domestic supply chain for EV manufacturing.³⁰ Anovion's grant to construct a lithium battery materials production line utilizing its synthetic graphite technology merely scratches the surface of the capital needed to support widespread adoption of EVs, capital that is most needed for building up the availability of cheaper inputs to OEMs. Though the DOE funding leverages funds from the Bipartisan Infrastructure Law such that it positions Bainbridge well as an emerging hub, it represents only a piece of a vastly complex and capital-intensive supply chain puzzle. Establishing a complete North American ecosystem for EV batteries and vehicle assembly will necessitate attracting billions more in private and public investments across raw material sourcing, component manufacturing, gigafactory construction, and charging infrastructure development. The city's ability to court Anovion highlights its potential, but realizing its vision as an EV powerhouse hinges on crowding in exponentially more funding from all quarters which the CPRG-funded Bainbridge Accelerator Fund will allow.³¹

c. Transformative Impact

In terms of transformative impact, there is no greater catalytic measure for achieving GHG emission reductions associated with the nearly 30% of U.S. emissions from the transportation sector than EV uptake, and there is no more transformative approach for enabling EV uptake than building U.S. capacity to supply raw materials and EV components to EV manufacturers. It is the singular missing link in achieving U.S. transportation-related emissions reductions. Transportation is America's single biggest source of greenhouse gas pollution, responsible for 29% of U.S. GHG emissions.³² Significantly, while many publicly funded mechanisms and incentives exist to promote the purchase of EVs and EV charging infrastructure,³³ very little attention has been paid to building U.S. capacity to produce the raw materials and components needed by EV manufacturers. The assumption has been that EV manufacturers will place advance contracts for materials that will allow material manufacturers to attract the investment and financing in their manufacturing facilities needed to build those facilities and make the products EV manufacturers need to fulfill demand.

The reality, however, is that EV manufacturers are waiting to place these offtake agreements until materials are in production which is delaying EV production and uptake. Without offtake agreements, it is far more difficult to raise the capital needed to construct and produce EV materials in the timeframe necessary to ensure that EV uptake – and associated GHG reductions – will occur at the levels necessary to meet U.S. climate goals. To realize the transformative effect of electrifying the transportation sector, starting with light duty vehicles, a transformative approach must be taken to creating the supply chain necessary to support the production of those vehicles. This is why Bainbridge's proposed domestic EV raw material and component manufacturing enabling fund is so pivotal – it fills a foundational gap in the creation of the domestic EV supply chain, without which EVs will not be in a position to tackle the nearly 30% of U.S. emissions stemming from the U.S. transportation sector at the pace necessary.

The reasons implementation funding is so crucial are twofold. First, funding to support domesticating the manufacture of EV raw materials and parts will decrease emissions associated with the EV manufacturing

³⁰ Department of Energy, Office of Manufacturing and Energy Supply Chains, Project Portfolio ([Project Title: Anovion: Scaling the Domestic, US Owned and Operated Anode Supply Chain for Synthetic Graphite](#))

³¹ Anovion Technologies, [Anovion Technologies Selected to Receive \\$117 Million Grant Under the Bipartisan Infrastructure Law for Battery Materials Processing and Manufacturing.](#)

³² EPA, [Fast Facts on GHG Emissions](#).; WRI U.S. Climate Policy Resource Center, [Electric Vehicles](#).

³³ WRI U.S. Climate Policy Resource Center, [Electric Vehicles](#).

process because U.S. processes are dramatically less carbon intensive as compared to incumbent suppliers' emissions. Second, implementation funding directed at the U.S. supply chain will reduce production costs by reducing the cost of inputs, one of the biggest being power costs. Electricity costs comprise 15-20% amount of the inputs required to make the bulk of the EV battery, and 20% of the cost to produce graphite. These reduced production costs, in turn, lower overall EV prices, thus prompting greater uptake. The two outcomes together represent a very real opportunity for market transformation that will accelerate the market adoption of low-carbon transportation. This proposal – to create a fund to finance multiple catalytic manufacturing-related projects – is necessary for catalyzing large GHG reductions in the EV supply chain. In addition, those lower-emitting components made more cheaply will spur offtake agreements from EV manufacturers, setting in motion the expansion of EV uptake. This single fund of \$500,000,000 therefore has the potential to leverage an additional \$2.4 billion in EV investments, which enables the reduction of GHG emissions in the transport sector by over 42,120,000 mtCO₂e by 2050.³⁴

Reaching the Administration's goal of 50% EV sales by 2030 will require five times the current EV sales, growing to approximately 7.14 million EVs sales in 2030.³⁵ The Bainbridge Accelerator Fund is essential to making that goal a reality. The State of Georgia anticipates that supporting the manufacture of EV materials and products could increase battery production in state from 310,000 batteries in 2024 to 704,545 in 2025 and 2,735,664 in 2030. That would represent not only lower emission batteries but very likely far cheaper, domestically produced batteries for 38% of EV sales according to the Administration's goal.³⁶ Those batteries are the key component to EV production, and without them, auto manufacturers cannot meet demand. The fact that domestically sourced battery material would dramatically enhance uptake by increasing supply while reducing the carbon footprint of EVs makes the Bainbridge proposal not only transformative but also essential.

Based on Bainbridge's current experience with EV component manufacturing related to the production of synthetic graphite, enabling faster production of U.S.-produced synthetic graphite could have a profound effect on climate goals and emission reduction targets. For example, 70% of the world's graphite is currently produced in China, and U.S. auto manufacturers have very few options for accessing graphite other than to seek trade exemptions.³⁷ Even if the graphite is attainable, Chinese graphite is far more carbon intensive.³⁸ If even a third of U.S. EVs were to source their graphite from the U.S., 2.73 million batteries in 2.73 million cars represents 218.4 million kg of graphite (80 kg graphite per battery) with lower emissions. Because synthetic graphite could be produced in the US at 11.7 kg CO₂e per kg vs. 23.4 kg CO₂e per kg anode grade graphite in China (a 50% emissions reduction), up to 468,000 mtCO₂e could be abated in one year alone.

2. IMPACT OF GHG REDUCTION MEASURES

³⁴ Assuming that the fund supports an average of three projects, each supporting the development of ~\$800 million investments in EV raw materials and product manufacturing in Bainbridge, GA. Also, assuming each project has a similar GHG emissions reduction potential to our raw material manufacturer case.

³⁵ 375,000 EV sales in Q3 2023 represented just over 10.5% of vehicle sales that quarter. Assuming total sales remain the same from Q3 2023 across Q1-Q4 in 2030 (14.3 million sales total), the Administration aims for EV sales to hit approximately 7.14 million in 2030. 2023 sales figures from [International Council on Clean Transportation](#).

³⁶ State of Georgia, [Peach State Voluntary Emission Reduction Plan](#), at 79

³⁷ New York Times. [Can the World Make an Electric Car Battery Without China?](#) (May 16, 2023).

³⁸ New York Times. [Can the World Make an Electric Car Battery Without China?](#) (May 16, 2023).

Table 6 provides estimates of the cumulative emission reductions in metric tons of carbon dioxide equivalent (mtCO₂e) anticipated from implementation of the proposed measure(s) for two time periods: 2025 – 2030 and 2025 - 2050. Bainbridge’s experience with Anovion Technologies makes it familiar with the case of synthetic graphite, and so we use that knowledge to assess the reductions possible from this fund. GHG emissions will be reduced through two mechanisms: first, producing EV materials at a lower the carbon emissions intensity than the Chinese alternatives; and second, through lowering materials production costs, thereby lowering EV prices and increasing EV adoption. Through both mechanisms, we anticipate that this measure will reduce 1,554,167 mtCO₂e by 2030 and 27,974,785 mtCO₂e by 2050 (Table 6). This figure is crucial for meeting the U.S. climate targets. Of transportation emissions, on-road vehicles account for 1,377,600,000 mtCO₂e (as of 2020).³⁹ This means that providing Bainbridge the wherewithal to fill the lack of support for EV supply chain creation would lead to a 2% reduction of total transportation emissions. The importance and urgency of providing funding now means that the U.S. achieves these reductions faster, which is the ultimate key to meeting the 1.5 degree targets.

Further details on quantification methods, relevant assumptions, annual emission reduction estimates, and any uncertainties associated with the estimates are provided in the Documentation of GHG Reduction Assumptions section below, as well as in the Technical Appendix to this application.

Table 6 Cumulative GHG Emission Reductions Anticipated from Implementation of Proposed Measures

Priority Measure	Cumulative GHG emission reductions (mt CO ₂ e)	
	2025–2030	2025–2050
Manufacture of raw materials and intermediate and finished products to provide the supplies necessary to support EV uptake through access to enabling capital, financing, and coordination		
Replacing Chinese Anode Graphite with Domestic Synthetic Graphite	1,462,500 mtCO ₂ e	8,775,000 mtCO ₂ e
Increasing Electric Vehicle Adoption	91,667 mtCO ₂ e	19,199,785 mtCO ₂ e
Total	1,554,167 mtCO₂e	27,974,785 mtCO₂e

Durability of Emissions Reductions

Implementation of the proposal will result in durable GHG emission reductions because they are a result of lower-carbon intensity manufacturing processes as well as increased EV adoption. Both these activities are expected to continue past the end of the project. The lifespan of the Fund itself is flexible: the current proposal includes a timeline up through December 2029, but if the Fund is established following a revolving loan fund model, even if it were to provide a portion of funding in the form of grants, the Bainbridge Accelerator Fund would be in a position to catalyze investment in GHG emissions reductions for many more years. In terms of manufacturing and by way of example, a synthetic graphite manufacturing facility has a 50-year lifespan. Using this lifespan, the expectation is that even an initial tranche of funding to a manufacturer would have durability of GHG emissions from lower-carbon intensity manufacturing through 2076.

The Bainbridge Accelerator Fund will also act as a catalyst for GHG emissions reductions through the increased adoption of EVs. The Energy Policy Simulator model that was used to create our lower-cost EV

³⁹ EPA, [Why we need to decarbonize transportation](#).

scenario expects EV adoption to increase through 2050, at a greater rate than the business-as-usual case. See the Technical Appendix for further details.

Finally, there are a wide range of positive spillover effects that are expected to occur with increasing investment in EV materials and products, which will have long-term implications for the success of EV adoption and subsequent GHG emissions reductions. Those spillover effects include improved supply chain communication and partnership, decreased transportation costs and synergies in workforce development, such as workforce development and education programs, all of which could benefit multiple portions of the supply chain simultaneously and help to cultivate EV manufacturing expertise around Bainbridge.

Cost Effectiveness of GHG Reductions

Implementation of the proposal is highly cost-effective, particularly when evaluating long-term, cumulative impacts. The cost-effectiveness of the proposal, inclusive of all measures in this application, is \$321.72 per mtCO₂e reduced from 2025 to 2030 but only \$16.87 per mtCO₂e reduced from 2025 to 2050 (Table 7). Initial costs per mtCO₂e are higher because funding infrastructure development has slightly longer lead times than other projects. For example, if the requested funding is provided, the City of Bainbridge will require until mid-2025 to disburse the funds to successful applicants. These applicants will then require time to complete construction of their manufacturing facilities and/or renewable energy projects that will reduce the GHG footprint of the materials produced (thereby lowering Scope 3 emissions attributable to EV manufacturers). Therefore, the assumption built into the estimates is that manufacturing will commence in 2026, and that the full impact on EV prices will not come into effect until 2030.

Table 7 Cost Effectiveness of GHG Emission Reductions Anticipated from Implementation of Proposed Measures

Priority Measure	Cost effectiveness of GHG emission reductions (\$/mt CO ₂ e)	
	2025–2030	2025–2050
Manufacture of raw materials and intermediate and finished products to provide the supplies necessary to support EV uptake through access to enabling capital, financing, and coordination	\$ 321.72/mt CO ₂ e	\$16.87/mt CO ₂ e

Documentation of GHG Reduction Assumptions

This measure aims to reduce GHG emissions through two mechanisms: first, by decarbonizing manufacturing and industrial processes, and second, by increasing the adoption of electric vehicles to replace internal combustion engine vehicles. Therefore, we conducted two emissions estimates. The first calculates the emissions reductions from lower-cost EV raw materials manufacturing, compared to the emissions of Chinese raw materials manufacturing. The second calculates the cost reduction to EVs through lower-cost domestic raw materials production in contrast to importing Chinese materials, which will have the effect of hastening the purchase of U.S. materials by OEMs for EV production which will be passed down to consumers, reducing EV prices, increasing adoption, and resulting in a greater percentage of lower-emitting vehicles on U.S. roads. Batteries are cited as a major cost driver making EVs more expensive to produce than gas-powered vehicles for legacy automakers who are still working to make

profits on their electric models. Bringing down the costs of raw materials like lithium and graphite that go into EV batteries would allow automakers to produce more affordable EVs and hit the lower price points needed to attract mainstream buyers.⁴⁰

Both estimates employ the data-rich case of Bainbridge-based synthetic graphite manufacturer Anovion Technologies as an illustrative example. This section will briefly outline the GHG emissions reduction estimates' methods, with a fuller set of assumptions and scenarios provided in the Technical Appendix.

1. Emissions Reductions Associated with Replacing Carbon-Intensive Chinese Synthetic Graphite with Lower-Carbon Domestic Synthetic Graphite

To calculate the GHG emissions reductions from replacing Chinese synthetic graphite with domestic synthetic graphite, we compare the estimated GHG emissions per kg of synthetic graphite produced in China (23.4 kg CO₂e/kg) and compare it to the expected US GHG emissions per kg of synthetic graphite (11.7 kg CO₂e/kg), at least a 50% reduction achieved thanks to Anovion's proprietary upgrades to the graphitization process and transport and logistics GHG emissions savings.⁴¹

Establishing domestic graphite production capabilities in the United States has the potential to significantly reduce greenhouse gas emissions associated with this critical battery material compared to importing from China.⁴² China currently dominates global graphite mining and processing, but its industry relies heavily on coal-fired power plants that produce high carbon emissions.⁴³ By contrast, graphite manufacturing facilities in the U.S. could leverage the nation's higher mix of renewable energy sources like wind, solar, and hydroelectricity to power operations with a much lower carbon footprint.⁴⁴ Additionally, tighter environmental regulations in the U.S. enable better emissions control technology and practices than are often implemented at Chinese facilities. Further GHG savings arise from reduced emissions during transcontinental shipping if graphite is produced for local and regional consumption within North American battery supply chains.⁴⁵ With strategic policy support and investment, onshoring graphite production to the U.S. creates an opportunity to decarbonize this segment of the electric vehicle battery supply chain.

Given that Anovion Technologies has the capacity to manufacture 40,000 metric tonnes of synthetic graphite per year, the annual reduction in GHG emissions when replacing Chinese synthetic graphite is 468,000 mtCO₂e.

Assuming that three applicants receive capital or critical investments from this fund, the Bainbridge Accelerator Fund could be fundamental to catalyzing 7,020,000 mtCO₂e by 2030 and 42,120,000 mtCO₂e by 2050. Assuming each facility requires an average of \$800,000,000 in capital expenditures, the CPRG Implementation Grant could catalyze \$2.4 billion in EV supply chain investments in Bainbridge, Georgia.

⁴⁰ NPR, [EVs won over early adopters, but mainstream buyers aren't along for the ride yet](#).

⁴¹ Prospective life cycle assessment study of Anovion Technologies lithium ion battery grade synthetic graphite manufacturing, 31 Oct 2023

⁴² Prospective life cycle assessment study of Anovion Technologies lithium ion battery grade synthetic graphite manufacturing, 31 Oct 2023

⁴³ S&P, [Graphite emissions fuel search for solutions along EV supply chain](#).

⁴⁴ Statista, [Greenhouse gas emissions from the energy sector in the United States and China under a "business-as-usual" scenario from 2020 to 2021, with projections until 2050](#).

⁴⁵ IEA, [International Shipping](#).

The CPRG Implementation Grant would therefore account for 20.83% of that capital expenditure and would be responsible for 1,462,500 mtCO₂e by 2030 and 8,775,000 mtCO₂e by 2050.

2. Emissions Reductions Associated with Increasing Electric Vehicle Adoption

Continuing with the illustrative case of domestic synthetic graphite manufacturing, the second mechanism for GHG emissions reductions is through lower component costs from domestic manufacturers lowering EV prices and increasing EV adoption. Assuming the 2023 price of Chinese synthetic graphite fully landed to the United States is at least 10% higher than U.S. produced product given, among other things, transportation and logistics, we estimate that switching from Chinese synthetic graphite to domestically produced synthetic graphite could reduce the cost of an EV up to 1%. Assuming 100% of the lower cost is passed over to the consumer over time, we estimate a 1% price decrease in EVs just from this one component alone.

Using the Energy Innovation Energy Policy Simulator, we add a 1% EV subsidy to reflect those cost decreases and model the changes in number of EVs and GHG emissions over the business-as-usual scenario.⁴⁶ In the Energy Innovation Energy Policy Simulator, the implementation schedule has been adjusted, so that EV prices are not affected until 2027, not fully in effect until 2030 and then in effect until 2050 in order to reflect the period of constructing and initial manufacturing before prices are impacted. From the Energy Policy Simulator we are able to estimate the increased adoption of EVs, as well as expected reductions in GHG emissions and CAPs (PM2.5, PM10, CO, SO_x, NO_x). Implementation of this measure is anticipated to reduce a cumulative 91,667 mtCO₂e for the period between 2025 – 2030, and cumulative 19,199,785 mtCO₂e for the period between 2025 – 2050.

3. ENVIRONMENTAL RESULTS – OUTPUTS, OUTCOMES, AND PERFORMANCE MEASURES

This proposal directly addresses the EPA’s strategic plan Goal 1, “Tackle the Climate Crisis” and specifically Objective 1.1 “Reduce Emissions that cause Climate Change” by catalyzing the increased adoption of EVs through incentivizing the manufacture of raw materials and products for electric vehicles. This proposal will create a fund that supports EV materials and product manufacturers to build out the domestic EV supply chain, reducing costs and increasing EV adoption, which will reduce GHG emissions by replacing internal combustion engine (ICE) vehicles.

a. Expected Outputs and Outcomes

Because the Bainbridge Accelerator Fund could be used to support a wide array of manufacturers and EV supply chain products, there are a range of potential outputs from the dispersal of these funds. The primary outputs will be the output of each manufacturer, whether that takes the form of raw materials (such as those used to produce lithium-ion batteries), intermediary products (such as batteries) or completed EVs.

Therefore, outputs from this proposal may include, but are not limited to:

- Amount of raw materials manufactured (ex. Synthetic graphite manufacturer Anovion can produce 40,000,000 kg graphite per year)

⁴⁶ Energy Innovation, [Energy Policy Simulator](#), accessed Mar. 20, 2024.

- Number of EV products (ex. Hyundai’s Georgia Battery Manufacturing Plant has a production capacity of 300,000 vehicles) or completed EVs manufactured (ex. Lucid Motor’s Arizona Factory has an annual build capacity of 30,000 units)⁴⁷
- Number of high-quality jobs created through the manufacture of EV raw materials and products
- Semi-annual progress reports and a detailed final report ⁴⁸

Outcomes from this proposal include:

- Estimated reduction in cumulative metric tons of GHG emissions:
 - 2025 – 2035: 1,554,167 mtCO2e
 - 2025 – 2050: 27,974,785 mtCO2e

See the Technical Appendix for assumptions underlying these figures. Because the Bainbridge Accelerator Fund could finance a number of different types of proposals, these cumulative GHG emissions figures are a result of an illustrative example, namely, the impact of financing a synthetic graphite manufacturer.

- Changes in annual criteria pollutant (CAP) and hazardous air pollutant (HAP) emissions in 2030

Electric vehicles have the capacity to drastically reduce CAPs. The relevant CAPs reductions – PM2.5, PM10, CO, SOx and NOx – were modeled along GHG emissions and EV adoption in the Energy Policy Simulator using the same assumptions (Table 8).⁴⁹ That is, we assume a switch from 2022-2023 average price of Chinese synthetic graphite (\$2,750/mt)⁵⁰ and the estimated US manufactured synthetic graphite cost (\$2,475/mt).⁵¹ That in turn brings down the cost of EVs by 1%, which we assumed it passed on to the consumer. We modeled the impact on EV adoption by adding a 1% EV subsidy and comparing that scenario to the business-as-usual scenario. We assume that the price decreases go into effect after 2026 in order to account for manufacturing lead times. Further information in the Technical Appendix.

Table 8: CAP Reduction Estimates

CAP Reduction			
PM2.5	2025-2030	-5.79	metric tons
	2025-2050	34.58	metric tons
PM10	2025-2030	47.60	metric tons
	2025-2050	54,929.10	metric tons
CO	2025-2030	12,590.90	metric tons
	2025-2050	1,542,377.70	metric tons
SOx	2025-2030	-34.03	metric tons
	2025-2050	187,066.82	metric tons
NOx	2025-2030	1,108.00	metric tons
	2025-2050	360,492.60	metric tons

⁴⁷ Thomas, [List of Largest EV Manufacturing Plants](#) (May 25, 2023).

⁴⁸ Beginning with the second semi-annual report, reporting will include quantified benefits to LIDACS, including changes in co-pollutant emissions, and provide updates on ongoing and planned community engagement.

⁴⁹ Energy Innovation, [Energy Policy Simulator](#), accessed Mar. 20, 2024.

⁵⁰ Viachem: [China’s anode market tilts toward synthetic graphite amid supply shake-up](#).

⁵¹ We estimate that it will be approximately 10% lower due to lower transportation and logistics costs.

These CAP reductions have real impacts on the health and wellbeing of the U.S. population. Even a single manufacturer of raw materials or EV products could have a measurable impact on CAPs. Using the Environmental Protection Agency's CO-Benefits Risk Assessment Health Impacts Screening Tool (COBRA), it is estimated that just the vehicles on the road as a result of a single battery materials manufacturer could save between \$1,279,984,399-\$2,884,200,091 per year in health benefits due to reduced PM2.5, SO2, NOx, NH3, and VOC. In Decatur County, Georgia alone, that amounts to \$50,966-\$114,998 in health benefits annually.⁵²

These figures were arrived at by estimating the number of EV batteries that could be produced from the raw materials of a single synthetic graphite manufacturer (500,000/year). Assuming the average lifespan of a vehicle is approximately 14 years, at most that would account for an additional 7 million vehicles on the road. That figure is approximately 2.94% of the vehicles currently registered in the United States. Following the precedent set by Gallagher & Holloway 2022,⁵³ we set the COBRA scenario assumptions to reduce PM2.5, SO2, NOx, NH3, and VOC by 2.94% for highway vehicles. Further details on the scenario results are available in the Technical Appendix and the GHG Emissions Reductions Calculations Spreadsheet.

CAP reductions due to electric vehicle adoption also have an outsized impact on low-income communities. Modeling a 100% carbon-free highway vehicle scenario, Gallagher & Holloway found that the largest reduction in PM2.5 exposure was found for Asian populations. They also found that "[o]nly the transportation decarbonization scenario meets the criteria of the Justice40 Initiative nationwide, fulfilling the 2021 commitment by U.S. President Biden that federal investments in clean energy are designed to allocate at least 40% of benefits to disadvantaged communities."⁵⁴

b. Performance Measures and Plan

The City of Bainbridge has established the following performance measures to track progress concerning successful processes and output and outcome strategies.

- Number of proposals: This measure represents the number of proposals submitted to the Fund. For this measure, there is no target or indicator of success. Any number of quality proposals can represent a successful output, so long as the number remains above one, but the City of Bainbridge will still track the number of proposals to the Fund as a reflection of interest in the Fund.
- Number of successful sub-awardees: This measure represents the number of successful proposals, which become sub-awardees of the Fund. For this measure, there is no target or indicator of success. Any number of successful sub-awardees can represent a successful output, so long as the number remains above one, but the City of Bainbridge will still track the number of sub-awardees to the Fund as a reflection of interest in the Fund.

⁵² Assuming 2.94% reduction in all pollutants, as a reflection of number of EVs on the road that could be supplied by single synthetic graphite manufacturer. See Technical Appendix t for further assumptions.

⁵³ That is, assuming that non-fossil fuel light vehicles produce 0% PM2.5, SO2, NOx, NH3, and VOCs.

⁵⁴ Gallagher, Ciaran L. & Holloway, Tracey, [U.S. decarbonization impacts on air quality and environmental justice](#), Environmental Research Letters (Oct. 25, 2022).

- **Outputs (as proposed by sub-awardee):** The sub-awardee is required in their proposal to state the output product(s) (ie. electric vehicles) and the output amount(s) (ie. 10,000 vehicles/year) that will be catalyzed by the Fund. The sub-awardee is then required to track their output products and amounts and to report their progress to the City of Bainbridge. The City of Bainbridge will provide a status update with respect to output performance measures to the EPA in the semi-annual reports and final report.
- **Estimated outcomes (using real outputs from sub-awardee):** The sub-awardee is required in their proposal to state the outcome metrics, particularly GHG emission reductions, CAPs and HAPs that will be catalyzed by the Fund, along with the output assumptions that contributed to the stated emissions reductions. The sub-awardee is then required to track their outputs and to report the calculated outcome (GHG emission reduction, CAPs and HAPs) progress to the City of Bainbridge. The City of Bainbridge will provide a status update with respect to outcome performance measures to the EPA in the semi-annual reports and final report.

c. Authorities, Implementation Timeline, and Milestones

Table 9 identifies the parties, roles, and responsibilities for implementing each GHG reduction measure and their respective authority to carry out the measure or plan for obtaining authority during the grant period. The overarching roles and responsibilities of each coalition member are detailed in section 1 of this proposal. A detailed implementation timeline—including tasks, key milestones, and key actions needed to meet measure goals and objectives by the end of the grant period—for each measure is provided in section 1.a of this proposal.

Table 9 - Parties, roles, and responsibilities for implementing each GHG reduction measure

Measure	Implementing Entities	Measure-Specific Roles and Responsibilities
Manufacture of raw materials and intermediate and finished products to provide the supplies necessary to support EV uptake through access to enabling capital, financing, and coordination	City of Bainbridge	<ul style="list-style-type: none"> • Issuing subawards to subrecipients, and/or contractors or vendors in accordance with EPA's Subaward Policy • Coordinating on the selection of a program administrator through a competitive procurement process • Overseeing subrecipients, and/or contractors and vendors • Tracking and reporting on project progress on expenditures and purchases • Tracking, measuring, and reporting accomplishments on proposed timelines and milestones • Submitting semi-annual progress reports on grant implementation and planned activities to EPA • Submitting detailed final report to EPA within 120 calendar days of the completion of the period of performance • Community and stakeholder outreach and education within the City of Bainbridge
	Sub-awardees	<ul style="list-style-type: none"> • Implementing proposal activities • Overseeing subrecipients, and/or contractors and vendors • Tracking, measuring, and reporting accomplishments on proposed timelines and milestones to the City of Bainbridge • Submitting semi-annual progress reports on grant implementation and planned activities to the City of Bainbridge

-
- Community and stakeholder outreach and education within the City of Bainbridge
-

4. LOW-INCOME AND DISADVANTAGED COMMUNITIES

a. Community Benefits

The implementation of the measures included in this PCAP are anticipated to provide significant benefits to low-income and disadvantaged communities (LIDACs). The City of Bainbridge sits in Decatur County, and the emission reduction measures in this proposal have the potential to benefit LIDACs in Decatur County through jobs creation and across the country through improved air quality by accelerating EV adoption. LIDACs are defined by the EPA as census tracts that are both low-income or have limited formal education and are experiencing specific “categories of burden,” such as high instances of respiratory illness, high energy or housing costs, or exposure to legacy pollution.⁵⁵ There are three LIDAC census tracts in Decatur County, Georgia (Table 10). However, CAPs reductions through accelerating EV adoption are likely to yield benefits for LIDACs across the country.

Table 10: LIDAC Census Tracts in Decatur County, Georgia

Census tract 2010 ID	County	State
13087970200	Decatur County	Georgia
13087970600	Decatur County	Georgia
13087970700	Decatur County	Georgia

Decatur County experiences a range of health and economic challenges, according to EPA’s EJ Screen data. The county is a food desert and faces challenges accessing transportation. It also experiences high flood and wildfire risk, in the 90th and 95th percentile in Georgia, respectively. It experiences above average indicators of low life expectancy (86th percentile in the US), heart disease (80th percentile), and asthma (75th percentile). 16.1% of the population are living with disabilities, placing it in the 71st percentile for the country. Health issues are partly a reflection of above average exposure to particulate matter, air pollution, and ozone. 48% of the population are low-income, and unemployment is at 6%. This measure, which aims to attract EV and EV materials manufacturers to the City of Bainbridge, will provide a range of potential benefits to LIDAC communities in the region.

This section outlines the potential benefits for LIDACs of implementing this emission reduction measure. According to Georgia’s Peach State Voluntary Emission Reduction Plan, each measure was assessed to determine if it enhanced the benefits outlined in Table 11 below. It provides a summary of the potential benefits associated with each priority reduction measure that is relevant to this application, namely, Measure 1.5 Manufacturing of Raw Materials and intermediate and finished products to support EV uptake, and Measure 3.2 Increasing renewable energy. Measure 3.2 Increasing renewable energy is included to reflect where projects financed through the Bainbridge Accelerator Fund decarbonize EV products and raw material manufacturing through increasing renewable energy. Measures capable of offering direct benefits are denoted by a capital x (X), those with potential indirect benefits are denoted

⁵⁵ As defined by the by the Climate and Economic Justice Screening Tool: Council on Environmental Quality, [Climate and Economic Justice Screening Tool](#) (Nov. 22, 2022).

by a star (*), and measures not relevant to a particular benefit are denoted by a dash (–). These benefits are discussed below:

Table 11: Qualitative Assessment of Potential LIDAC Benefits Resulting

PCAP Priority Measure	Potential Benefit							
	Improved Air Quality	Transportation Improvements	Housing Affordability	Community Beatification	Community resilience	Reduced Noise Pollution	Workforce Development	Lower Utility Bills
Measure 1.5 Manufacturing of Raw Materials and intermediate and finished products to support EV uptake	*	*	--	--	X	*	X	--
Measure 3.2 Increasing renewable energy	*	--	--	--	X	--	X	*

Potential Benefits of Georgia PCAP Measure 1.5: Manufacturing of Raw Materials and intermediate and finished products to support EV uptake

- **Transportation improvements:** Investing in EVs has the potential to enhance transportation affordability and reliability in Georgia over time through decreasing reliance on fuel, which is vulnerable to price fluctuations.
- **Improved air quality:** Replacing gas vehicles with electric vehicles will reduce tailpipe emissions and improve air quality.
- **Community resilience:** Reducing dependence on gas can support resilience during extreme weather events. For example, electric vehicles are not subject to gas shortages during hurricane evacuations.
- **Workforce development:** The implementation of EV (and raw materials) manufacturing demands labor, thereby stimulating the state economy through job creation to support Georgia’s transition to EVs.
- **Reduced noise pollution:** Electric motors produce considerably less noise compared to conventional internal combustion engines, thereby reducing traffic noise levels in urban and suburban areas. This reduction in noise can enhance the ambiance of public spaces, densely populated residential neighborhoods, and public transportation systems.

Potential Benefits of Georgia PCAP Measure 3.2 Increasing renewable energy

- **Improved air quality:** In Georgia, the adoption of renewable energy can improve air quality by mitigating emissions of gases associated with fossil fuel combustion. These reductions have the potential to positively impact public health outcomes, including reducing the prevalence of respiratory diseases.
- **Community resilience:** The advancement of renewable energy can also bolster community resilience against extreme weather events in Georgia. Decentralized renewable energy systems can offer power during emergencies, diminishing community vulnerability and addressing concerns regarding energy security and emergency readiness, especially in LIDACs.

- **Workforce development:** Georgia’s renewable energy sector is labor-intensive and demands a workforce proficient in harnessing various renewable energy sources, such as solar or biomass, as well as the installation and maintenance of energy infrastructure. The developing of renewable energy systems present opportunities for the creation of sustainable employment opportunities.

Successful applicants to the Bainbridge Accelerator Fund will assess, quantify, and report a more thorough analysis of associated community benefits based on actual data collected during implementation. These sub-awardees will track the deployment of clean energy for raw materials and EV product manufacture in and near identified LIDAC census tracts to quantify reduction in GHG emissions and co-pollutant emissions and other community benefits. Sub-awardees will include results of these assessments in semi-annual reports to the EPA and make the information publicly available.

b. Community Engagement

In determining the priority measures of the Peach State Voluntary Emission Reduction Plan, Georgia’s Environmental Protection Division conducted an online public survey to identify priorities and concerns related to reduction measure implementation. A total of 670 responses were collected, 500 of which were complete. Responses from low-income and disadvantaged communities (LIDACs) were used to inform Section 6: Low-Income and Disadvantaged Communities Benefits Analysis.

Additionally, the City of Bainbridge has sought to engage a range of stakeholders while developing this proposal. These include letters of support from:

- **Anovion Technologies:** Anovion Technologies plans to build a facility in Bainbridge that will be the largest synthetic graphite production plant for electric vehicle batteries in the Western Hemisphere, reducing U.S. reliance on imports from China.
- **Bainbridge-Decatur County Industrial Development Authority:** Chairman Keith Lyle has written to express his support for Bainbridge’s efforts in attracting EV-related industries to help reduce greenhouse gas emissions, drive economic growth, and create opportunities for residents of Decatur County.
- **Reverend Raphael Warnock:** Senator Warnock has written to express his support for the consideration of this application for funding to support efforts to attract EV manufacturing opportunities, as well as help boost regional economic development.
- **Sanford Bishop:** Congressman Bishop has written to express his support for the consideration of this application for funding to support efforts to attract EV manufacturing opportunities, as well as help boost regional economic development.

5. JOB QUALITY

The Bainbridge Accelerator Fund will encourage the creation of high-quality, family-sustaining jobs by attracting manufacturers to Bainbridge, Georgia and promoting quality jobs in renewable energy projects where the Fund is used to promote decarbonizing EV manufacturing processes.

Companies in the EV value chain have already proven their impacts on the local workforce. Raw materials and EV product manufacturers have brought hundreds of high-quality jobs to Georgia and to the City of Bainbridge. Recently, synthetic graphite manufacturer invested \$800 million to create a factory in Bainbridge, which is expected to create over 400 high-paying jobs. Supplying critical components for e-mobility is part of Georgia's broader strategy to position itself as a hub for the electric mobility industry,

with 49 EV-related projects announced since 2020, representing over \$25.5 billion in investment and 28,000 jobs. Battery manufacturers, recyclers and supplies alone represent approximately \$8.5 billion in investment and 6,000 jobs.⁵⁶

Beyond the number of jobs, these facilities offer high-quality jobs. Again, as an example of the potential companies that would be attracted to the region by the Bainbridge Accelerator Fund, Anovion Technologies plans to source, onboard, train, and develop a highly skilled employee population, diversifying their workforce, and intending to pay equitable wages that are above national averages based on Standard Occupational Classification (SOC) codes. Anovion Technologies also offers excellent benefit opportunities, including 401k, paid maternity leave, fitness credit, daycare benefits, and tuition assistance. While there will be variation in company policy, employers like Anovion Technologies affirm their employee's free and fair choice to join, form or assist a union.⁵⁷

Additionally, where the Bainbridge Accelerator Fund finances renewable energy projects that aim to reduce emissions in the EV supply chain, it will expand the pool of clean energy jobs in the state of Georgia. 13% of Georgia's electricity generation comes from renewables, and half of that generation is from solar energy (2022).⁵⁸ In 2020, the solar industry employed 6,425 people in the state, and it is anticipated that solar could employ between 11,122 and 16,557 people in Georgia.⁵⁹ One driver of expanded solar is industrial demand. The Bainbridge Accelerator Fund could support the expansion of clean energy, particularly solar, jobs in the region.

Clean energy jobs offer high quality employment. The renewable energy sector offers a wide range of entry, mid-level, and advanced positions, and most entry-level positions do not require four-year degrees. Workers in clean energy industries join unions at similar rates as the construction industry, which is a higher rate than the U.S. average. The high growth of the renewable energy industry means that many careers have significant upward mobility potential. Finally, and critically, clean energy jobs offer higher than average wages across the U.S., but particularly in Georgia where the hourly clean energy worker wage (pre-pandemic) was \$21.36, 19.9% above Georgia's median wage.⁶⁰

Applicants to the Bainbridge Accelerator Fund (and, later, sub-awardees) will be required to demonstrate how their projects will lead to local job creation as well as any programs or efforts that will be put in place to ensure the quality of those jobs or to ensure the best standards of hiring practices. This should include any measures in place to increase and maintain diversity in the workforce, including but not limited to equitable hiring processes, maternity and/or family leave benefits, supportive services (such as transportation), and harassment and bullying policies. This should also include any measures in place to hire individuals with a criminal record, to expand opportunity for individuals with justice-system involvement. To ensure this, applicants to the Fund will have to include a section on Community Engagement & Job Quality. Applicants to the Bainbridge Accelerator Fund are strongly encouraged to review the U.S. Department of Labor and Department of Commerce's Good Jobs Principles⁶¹ and the Good

⁵⁶ City of Bainbridge, [Gov. Kemp: Anovion Technologies to Create Over 400 Jobs in Bainbridge, Invest \\$800M in Manufacturing Facility](#); State of Georgia, [Electric Mobility Manufacturing](#).

⁵⁷ Anovion Equity Plan: Creating a Meaningful Impact.

⁵⁸ EIA, [Georgia: State Profile and Energy Estimates](#) (Feb. 15, 2024).

⁵⁹ NREL, [Georgia's Clean Energy Jobs Potential Through 2030](#) (March 2022).

⁶⁰ NREL, [State-Level Employment Projections for Four Clean Energy Technologies in 2025 and 2030](#) (March 2022).

⁶¹ US Department of Labor, [Department of Commerce and Department of Labor Good Jobs Principles](#).

Jobs Toolkit⁶² when developing their projects. Applicants to the Fund will also be encouraged to attract minority-owned, woman-owned, and veteran-owned subcontractors.

6. PROGRAMMATIC CAPABILITY AND PAST PERFORMANCE

The City of Bainbridge possesses strategic advantages that position it well to attract major capital-intensive businesses integral to the electric vehicle supply chain. This is especially pertinent for industries currently dominated by Chinese suppliers that lack a substantial U.S. presence. Bainbridge already has a shovel-ready project lined up in the form of Anovion Technologies' synthetic graphite facility. With access to appropriate funding, the city can facilitate this project's completion while ensuring adherence to stringent environmental standards. By leveraging such opportunities, Bainbridge can play a vital role in reshoring critical EV supply chain components to bolster domestic manufacturing capabilities.

The following sections outline the capabilities and competencies of existing staff. Information regarding City of Bainbridge staff and operations can be found on the City website. All information is intended to satisfy existing guidance and anticipate additional requirements for Climate Pollution Reduction Grant funds provided through the Environmental Protection Agency by grant award.

Financial Management and Fiscal Accountability

The City of Bainbridge has existing staff responsible for maintaining financial records and keeping documentation related to all contracts for construction or service. Financial management staff will consist of the Administrative Services Director, the Accounting Manager. The City has established financial management practices which adhere to the requirements established in 2 CFR 200, Subparts D, E, and F, as well as State accounting principles established in Georgia Law. Relevant staff include the City Manager (Chris Hobby), the Administrative Services Director (Lisa Taylor), the Accounting Manager (Beverly Allen) and the Community & Economic Development Director (Steve O'Neil).

Administration and Project Management

The City has experience in receiving assistance from State and Federal agencies in the form of grants/loans for various infrastructure improvements, including GEFA Loans and Community Development Block Grants (2000, 2001, 2003, 2005). The City has successfully completed all past grant funded projects, ensuring the delivery of all required reports, facilitating proper requests for funds, and maintained records for these projects in compliance with State and Federal law. The City and will constantly monitor performance to ensure time schedules are being met, projected milestones are being accomplished, and other performance goals are being achieved in accordance with the approved application and grant award requirements. In addition, all activities will be conducted in compliance with federal and state requirements.

Electric Vehicle Supply Chain Task Force

Bainbridge is demonstrating its commitment to leveraging the Bainbridge Accelerator Fund to establish itself as an EV supply chain hub by proposing the formation of a dedicated task force. This group would be charged with developing a comprehensive strategy to maximize the benefits derived from the Fund's

⁶² US Department of Commerce, [Jobs Quality Toolkit](#).

allocation. The primary objective would be to identify and address gaps in the existing EV supply chain that Bainbridge can fill by attracting new businesses and facilitating projects like Anovion Technologies' synthetic graphite facility. The task force's strategy would outline concrete plans for utilizing the Fund to jumpstart domestic manufacturing of critical EV components currently sourced from overseas suppliers, particularly from China.

BUDGET NARRATIVE [Limited to 10 pages] [45 possible points]

This budget narrative uses the following budget categories to break out costs associated with implementation of the proposed measures:

- **Personnel:** Direct costs for salaries and wages.
- **Fringe Benefits:** Allowances and services provided by the employer to personnel in addition to regular salaries and wages. These may include the cost of leave, employee insurance, pensions and unemployment, cell phone allowances, holiday bonuses, and similar benefits.
- **Travel:** Costs for transportation services, lodging, per diem, and similar personal expenses allowed under applicable travel policies for trips necessary to implement the proposal.
- **Equipment:** Costs for tangible, non-expendable, personal property having a useful life of more than one year and an acquisition cost of \$5,000 or more per unit used by personnel implementing the proposal. Equipment purchased by project participants is classified in the "Other" budget category as participant support costs.
- **Supplies:** Costs for tangible personal property other than equipment with a per item acquisition cost of less than \$5,000 that are necessary to implement the proposal.
- **Contractual:** Costs associated with contracts to acquire property (including intellectual property) and services needed to carry out the proposal.
- **Other:** Direct costs that do not fit in any of the other budget categories, including participant support costs and subawards.
- **Indirect:** Costs incurred for a common or joint purpose that benefit more than the proposed project that is not readily divisible among cost objectives without efforts disproportionate to the results achieved. Examples include space costs, utilities, accounting services, human resources, etc.

An explanation of costs associated with each measure and a consolidated budget are presented below. A breakdown of costs for each budget category for each measure is provided in the CPRG Implementation Grants Budget Table included with this proposal.

1. Measure 1: Fund to support the manufacture of raw materials and intermediate and finished products to support EV uptake

The current domestic supply of raw materials and intermediate products needed to enable the uptake of electric vehicles (EVs) is not materializing at the pace and scale necessary to meet state and national EV market share targets or to meet the massive portion of GHG emission reductions on which Georgia as well as U.S. climate targets rely. Bainbridge, GA, although a comparatively rural community, is pivotally located and equipped to serve as the linchpin for Georgia's entire EV strategy. With funding from the CPRG program Bainbridge will be able to assure that the supply chain is built in time and at the scale needed to meet these targets. This project will design and operate a fund to play this pivotal role by financing domestic manufacturing operations, and/or providing direct capital to EV-related manufacturing facilities currently located in Bainbridge or which Bainbridge is working to attract. The aim is to address the financing gap that hinders the growth of EV-related manufacturing processes to drive sustainable transportation and reduce greenhouse gas emissions.

This fund will address the financing gap that hinders the growth of EV-related manufacturing processes, not only creating the products needed to build EVs, but also accelerating EV adoption while supporting manufacturers' own sustainability targets to bring down GHG emissions over time. Decarbonizing

manufacturing will make the EV sector even more competitive by driving down the cost of energy while reducing the emissions footprint of domestically manufactured components of the EV supply chain. The fund will be available to further drive down the EV emissions footprint by providing access to funds to decarbonize industrial process(es) at Bainbridge manufacturing facilities that supply national EV markets, to access distributed renewable energy resources and to capture and to explore new technologies, such as re-using waste heat or other externalities to produce electricity either for own consumption or for contribution to the local grid.

a. City of Bainbridge Personnel and Fringe

It is anticipated that the Project Manager will meet with the potential recipients to explain the fund, assess the needs of the potential recipient, and provide the initial review of proposals/requests to ensure the requested funds fit the parameters to ensure compliance with GHG reduction measures.

The Accounting Manager and Accounting staff will ultimately be the ones disbursing funds and auditing the funds to ensure compliance with applicable laws at the local, state, and federal level and ensuring the fiduciary responsibilities of the grant parameters are adhered to.

The City of Bainbridge estimates that the obligations required from the three staff members to effectively manage and promote this fund will utilize up to 50% of their time. Our personnel calculations and fringe benefits reflect that estimation in the budget and are based on existing salaries and fringe benefits.

b. City of Bainbridge Travel

To effectively close the financing gap and help to increase the pace and scale of EV uptake, it is important to meet with local industries but also potential startup and expanding industries looking for financial assistance. The City of Bainbridge anticipates the project manager utilizing up to \$50,000 per year for 5 years to promote the fund and the City as a premier destination for EV-related manufacturing facilities. This will include travel expenses, meals, lodging, and registration at EV-related industry trade shows and conferences. The City intends to network with those who are either currently in the EV-related industry and looking to expand or those looking to get into the industry and need financing to assist with startup costs. Individual site visits are anticipated to existing facilities throughout the country/world that are looking to expand and/or relocate operations. The City desires to meet with current EV-related manufacturing companies to see firsthand how their operation is run. The City feels that this is an important effort in order to understand and adapt to the needs of EV-related industries.

c. City of Bainbridge Equipment

The City of Bainbridge does anticipate utilizing any new equipment specific to our efforts to provide financial assistance to EV-related industries.

d. City of Bainbridge Supplies

The City of Bainbridge does anticipate utilizing any new supplies specific to our efforts to provide financial assistance to EV-related industries.

e. City of Bainbridge Contractual

The City of Bainbridge will contract with a consultant to advise on loan requests and function as the underwriter for loans.

f. City of Bainbridge Other

N/A

g. City of Bainbridge Indirect Costs

No indirect costs have been established.

2. Consolidated Budget by Year

BUDGET BY YEAR							
COST-TYPE	CATEGORY	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	TOTAL
Direct Costs	TOTAL PERSONNEL	\$150,550	\$158,077	\$165,981	\$174,280	\$182,994	\$831,883
	TOTAL FRINGE BENEFITS	\$60,220	\$63,231	\$66,392	\$69,712	\$73,198	\$332,753
	TOTAL TRAVEL	\$50,000	\$50,000	\$50,000	\$50,000	\$50,000	\$250,000
	TOTAL EQUIPMENT	\$0	\$0	\$0	\$0	\$0	\$0
	TOTAL SUPPLIES	\$0	\$0	\$0	\$0	\$0	\$0
	TOTAL CONTRACTUAL	\$80,000	\$80,000	\$80,000	\$80,000	\$80,000	\$400,000
	TOTAL OTHER	\$0	\$0	\$0	\$0	\$0	\$0
	TOTAL DIRECT	\$340,770	\$351,308	\$362,374	\$373,992	\$386,192	\$1,814,636
	TOTAL INDIRECT	\$0	\$0	\$0	\$0	\$0	0
TOTAL FUNDING		\$340,770	\$351,308	\$362,374	\$373,992	\$386,192	\$1,814,636

3. Consolidated Budget by Project

BUDGET BY PROJECT			
Project Number	Project Name	Total Cost	% of Total
	Bainbridge EV Supply Chain		
1	Accelerator Fund	\$1,814,636	100%
2	Name 2	\$0	0%
3	Name 3	\$0	0%
4	Name 4	\$0	0%
5	Name 5	\$0	0%
Total		\$1,814,636	100%

4. Expenditure of Awarded Funds

The City of Bainbridge will expend and account for awarded funds in accordance with state laws and procedures for expending and accounting for the state's own funds. The financial management system for City of Bainbridge complies with the requirements of 2 CFR 200.302(b).

The City of Bainbridge will enter into a subaward agreement with each coalition member prior to disbursement of subaward funds. These agreements will include all applicable pass-through requirements for subrecipients in accordance with [EPA's Subaward Policy](#) and [EPA's General Term and Condition for Subawards](#).

The semi-annual reports and final report will include a breakdown of expenditures associated with the implementation of this proposal.

The City of Bainbridge will develop a funding committee to ensure the funding is being utilized and disbursed appropriately and evaluate proposals for grant funding or loans for EV-related industries. This committee will be comprised of the following: Mayor, Mayor Pro-Tem, City Manager, Community & Economic Development Director, and one "at-large" member appointed by the Mayor with ratification by the City Council who must possess extensive current and relevant experience in the financial industry.

IMPLEMENTATION GRANT APPLICATION TECHNICAL APPENDIX [up to 10 pages]

This Technical Appendix explains the methodology and assumptions used for developing the estimated greenhouse gas (GHG) emissions and co-pollutant emissions reduced for each measure included in the proposal. The “GHG Emission Reduction Calculation Spreadsheet” included with this application provides the specific GHG emission reduction calculations for each measure.

1. Measure 1: Manufacture of raw materials and intermediate and finished products to provide the supplies necessary to support EV uptake through access to enabling capital, financing, and coordination

This measure will reduce GHG emissions through two mechanisms: first, by decarbonizing manufacturing and industrial processes, and second, by increasing the adoption of electric vehicles to replace internal combustion engine vehicles. This section will outline the emissions reduction estimates methods, models used, implementation assumptions, estimate assumptions, reference case scenarios, implementation tracking metrics, and GHG and co-pollutant emissions reductions for both mechanisms.

Emissions Reduction Estimate 1: Replacing Chinese Synthetic Graphite with Domestic Synthetic Graphite

GHG emissions will be reduced through two mechanisms: first, producing EV materials at a lower the carbon emissions intensity than the Chinese alternatives; and second, through lowering materials production costs, which could lower EV prices and increase EV adoption. Through both mechanisms, we anticipate that this measure will reduce 1,554,167 mt CO₂e by 2030 and 27,974,785 mt CO₂e by 2050 (Table 12). This figure is critical to meeting the U.S. climate targets. Of transportation emissions, on-road vehicles account for 1,377,600,000 mt CO₂e (as of 2020).⁶³ This means that providing Bainbridge the wherewithal to fill the lack of support for EV supply chain creation would lead to a 2% total reduction in transportation emissions. The importance and urgency of providing funding now means that the U.S. achieves these reductions faster, which is the ultimate key to meeting the 1.5 degree targets.

Table 12: Total Emissions Reductions

Total GHG Emissions Reductions 2025-2030	1,554,167	Mt CO₂e
Replacing Chinese Anode Graphite with Domestic Synthetic Graphite	1,462,500	Mt CO₂e
Increasing Electric Vehicle Adoption	91,667	Mt CO₂e
Total GHG Emissions Reductions 2025-2050	27,974,785	Mt CO₂e
Replacing Chinese Anode Graphite with Domestic Synthetic Graphite	8,775,000	Mt CO₂e
Increasing Electric Vehicle Adoption	19,199,785	Mt CO₂e

⁶³ EPA, [Why we need to decarbonize transportation](#).

a. Emission Reductions Estimate Method:

The Bainbridge Accelerator Fund can be utilized to drive down the emissions footprint of the EV supply chain, such as via access to funds to decarbonize industrial process(es) at Bainbridge manufacturing facilities that supply national EV markets, to increase access to distributed renewable energy resources or to capture and re-use waste heat to produce electricity. For the first emissions reduction estimate, we use the data-rich example of shifting from synthetic graphite from China to domestically manufactured synthetic graphite. Domestically manufactured synthetic graphite can be produced with significantly fewer GHG emissions.

To calculate the GHG emissions reductions from replacing Chinese synthetic graphite with domestically produced synthetic graphite, we use data from the 'Prospective Life Cycle Assessment Study of Anovion Technologies Lithium Ion Battery Grade Synthetic Manufacturing' commissioned by Anovion Technologies to identify the CO₂e per kg required to manufacture Chinese synthetic graphite (23.4 kg CO₂e per kg graphite) vs. the potential CO₂e per kg manufacture synthetic graphite in the United States (at least 50% less at 11.7 kg CO₂e per kg graphite), a reduction achieved thanks to Anovion's proprietary upgrades to the graphitization process.⁶⁴ Given that Anovion Technologies has the capacity to manufacture 40,000 metric tonnes of synthetic graphite per year, the annual reduction in GHG emissions when replacing Chinese synthetic graphite is 468,000 mtCO₂e.

Assuming that up to three applicants receive capital or critical investments from this fund, the Bainbridge Accelerator Fund could catalyze at least 7,020,000 mtCO₂e (\$71.23/ton) by 2030 and 42,120,000 mtCO₂e (\$11.86/ton) by 2050. Based on the capital expenditure costs of companies such as Anovion, the best source of data available to Bainbridge in terms of critical mineral manufacturing for EVs, each facility requires an average of \$800,000,000 in capital expenditures to complete construction and achieve full operation. This means that the requested \$500,000,000 CPRG Implementation Grant would be leveraged to multiply the CPRG's investment by over three times to \$2.4 billion in EV supply chain investments tied to Bainbridge, Georgia, a return on investment of 480%. The CPRG Implementation Grant would therefore account for 20.83% of required capital expenditure and would be responsible for 1,462,500 mtCO₂e (\$341.89/ton) by 2030 and 8,775,000 mtCO₂e (\$56.98/ton) by 2050 when just considering emissions reductions from improved graphite production processes. For every 1% reduction from the China incumbent process could translate into approximately __ kg, [CONSIDER THIS APPROACH to answer TV question?]

b. Models/Tools Used:

No additional models were used to calculate the GHG emissions reductions of this estimate.

c. Measure Implementation Assumptions:

The following key assumptions about measure implementation were used to quantify emissions reductions for this measure:

⁶⁴ Prospective life cycle assessment study of Anovion Technologies lithium ion battery grade synthetic graphite manufacturing, 31 Oct 2023

- Successful applicants receive disbursement from the funds by Q4 2024/Q1 2025
- Manufacturing facility begins production in 2026
- Manufacturing facility functions at full capacity through 2076
- Additional manufacturing facilities catalyzed by this grant have similar GHG emissions reduction potentials
- Capital costs are average \$800 million per facility

d. Emission Reduction Estimate Assumptions:

The following key assumptions about emission reductions were used to quantify emission reductions for this measure:

- The reference year for the base case is 2026.
- CO₂e per kg required to manufacture Chinese synthetic graphite (23.4 kg CO₂e per kg graphite)⁶⁵
- Assuming that transportation and logistics GHG emissions decreases CO₂e per kg required to manufacture US synthetic graphite by at least 50% (11.7 kg CO₂e per kg graphite)⁶⁶
 - Graphite production in the U.S. can leverage more renewable energy sources and stricter environmental standards than China, while also eliminating emissions from overseas shipping, thereby significantly reducing the greenhouse gas footprint of this key battery material.⁶⁷

e. Reference Case Scenario:

Without the request CPRG implementation grant funding, it is assumed that these EV supply chain companies will not be able to secure the required capital to invest in these facilities. In the illustrative synthetic graphite case, it is assumed that the facility will not be built, and no synthetic graphite will be manufactured by Anovion Technologies. The assumption is that US EV automakers will continue to import synthetic graphite from China.

f. Measure-Specific Activity Data and Implementation Tracking Metrics:

The GHG emissions from this illustrative case come from the initial construction of a synthetic graphite manufacturing facility and the subsequent synthetic graphite manufactured per year. As multiple applicants throughout the EV supply chain may apply to the Bainbridge Accelerator Fund, the relevant activity data and implementation tracking metrics will vary.

g. GHG Emissions Reduced:

Implementation of this measure is anticipated to reduce 468,000 mtCO₂ e per facility per year with funding up to three facilities leading to a cumulative 7,020,000 mtCO₂e for the period between 2025 –

⁶⁵ Prospective life cycle assessment study of Anovion Technologies lithium ion battery grade synthetic graphite manufacturing, 31 Oct 2023

⁶⁶ Prospective life cycle assessment study of Anovion Technologies lithium ion battery grade synthetic graphite manufacturing, 31 Oct 2023

⁶⁷ Statista, [Greenhouse gas emissions from the energy sector in the United States and China under a “business-as-usual” scenario from 2020 to 2021, with projections until 2050.](#)

2030 and cumulative 4,210,000 mtCO₂e for the period between 2025 – 2050. The CPRG Implementation Grant would therefore account for 20.83% of total capital expenditure for three facilities and would be responsible for 11,462,500 mtCO₂e for the period between 2025 – 2030 and cumulative 8,775,000 mtCO₂e for the period between 2025 – 2050.

Emissions Reduction Estimate 2: Increasing Electric Vehicle Adoption

a. Emission Reductions Estimate Method:

Continuing with the illustrative case of domestic synthetic graphite manufacturing, the second mechanism for GHG emissions reductions is through lower component costs from domestic manufacturers lowering EV prices and increasing EV adoption. We use recent synthetic graphite price data to estimate the price reduction per kg, assuming lower costs are passed over to the consumer, we estimate the price decrease in EVs. We then adjust the EV subsidy inputs on Energy Innovation's US Energy Policy Simulator to estimate the changes in number of EVs and GHG emissions over the business-as-usual scenario. From the Energy Policy Simulator we are able to estimate the increased adoption of EVs, as well as expected reductions in GHG emissions and CAPs (PM_{2.5}, PM₁₀, CO, SO_x, NO_x). Additionally, the financial impacts of CAPs reductions are estimated using the EPA's CO-Benefits Risk Assessment Health Impacts Screening Tool (COBRA).

b. Models/Tools Used:

GHG & CAPs Emissions Reductions Model: [Energy Policy Simulator](#)

- Name of Developer: Energy Innovation
- Region: United States
- Date Last Accessed: 26 March 2024

CAPs Health Impacts Reductions Model: [CO-Benefits Risk Assessment Health Impacts Screening Tool \(COBRA\)](#)

- Name of Developer: US Environmental Protection Agency
- Region: United States
- Date Last Accessed: 26 March 2024

c. Measure Implementation Assumptions:

The following key assumptions about measure implementation were used to quantify emissions reductions for this measure:

- Successful applicants receive disbursement from the funds by Q4 2024/Q1 2025
- Manufacturing facility begins production in 2026
- Manufacturing facility functions at full capacity through 2076
- Additional manufacturing facilities catalyzed by this grant have similar GHG emissions reduction potentials
- Capital costs are average \$800 million per facility

d. Emission Reduction Estimate Assumptions:

The following key assumptions about emission reductions were used to quantify emission reductions for this measure:

GHG & CAPs Emissions Reductions Assumptions:

- Assuming the average 2022-2023 price of Chinese synthetic graphite (\$2,750/mt)⁶⁸ and the 2023 estimate price of US manufactured synthetic graphite (\$2,475/mt)⁶⁹
- Assuming the number of EV batteries that could be produced from the raw materials of a single synthetic graphite manufacturer is 500,000/year.
- Assuming that an EV battery requires 80 kg of battery-grade synthetic graphite, that synthetic graphite accounts for 28% of EV battery costs, and assuming that the battery accounts for 28% of total EV costs.⁷⁰
- With all these assumptions, we calculate that switching from Chinese synthetic graphite to US manufactured synthetic graphite could reduce the cost of manufacturing an EV by 1%
- Assuming these cost decreases are passed on entirely to the consumer, and is reflected 100% in the price of the EV
- In the Energy Innovation Energy Policy Simulator, we only added a 1% EV subsidy to reflect those cost decreases. This is probably actually a conservative estimate, since complementary policies (EV charging infrastructure support, etc.) would be likely to work in tandem with lower-cost EVs to increase demand even further.
- In the Energy Innovation Energy Policy Simulator, the implementation schedule has been adjusted, so that EV prices are not affected until 2027, not fully in effect until 2030 and then in effect until 2050 (Table 13). This is to reflect the period of constructing and initial manufacturing before prices are impacted.

Table 13: Policy Implementation Schedule

Year	Implementation %
2025	0%
2026	0%
2030	100%
2050	100%

- Assuming that up to three applicants receive capital or critical investments from this fund
- Assuming each facility requires an average of \$800,000,000 in capital expenditures, the CPRG Implementation Grant could catalyze \$2.4 billion in EV supply chain investments in Bainbridge, Georgia. The CPRG Implementation Grant would therefore account for 20.83% of that capital expenditure and 20.83% of emissions reductions.

For the COBRA model, we make the following assumptions:

- A synthetic graphite manufacturing facility is able to produce enough graphite to construct batteries for 500,000 EVs per year.

⁶⁸ Viachem: [China's anode market tilts toward synthetic graphite amid supply shake-up.](#)

⁶⁹ We estimate that it will be approximately 10% lower due to lower transportation and logistics costs.

⁷⁰ Auto Week: [Here's Why Graphite Is Needed For Affordable Electric Vehicles.](#)

- We assume that the average life of a car in the U.S. is 14 years, and so at its height, a synthetic graphite facility could be responsible for the graphite in 7 million cars. We assume there are 234.4 million cars on the road.⁷¹ Therefore, a single synthetic graphite facility could be responsible for the graphite in 2.94% of EVs on the road.
- Following the precedent set by Gallagher & Holloway 2022,⁷² we set the COBRA scenario assumptions to reduce PM2.5, SO2, NOx, NH3, and VOC by 2.94% for highway vehicles in all contiguous U.S. states, and we set the discount rate at the standard 3%.

e. GHG & CAPs Reference Case Scenario:

The reference scenario for the GHG emissions reductions is that without the Bainbridge Accelerator Fund, the facility cannot secure the required capital for deployment, and no additional EVs are present on the road. Therefore, the BAU Scenario from the Energy Policy Simulator captures the reference case. The baseline case for COBRA is with no pollutant reductions.

f. Measure-Specific Activity Data and Implementation Tracking Metrics:

The GHG emissions from this case derive from the reduced cost of domestic synthetic graphite and subsequent reductions in the price of electric vehicles. The graphite costs can be tracked by the company and the price of EVs will be tracked by the auto industry. As multiple applicants throughout the EV supply chain may apply to this fund, the relevant activity data and implementation tracking metrics will vary.

g. GHG and Co-pollutant Emissions Reduced:

Implementation of this measure is anticipated to reduce a cumulative 91,667 mtCO₂e for the period between 2025 – 2030, and cumulative 19,199,785 mtCO₂e for the period between 2025 – 2050.

The estimated CAPs reductions are detailed here in Table 14.

Table 14: CAP Reduction Estimates

CAP Reduction			
PM2.5	2025-2030	-5.79	metric tons
	2025-2050	34.58	metric tons
PM10	2025-2030	47.60	metric tons
	2025-2050	54,929.10	metric tons
CO	2025-2030	12,590.90	metric tons
	2025-2050	1,542,377.70	metric tons
SOx	2025-2030	-34.03	metric tons
	2025-2050	187,066.82	metric tons
NOx	2025-2030	1,108.00	metric tons
	2025-2050	360,492.60	metric tons

⁷¹ Statista, [Number of motor vehicles registered in the United States from 1990 to 2022](#).

⁷² That is, assuming that non-fossil fuel light vehicles produce 0% PM2.5, SO2, NOx, NH3, and VOCs.

Using the Environmental Protection Agency's CO-Benefits Risk Assessment Health Impacts Screening Tool (COBRA), it is estimated that just the vehicles on the road as a result of a single battery materials manufacturer could save between \$1,279,984,399-\$2,884,200,091 per year in health benefits due to reduced PM2.5, SO2, NOx, NH3, and VOC. In Decatur County, Georgia alone, that amounts to \$50,966-\$114,998 in health benefits annually.

As noted above, these emissions are illustrative of the potential GHG emissions and criteria air pollutant reductions possible through this fund. The actual projects financed by the Bainbridge Accelerator Fund will vary in project type and estimate GHG reductions.