

Section 1: Overall Project Summary and Approach

With ambitious goals to reduce greenhouse gas (GHG) emissions, including reducing statewide emissions to at least 50% below 2005 levels by 2030 and net-zero emissions no later than 2050, North Carolina (NC) has an important task at hand to implement the right measures that achieve these targets. But this is a complex challenge: transportation is the underpinning of trade and the economy in the state but continues to be energy-intensive and reliant on internal-combustion vehicles; buildings and residences rely on fossil fuels for heat and energy-intensive cooling, especially with volatile temperatures on the rise; industrial facilities are capital-intensive, have high energy requirements to drive core business operations that are often reliant on hydrocarbons and fossil fuels, and yet need to remain economically competitive; and, the waste sector has proved particularly emissions-intensive as population and economic growth in the state and waste generation volumes have increased significantly in recent years.

The Climate Pollution Reduction Grant (CPRG) Program is an important opportunity for NC to receive critical funding to reduce emissions and transform the state's market so that CPRG

implementation creates catalytic change and to enable the achievement of NC's existing climate goals while maintaining a business-friendly economy. This application - *Bridging Science, Communities, and Innovation for a Clean Energy Future* - and implementation approach demonstrates the deep and intentional planning processes and whole-of-government approach that the North Carolina Department of Environmental Quality (NCDEQ) has led to determine the right portfolio of measures for implementation, with leaders across key state agencies, the Governor's Office, two Metropolitan Statistical Areas (MSAs), and local governments, being closely engaged at every step. Primary organizations within NCDEQ who were engaged in this application were the Secretary's Office, Division of Air Quality (DAQ), State Energy Office (SEO), and NCDEQ Environmental Justice (EJ) team.

NC's Clean Transportation Plan, Zero Emission Vehicle (ZEV) Plan, Clean Energy Plan, and transformative bipartisan legislation enacted under House Bill 951, the 2022 Executive Order (EO) 246, *NC's Transformation to a Clean and Equitable Economy*, and the 2018 EO 80, *Commitment to Address Climate Change and Transition to a Clean Energy Economy* have served as models across the Southeast region and nationwide for energy transition action and demonstrated the state's longstanding focus on: quantifying emissions, as one of the first states to develop and provide a state-specific, peer-reviewed, emissions inventory and forecast using tools such as the EPA State Inventory Tool (SIT); identifying climate-related benefits and burdens on disadvantaged communities in the NC Risk Assessment and Resilience Plan published in 2020; and, institutionalizing climate action into every state agency by requiring that each state agency identify, track, and measure climate resilience benefits and burdens related to their programming. With demonstrated leadership and decades of experience designing and implementing climate-forward plans, the state is well positioned to manage and implement the CPRG program to reduce and mitigate climate pollution across the state.

Based on the inputs gathered in the planning phase and a deep understanding of the needs across the state, the implementation measures were designed based on the following NC Climate North Stars:

- Implementation programs must either **build on NCDEQ's existing momentum of climate programs and plans** to scale for higher impact *or* **seed a new market or innovative approach** to spur further investments that can lead to market transformation.

North Carolina's Climate Goals

- Reduce statewide GHG emissions to at least 50% below 2005 levels by 2030 and achieve net-zero emissions no later than 2050.
- Increase the total number of registered ZEVs to at least 1,250,000 by 2030 and increase the sale of ZEVs so that 50% of in-state sales of new passenger vehicles are zero-emission by 2030.
- Reduce energy consumption per square foot in state-owned buildings by at least 40% from fiscal year 2002-2003 levels by 2025.
- Reduce electric power sector GHG emissions by 70% below 2005 levels by 2030 and attain carbon neutrality by 2050.
- Develop 2.8 gigawatts (GW) of offshore wind energy resources by 2030 and 8.0GW by 2040.

Workplan: North Carolina CPRG Implementation Grant
Bridging Science, Communities, and Innovation for a Clean Energy Future

- Implementation **programs should increase sustainability through activities to mitigate and reduce emissions** to better protect NC against future climate vulnerabilities.
- **Prioritize Low-Income and Disadvantaged Communities (LIDACs) at every opportunity** and continue to think and act creatively and collaboratively to maximize benefits to underserved and under resourced communities.
- Where possible, **braid together and bundle existing and forthcoming federal and non-federal funding** to maximize community impacts and scale programs.
- Leverage the **ecosystem of climate partners and thought leaders in NC** and stakeholder input throughout implementation.
- Program **implementation should be deployed statewide** and not solely in urban/suburban areas.

The application of these principles and analysis of NC's GHG Emissions Inventory led to the following set of programs focused in four CPRG-priority emitting sectors: **Transportation, Buildings, Industry, and Waste**.

Transportation: The state's five transportation programs increase low-emission and electric vehicles (EVs) on the road, remove barriers to EV use by expanding the public EV charging network accessible to all North Carolinians, reduce vehicle miles traveled (VMT), and decarbonize port operations.

- **Transportation 1 (T1) Commercial Fleet and Fuel Transition:** Incentivizing the transition of commercial sector medium-to-heavy duty (MHD) internal-combustion vehicles to cleaner vehicles and EVs.
- **Transportation 2 (T2) EV Charging Infrastructure:** Enabling publicly accessible and multi-unit dwelling (MUD) Level 2 charging infrastructure.
- **Transportation 3 (T3) Government Fleet and Fuel Transition:** Enabling the transition of local and state government light-duty (LD) and MHD fleet vehicles to cleaner options including EVs.
- **Transportation 4 (T4) Port Operations Decarbonization:** Reducing freight container transportation-related emissions.
- **Transportation 5 (T5) Pedestrian VMT Program:** Reducing VMTs through pedestrian infrastructure.

Buildings: The state's three buildings programs focus on addressing critical Make Ready measures in LIDAC homes and multi-family buildings and prepare their structural eligibility for the Weatherization and Home Energy Rebate Programs and reducing energy intensity of public buildings to reduce emissions, save costs, and lead by example.

- **Buildings 1 (B1) Weatherization+ Assistance Program:** Expanding the Weatherization Assistance Program (WAP) to implement Make Ready preparations in LIDAC residences.
- **Buildings 2 (B2) State Building Decarbonization and Efficiency:** Enabling decarbonization and energy efficiency (EE) improvements in State-owned buildings.
- **Buildings 3 (B3) Local Public Building Decarbonization and Efficiency:** Enabling decarbonization and EE in local government-owned buildings.

Industry: The state's three industry programs focus on funding market gaps in this hard-to-abate sector to assess and identify decarbonization opportunities for industrial facilities, prepare the workforce to implement facility decarbonization measures, and seed innovative decarbonization initiatives through a low-interest loan fund for small-to-medium sized enterprises.

- **Industry 1 (I1) Industrial Electrification, Efficiency, and Process Emissions Reduction:** Providing no-cost energy assessments and technical assistance (TA) to industrial facilities.
- **Industry 2 (I2) Industrial Decarbonization Workforce Development:** Establishing workforce capacity building and continue educational support.
- **Industry 3 (I3) Industrial Decarbonization Loan Fund:** Establishing a low-interest energy loan financing program for industry to fund decarbonization measures.

Waste: The state's three waste programs focus on reducing methane emissions from food waste landfilling, landfill operation emissions, and air pollution from waste collection processes, and collecting landfill gases more efficiently and earlier in the lifecycle.

- **Waste 1 (W1) Organic Waste Reduction:** Diverting organics from landfills by directing food to communities in need and creating organic resources through composting or anaerobic digestion (AD).
- **Waste 2 (W2) Waste Operations Electrification and Decarbonization:** Enabling the transition of diesel waste and materials recovery vehicles to electric motors or lower-carbon fuels.

Workplan: North Carolina CPRG Implementation Grant
Bridging Science, Communities, and Innovation for a Clean Energy Future

- **Waste 3 (W3) Landfill Gas Reductions:** Reducing landfill gas emissions through improved landfill operations to collect gas more efficiently and earlier in a landfill life while utilizing the collected gas as an energy source.

MSA CPRG Partnership: In CPRG implementation, NCDEQ is partnering with Central Pines Regional Council (CPRC) and Centralina Regional Council (Centralina) to further achieve state- and MSA-wide climate pollution reduction goals by strategically partnering to achieve more for NC residents than can be achieved individually. The programs for CPRG implementation that the MSAs have designed are the following:

CPRC: In the Raleigh-Durham metropolitan area, CPRC has designed two programs to address key program gaps to prepare buildings for EE and electrification and to reduce transportation related emissions by expanding mobility options for LIDAC residents.

- **Central Pines Regional Council 1 (CPRC1) Building EE and Emissions Reductions:** Providing TA to support participant navigation of existing energy rebate programs, implementing non-residential EE upgrades for commercial and faith-based buildings, providing funding for EE and electrification to multi-family homes (MFHs) that do not qualify for the WAP, and performing community outreach to elicit program participation.
- **Central Pines Regional Council 2 (CPRC2) VMT Reductions:** Reducing VMT through bus fares, micro mobility, electric vans for community-based organizations, and sidewalk construction in LIDACs to encourage multiple modes of transportation.

Centralina: With similar needs in the Charlotte metropolitan area, Centralina has designed two programs to address key program gaps to provide EE and electrification upgrades to non-residential structures and to homes that do not qualify for the WAP, and to reduce transportation related emissions.

- **Centralina 1 (C1) Building Decarbonization:** Decarbonizing non-residential buildings including industrial facilities through increased EE and decarbonizing residential homes ineligible for existing and upcoming energy rebate programs (e.g., MFHs with 40-49% low-to-moderate income households in dwelling units).
- **Centralina 2 (C2) VMT Reductions:** Implementing regional VMT reduction strategies focused in LIDACs through the installation of multimodal solutions (sidewalks and bike lanes), transit rider incentives, and incentives for micro-mobility (such as e-bikes) in high-traffic areas.

Upon program implementation, the state will have lower-emitting and more efficient transportation, building, industry, and waste sectors, where all North Carolinians live in cleaner, healthier, more equitable communities.

Section 1.1: Description of GHG Reduction Measures

This section provides additional details on each of the programs and the rationale for why this measure was chosen for CPRG implementation.

Table 1: Description of GHG Reduction Measures

Transportation 1 (T1) Commercial Fleet and Fuel Transition Program	
Program Description	Program T1 will replace non-government MHD vehicles with electric and clean diesel vehicles to reduce transportation related emissions. NCDEQ will establish a competitive grant program to provide grant funding to commercial entities. Commercial entities can utilize the grant funding to purchase new electric and clean diesel MHD vehicles. Commercial entities situated in or serving LIDACs will be eligible for up to 65% of the vehicle replacement costs. Projects located outside of LIDAC areas and non-EV replacement projects would have a greater cost share requirement. \$40,000 would be deducted from the awarded amount for any MHD EV funded. In addition, there is flexibility for vehicle replacements to include electric and clean diesel fuel.
Rationale	The transportation sector is the largest contributor to emissions and the transition away from internal-combustion vehicles, particularly for MHD vehicles that are less efficient than LD vehicles, will have a positive impact on emissions and air pollutant reductions. Clean MHD vehicles are often more expensive than internal-combustion MHD vehicles but with the CPRG funds in this area, initial costs can be reduced to incentivize the transition to cleaner vehicles in the short term and bring down costs for these vehicles in the long term as demand rises.
Risks and Mitigation Strategies	Even with incentives, it can be challenging to foster uptick in programs from commercial entities who lack funding for the upfront costs for vehicle replacement. To address this NCDEQ will increase the grant incentive amounts for LIDAC focused entities.
PCAP Measure 1. Increase the number of ZEVs and EVs on the road through partnerships, TA, financial incentives, and other mechanisms.	

Workplan: North Carolina CPRG Implementation Grant
Bridging Science, Communities, and Innovation for a Clean Energy Future

Transportation 2 (T2) EV Charging Infrastructure	
Program Description	Program T2 will implement community-based level 2 EV charging infrastructure at MUDs and other locations that are accessible to the public. NCDEQ will issue three RFPs to implement this program. RFP 1 will focus on MUDs and utilize rebates for fast implementation. RFP 2 will encompass a competitive MUD program for larger scale MUD projects. RFP 3 will target publicly accessible projects.
Rationale	Rural communities and people living in MUDs are not well-served by current federal EV charging infrastructure investments. This program will address the EV adoption barrier of range anxiety.
Risks and Mitigation Strategies	EV charging infrastructure availability is a higher need for people that live in MUDs where charger availability is usually non-existent. To address this, level 2 rebate projects will have a two-port minimum requirement and a maximum of four-ports. Any single rebate applicant will be eligible for \$50,000 in funding.
PCAP Measure 2. Identify, install, and maintain a public EV charging network accessible to all North Carolinians.	
Transportation 3 (T3) Government Fleet and Fuel Transition Program	
Program Description	Program T3 is to replace government MHD fleets and government LD fleets with cleaner vehicles. NCDEQ will support state agencies with larger fleets and local government agencies to assess their current vehicle use and specific fuel usage amounts (and associated emissions) for each vehicle to identify which vehicles should be prioritized for replacement to EVs (e.g., highly inefficient vehicles with heavy use). LIDACs lack funding for the upfront costs for vehicle replacement. To address this, Program T3 will allow government projects in LIDAC areas to be eligible for 100% funding. Projects located outside of LIDAC areas and non-electric vehicle replacement projects will have a cost share requirement. \$40,000 will be deducted from the awarded amount for any MHD EV funded and up to \$7,500 for any LD EV funded in the vehicle replacement programs.
Rationale	State agencies are directed under EO 246 to increase the total number of registered ZEVs to at least 1,250,000 by 2030 and increase the sale of ZEVs so that 50% of in-state sales of new vehicles are ZEV by 2030. Local and state agencies have constrained budgets and may not be able to replace their MHD and LD fleets with EVs – the adoption of EVs will also further allow the state government to Lead by Example and encourage others to transition fleets to EVs.
Risks and Mitigation Strategies	MHD EVs will require an adjustment in how government fleets are operated and maintained. There may be a lack of clear training on how to plan for use of these vehicles could lead to less uptick or use of these vehicles compared to internal-combustion vehicles. Fleet managers will need to plan for solutions such as charging EVs at the appropriate times to make sure they are available for use.
PCAP Measure 3. Increase the number of ZEVs and EVs in state and local government fleets.	
Transportation 4 (T4) Port Operations Decarbonization	
Program Description	Program T4 will fund increased container transport via intermodal rail between Port of Wilmington and two inland NC ports, Charlotte and Rocky Mount. Presently, rail service is capped at about 16,000 containers per year due to structural constraints. Using funding provided by the Rebuilding American Infrastructure with Sustainability and Equity (RAISE) grant, NC Ports will complete a project by the end of 2024, building a dedicated Intermodal Rail Yard at the Port of Wilmington and expanding rail capacity to more than 50,000 container rail movements annually by 2040. Program T4 will continue to enable the expansion of intermodal rail operations that has the potential to divert nearly 250,000 container boxes from trucks to rail over the next decade, which would result in significant emissions reductions around the ports and in communities along the existing truck corridor.
Rationale	NC Ports have a funding gap to support the near-term costs of the intermodal rail service. CPRG funding for rail shipment is expected to achieve breakeven and profitability no later than 2030, enabling it to be sustained by the private sector.
Risks and Mitigation Strategies	There could be potential job losses in the trucking industry based on the mode change from freight to rail. Because these drivers are often with long-haul trucking companies and may not live in the state, there is limited ability for NCDEQ to address this risk.
PCAP Measure 4. Pursue programs to increase efficiency and reduce GHG emissions at port/freight terminals.	
Transportation 5 (T5) Pedestrian VMT Program	
Program Description	Program T5 will increase pedestrian-friendly infrastructure with the goal of reducing VMTs and associated emissions and air pollutants from LD vehicles. Through the Carbon Reduction Plan process, the North Carolina Department of Transportation (NCDOT) has identified an unmet need for pedestrian infrastructure in rural areas that represent a cost-effective way to reduce pollution and increase alternatives to transportation. NCDOT's Integrated Mobility Division will work with Metropolitan and Rural Planning Organizations in the State to facilitate the adoption of local

Workplan: North Carolina CPRG Implementation Grant
Bridging Science, Communities, and Innovation for a Clean Energy Future

	pedestrian infrastructure through funding and technical support. Examples of these projects include providing an alternative pathway for students who must cross Highway 226 to attend school, a pedestrian crosswalk along Highway 74 to connect a high-transit area to Anson High School in Wadesboro to provide safer, more accessible paths for pedestrians in LIDACs.
Rationale	The state's Strategic Transportation Investments (STI) Law prohibits stand-alone pedestrian projects. This means that funding for these types of projects in areas outside of metropolitan planning organization boundaries is difficult. About 36% of NC's GHG emissions come from the transportation sector each year with approximately 75% of these emissions attributable to LDs. VMT in NC grew 31% between 2003 and 2019, compared to 13% nationally.
Risks and Mitigation Strategies	Construction of pedestrian lanes could add short-medium term burdens (e.g., disruption in traffic patterns, increased pollution, or noise pollution while construction is happening) to proximal communities. Insights derived through community engagement where VMT projects would take place, would determine the priority mitigation strategies to address this potential burden. Examples could include limited construction hours, dust management plan, and defined construction routes to avoid vulnerable populations.
PCAP Measure 5. Pursue programs to improve the quality of life and reduce GHG emissions for all North Carolinians.	
Building 1 (B1) Weatherization+ Assistance Program	
Program Description	Program B1 will fund home readiness repairs and improvements for LIDAC single- and MFHs currently on the state's WAP deferral lists. Additionally, Program B1 aims to organize regional collectives of established contractors to accelerate projects, providing training, workforce development through community colleges and universities, and TA.
Rationale	Leverage existing infrastructure of the WAP programs, successfully managed by NCDEQ under the Department of Energy (DOE) and the Department of Health and Human Services (DHHS) awards, and list of deferred homes to reduce emissions, benefit LIDACs in the short-term, and increase home values.
Risks and Mitigation Strategies	Residents on the deferral list are not actively engaged with the existing WAP program. The state has also acknowledged residents' concerns and confusion with WAP eligibility. To mitigate this uptake risk, Program B1 will leverage the current deferred maintenance list and leverage this data for targeted outreach.
PCAP Measure 8. Reduce per square foot energy usage in buildings in NC.	
Building 2 (B2) State Building Decarbonization and Efficiency	
Program Description	Program B2 provides program management support to assess, identify, and oversee EE projects for state-owned facilities with a focus on projects that can provide benefits to disadvantaged communities. Program B2 will provide training and TA for key facilities staff to facilitate the implementation of identified priority EE projects. Program B2 will fund implementation of EE and electrification projects for state-owned facilities.
Rationale	NC General Statute set a goal for all state agencies to reduce energy consumption by 30% from their 2002/2003 baseline levels. Further building on this effort, EO 80 increased the energy reduction goal to 40% per square foot by 2025 for Cabinet Agencies. Governmental units are encouraged to adopt the same 40% energy reduction goal. Program B2 will leverage the existing infrastructure of the Utility Savings Initiative (USI) program, which supports all state-owned buildings in achieving these efficiency targets, to fund implementation of EE and electrification projects. There is significant deferred maintenance in state-owned buildings and this program provides an opportunity to reduce emissions while improving building conditions. Furthermore, this program can serve as an example for commercial industry that implementation of EE measures can reduce emissions, lower utility bills, and address building maintenance.
Risks and Mitigation Strategies	Program B2's funding distribution may pose a risk for effective targeting of abatement measures in state buildings. However, this can be mitigated by energy managers, hired under CPRG funding, assessing the portfolio of buildings and prioritizing projects based on set criteria that includes optimizing for LIDAC benefits, short-term emissions reductions, and cost effectiveness.
PCAP Measure 9. Decarbonize buildings in NC, through replacement of fossil fuel combustion sources and reduction of other GHG emissions.	
Buildings 3 (B3) Local Public Building Decarbonization and Efficiency	
Program Description	Program B3 provides TA to local governments to assess and plan for EE and electrification activities in local government-owned assets located in or serving LIDACs. This includes providing energy management training to local governments, in addition to conducting energy audits and implementing EE and electrification projects in local government assets. For this program, EE at public water and wastewater treatment facilities and electrification of commercial lawn and grounds

Workplan: North Carolina CPRG Implementation Grant
Bridging Science, Communities, and Innovation for a Clean Energy Future

	care equipment are allowed under the buildings sector for all public entities. Addition of solar panels on public buildings is also allowed.
Rationale	There is significant deferred maintenance and a lack of EE upgrades in local government-owned buildings and this program provides an opportunity to reduce emissions while improving building conditions. Similar to Program B2, Program B3 will build on the Inflation Reduction Act (IRA) tax deductions credits to reduce the overall costs of EE upgrades and maintenance.
Risks and Mitigation Strategies	Funding distribution may pose a risk for effective targeting of abatement measures in local public buildings. However, this can be mitigated by energy managers, hired under CPRG funding, assessing the portfolio of buildings and prioritizing projects based on set criteria that includes optimizing for LIDAC benefits, short-term emissions reductions, and cost effectiveness.
PCAP Measure 9. Decarbonize buildings in NC, through replacement of fossil fuel combustion sources and reduction of other GHG emissions.	
Industry 1 (I1) Industrial Electrification, Efficiency, and Process Emissions Reduction	
Program Description	Program I1 provides no cost energy assessments to small and medium industrial organizations across NC with the goal of identifying EE opportunities and helping organizations better understand and manage their utility costs. NCDEQ expects to target 150 small to medium organizations, with an emphasis on those in LIDACs, that support a diverse and robust economy, including but not limited to business within the following industries: medical equipment, food and beverage production, agriculture, machinery, electrical equipment and appliances, plastics and rubber products, and furniture. Funding will be directed to Waste Reduction Partners (WRP) and Advanced Energy, who are implementing the existing energy assessment program in the industrial sector, and other external partners to provide assessments for the additional facilities identified under this program. In addition, Program I1 would also support TA for industrial organizations to provide insight and guidance around cost-saving methods for EE and clean energy technologies that may be implemented in their facility as a result of the energy assessment recommendations and encourage voluntary GHG emissions reporting to DAQ.
Rationale	The existing industrial energy assessment program has led organizations to implement 65% of the recommended EE upgrades at their facilities on average. Funding to expand the energy assessment program to additional small and medium industrial facilities will significantly increase EE upgrades across NC industry.
Risks and Mitigation Strategies	Industrial facilities that receive energy assessments may not address the recommendations and implement EE measures due to costs. This can be mitigated by the loan fund proposed in Program I3 to incentivize industries to invest in these measures with a low cost of capital.
PCAP Measure 10. Develop programs to support or incentivize implementation of EE and emission reduction measures in NC industry.	
Industry 2 (I2) Industrial Decarbonization Workforce Development	
Program Description	Program I2 will set up a working group dedicated to retaining and expanding the workforce to support industrial decarbonization efforts. NCDEQ will issue a RFP to implement development of workforce training programs to support upskilling. Several external clean energy workforce training partners currently exist in NC and this funding will expand their scope to include training programs that fill the gaps based on the support of the industry working group. Under program I2, NCDEQ plans to continue engagement with STEPS4GROWTH, a program that weaves together workforce training and apprenticeship programs to not only skill up workers, but also provide them with successful transition into the workforce. The workforce training execution timeline is strategically designed to coincide with the energy assessments in Program I1 so additional workers are trained and ready to support implementation of the projects recommended in I1 assessments.
Rationale	NC stakeholders expressed the lack of contractors available to perform EE and equipment upgrades in the industrial sector. Additionally, existing funding sources target only commercial and residential workforce development programs.
Risks and Mitigation Strategies	The state acknowledges that there is an overlap in workforce training material across existing programs. To address this, I2 will engage with those workforce development training partners to leverage existing resources and create a unified EE training program.
PCAP Measure 10. Develop programs to support or incentivize implementation of EE and emission reduction measures in NC industry.	
Industry 3 (I3) Industrial Decarbonization Loan Fund	
Program Description	Program I3 will allow businesses to take advantage of IRA tax credits that assist with the transition to clean energy technologies and GHG reductions. Smaller industries may not have upfront capital

Workplan: North Carolina CPRG Implementation Grant
Bridging Science, Communities, and Innovation for a Clean Energy Future

	available to spend on decarbonization projects while the IRA tax refund is processed. This program could provide short-term no-interest loans that bridge the financial gap between the time the upfront capital is due to when the tax refund is received. Additionally, this program could provide low-interest loans for industrial organizations who require a temporary infusion of funds to support projects that increase EE and reduce GHG emissions. NCDEQ has applied for \$2.5 million in state revolving loan funds (RLF) but lacks internal capacity to execute the program. Program I3 will combine the existing NCDEQ RLF with CPRG funding to maximize benefits for industrial decarbonization efforts. Due to the limited funding and state statute, NCDEQ will only finance up to 50% of the project cost, with a maximum loan of \$1M.
Rationale	Smaller industries lack the upfront capital to purchase clean energy technologies before the tax refund is processed. Program I3 will bridge the funding gap to support the near-term costs of clean energy technology.
Risks and Mitigation Strategies	The state received public concern for directed funding to industrial facilities during stakeholder engagement of the PCAP. To address this and stay within state statute limitations, Program I3 will only finance up to 50% of the project cost, with a maximum loan of \$1M.
PCAP Measure 10. Develop programs to support or incentivize implementation of EE and emission reduction measures in NC industry.	
Waste 1 (W1) Organic Waste Reduction	
Program Description	NCDEQ will provide grant funding to entities to implement activities to reduce organic waste by diverting unwanted food to community programs or capturing organics for alternative management methods (i.e., not landfilling). These approaches could include (1) capturing pre-consumer food from educational institutions, grocery stores, etc. and directing to other programs that can distribute this food prior to becoming waste; (2) organics diversion programs that promote home composting, curbside collection, and/or community drop off locations for organics for sustainable materials management (i.e., composting, AD); and (3) onsite organics recycling infrastructure that promote management options closer to the source of generation. Key milestones will include the establishment of capture and diversion programs. Program W1 will also direct funding to onsite AD at NC universities.
Rationale	Similar to other southeastern states, NC is experiencing positive growth and is estimated to reach a population of 14.24 million in 2050. In 2022, NC generated 2.6 million tons of food waste across all sectors with a 2.1-million-ton gap for organics recovery and recycling infrastructure. When food waste is disposed of in landfills, methane is produced and even with control infrastructure in place, there can still be fugitive emissions that need to be reduced. By reducing food waste landfilling, Program W1 will promote significant future methane reductions and is estimated to divert more than 1,900 tons of food waste annually.
Risks and Mitigation Strategies	A potential risk for Program W1 is the lack of composting participation by stakeholders. To address this relatively low risk, Program W1 plans to establish a marketing and educational campaign to target and incentivize as many community members as possible.
PCAP Measure 11. Reduce food waste to reduce the methane emissions from food waste landfilling, direct food to communities in need, and create organic resources through composting or digestion.	
Waste 2 (W2) Waste Operations Electrification and Decarbonization	
Program Description	Program W2 promotes the conversion of existing municipal solid waste (MSW) and material recovery collection currently serviced with conventional diesel fueled trucks to an electric or other low-carbon fuels fleet (e.g., compressed natural gas or renewable natural gas). Key milestones will include the distribution of grants to public (municipalities) or private entities to procure new vehicles. Grants are aimed to provide partial funding for the procurement of these vehicles. Program W2 will include a demonstration project to transition existing diesel collection vehicles to electric for the Town of Wake Forest.
Rationale	Solid waste and materials recovery collection vehicles typically travel over 25,000 miles annually and spend over 8 hours on the road each day. Because landfills, transfer stations, and other material recovery facilities are largely located in LIDACs, benefits will accrue to these communities even for vehicle replacements not primarily in a LIDAC service area. The conversion of waste and material recovery collection trucks to electric or low-carbon fuel will significantly reduce GHG emissions, co-pollutants, and noise pollution.
Risks and Mitigation Strategies	The procurement of new vehicles may take a long time. To address this, Program W3 will prioritize applicants who can procure vehicles within the award period.

Workplan: North Carolina CPRG Implementation Grant
Bridging Science, Communities, and Innovation for a Clean Energy Future

PCAP Measure 12. Decarbonize waste and material recovery collection to reduce GHG emissions during the collection and transport of wastes through electrification of fleets or through engine conversion from diesel to electric motors.	
Waste 3 (W3) Landfill Gas Reductions	
Program Description	The breakdown of MSW produces GHGs (methane and carbon dioxide) which are often captured through landfill gas collection systems. Methane may be oxidized to carbon dioxide (lower GWP) as landfill gas moves through soil covers or at flared. Although landfill gas collection systems are complex because of the heterogeneity of MSW, infiltration of moisture, and atmospheric conditions, the industry has evaluated ways to reduce fugitive emissions and improve collection efficiency. The latter allows gas that is captured to be used as a renewable source and either onsite or added to the electricity grid. Gas collection efficiency is affected by the following: active gas collection system operation, cover type across the landfill (daily, interim, final as well as soil, clay, geomembrane), and other site-specific conditions. An example of ways that gas collection efficiency can be increased, and fugitive emissions reduced is through installation of a transitional cover system on exterior slopes of landfills prior to final cover installation. A transitional cover is often composed of an exposed geomembrane or an enhanced soil interim cover. Program W3 will distribute funds to landfill operators to procure gas reduction solutions and the implementation of the gas reduction measures at landfills. Program W3 will prioritize landfills that are flaring gas as opposed to producing energy (where possible), do not have gas collection systems in place, or could install a collection system earlier in the landfill life.
Rationale	Methane has more than 28-80 times the warming power of CO ₂ in the first 10-20 years. Additionally, methane release at landfills is associated with other air pollution and odors in and around LIDACs. By leveraging CPRG funding, the state can utilize these new approaches to provide near-term solutions to reduce methane and create a proof of concept to scale further.
Risks and Mitigation Strategies	There may be a lack of technical expertise at the municipality to validate reduced emissions or improved collection efficiency. Consultants may be relied on to validate measures.
PCAP Measure 12. Reduce landfill gas emissions through improved landfill to collect gas more efficiently and earlier in a landfill life and explore utilizing it as a renewable energy source.	
Central Pines Regional Council 1 (CPRC1) Building EE and Emissions Reduction	
Program Description	Program CPRC1 will include TA funding to support homeowners, with an emphasis on delivering support and uptake in LIDAC communities, in navigating existing energy programs. Program CPRC1 will also provide competitive grants to non-residential buildings to implement EE projects and grant funding for home readiness repairs and improvements for residential houses currently on the state's WAP deferral lists. Outreach to community-based organizations will also be incorporated to enable participation in these programs. Key milestones will include the launch of these grant programs, the implementation of measures within these buildings and residences, and the launch of the TA offerings.
Rationale	Program CPRC1 will leverage existing infrastructure of the WAP program and list of deferred homes to reduce emissions, increase home values, and bridge the funding gap for residents that are ineligible for WAP funding and IRA rebates. Program CPRC1 will also provide EE upgrades to faith-based and commercial buildings, furthering reach to an underserved group.
Risks and Mitigation Strategies	Residents on the deferral list are not actively engaged with the existing WAP. To mitigate this uptake risk, Program CPRC1 will leverage the deferred maintenance list for targeted outreach.
PCAP Measure 8. Reduce per square foot energy usage in buildings in NC.	
Central Pines Regional Council 2 (CPRC2) Vehicle Miles Traveled (VMT) Reductions	
Program Description	Program CPRC2 will implement regional VMT reduction strategies through transit system incentives (e.g., bus fares), micro-mobility (e.g., commuter e-bikes and scooters), van replacement with EVs for faith-based buildings, and sidewalk construction projects in LIDACs. To implement these program activities, CPRC will initiate a competitive process to secure vendors to install the multi-modal infrastructure, directly provide transit fares to encourage public transit use, and provide rebates for e-bikes and scooters in high traffic areas. Key milestones will include securing the vendors for the infrastructure projects and completing those projects, launching the transit rider support program, and measuring annual changes in transit use, and distributing the full e-bike rebates.
Rationale	Program CPRC2 will enable the use of alternative modes of transportation and reduce VMT. In addition, the van replacement for faith-based buildings will remove older, polluting vehicles off the road without compromising the work in the community.

Workplan: North Carolina CPRG Implementation Grant
Bridging Science, Communities, and Innovation for a Clean Energy Future

Risks and Mitigation Strategies	Sidewalk construction in LIDACs could add short-medium term burdens (e.g., disruption in traffic patterns, increased pollution, or noise pollution while construction is happening) to proximal communities. Insights derived through community engagement where VMT projects would take place, would determine the priority mitigation strategies to address this potential burden. Examples could include limiting construction hours, requiring a dust management plan, and defining routes for construction vehicles to avoid vulnerable populations.
PCAP Measure 5. Pursue programs to improve the quality of life and reduce GHG emissions for all North Carolinians.	
Centralina 1 (C1) Building Decarbonization	
Program Description	Program C1 will include home readiness repairs and improvements and EE measures for residential homes that will not be eligible for IRA rebates. This program will be implemented using Centralina's existing WAP infrastructure and will distribute grants to eligible households. Program C1 will also support industrial facilities to implement EE projects and clean technology implementation to further industrial decarbonization efforts. Centralina's Economic Development District (CEDD) will manage the implementation of the industrial buildings decarbonization program by establishing a competitive grant program. Key milestones include the launch of these grant programs and grant distribution.
Rationale	Program C1 will bridge the funding gap for residents that are ineligible for IRA rebates. Small-to-medium sized enterprises often lack the upfront capital to purchase clean energy technologies for facilities but are often also high emitters. By incentivizing clean energy technology and decarbonization measures Centralina can encourage adoption and reduce emissions in this hard-to-abate sector. These projects could also serve as proofs-of-concept to other industrial entities to encourage further EE and decarbonization projects.
Risks and Mitigation Strategies	Residents on the deferral list are not actively engaged with the existing WAP program. To mitigate this uptake risk, Program C1 will leverage the current deferred maintenance list and leverage this data for targeted outreach.
PCAP Measure 8. Reduce per square foot energy usage in buildings in NC.	
Centralina 2 (C2) Transportation Decarbonization	
Program Description	Program C2 will include bike and pedestrian-friendly infrastructure projects in LIDACs, transit rider support, and micro mobility (e.g., e-bikes) with the goal of reducing VMTs and reducing air pollution. To implement these program activities, Centralina will initiate a competitive process to secure vendors to install the multi-modal infrastructure, provide transit fares to LIDACs, and provide rebates for e-bikes in high traffic areas. Key milestones will include securing the vendors for the infrastructure projects and completing those projects, launching the transit rider support program, and measuring annual changes in transit use, and distributing the full e-bike rebates.
Rationale	The state's STI Law prohibits the expenditure of state funds for independent bike and pedestrian projects. Funding for these types of projects in areas outside of metropolitan planning organization boundaries is difficult. Local governments often cannot provide the required 20% match for federal transportation funding and there is no state funding available to fill the gap. CPRG funding will allow for Program C2 to address this funding gap and support the use of alternative modes of transportation to reduce emissions.
Risks and Mitigation Strategies	Rider experience across the CLT MSA region varies and strategies to address VMT reductions may not be evenly substantive. To address this, Program C2 plans to coordinate between the 14 transit agencies within the CLT MSA to improve rider experience across the region. Additionally, construction of VMT projects such as sidewalk construction could add short-medium term burdens (e.g., disruption in traffic patterns, increased pollution, or noise pollution while construction is happening) to proximal communities. Mitigation solutions could include limited construction hours and defined construction routes to avoid vulnerable populations.
PCAP Measure 5. Pursue programs to improve the quality of life and reduce GHG emissions for all North Carolinians.	

Section 1.2: Demonstration of Funding Need

As a part of NC's efforts to reduce emissions and air pollution, NCDEQ has fully reviewed and applied for several federal and non-federal funding sources related to renewable energy generation, energy workforce development, decarbonization, clean transportation, and EE. The proposed programs are not eligible for funding under other existing funding sources and are critical to addressing key emissions reduction market gaps. The below narrative identifies funding sources reviewed and why CPRG funding is needed to implement these measures.

- **Transportation:** The State plans to build on the one-time payment coming out of the NC Volkswagen (VW) Settlement and awards under the **Diesel Emissions Reduction Act** program to fund additional MHD vehicle replacements and EV charging infrastructure and further catalyze this market. Additional demand for MHD EVs

Workplan: North Carolina CPRG Implementation Grant
Bridging Science, Communities, and Innovation for a Clean Energy Future

from the combined VW and CPRG funds can spur additional supply on the market and lower prices for further uptake from commercial entities. Programs T1-3 and W2 are not eligible under the **National Electric Vehicle Infrastructure Program** (NEVI) as NEVI only funds community-based charging projects once Alternative Fuel Corridors are built out. Program T4 is ineligible under the **Congestion Mitigation and Air Quality Improvement Program** (CMAQ) to receive funding for the intermodal service after 2024 due to a requirement that future CMAQ funding be used on projects that are substantially different from what the existing funding has supported. Program T4 is also not eligible for funding under the **Clean Ports Program** since the operational activities proposed are not focused on zero-emissions equipment or planning initiatives. Program T4 is eligible for **Surface Transportation Block Grant Program-Direct Attributable funds**; however, NC Ports prefers to not compete with local municipalities that rely solely on these local funds. The current STI law prohibits the expenditure of state funds for independent bike and pedestrian projects such as T5. It also limits the state's ability to invest in active transportation strategies, street connectivity, and other strategies to reduce VMT proposed in Programs T5, CPRC2, and C2.

- **Buildings:** There is currently limited funding available (~\$600k annually from the DOE WAP) for home readiness repairs and improvements for structures on the state's WAP deferral list. This list includes more than 800 homes, totaling over \$12,000,000. CPRG funds under Programs B1, CPRC1, and C1 are needed to carry out repairs required to remove homes from the deferral list and maximize the benefits and assistance provided through WAP. Funds under **WAP** are not eligible to be used for providing homes with vulnerable populations with cooling. Under Programs B1, CPRC1, and C1, CPRG funds are needed to provide homes populations at risk from extreme heat with air conditioning, which is a particular need in NC due to the southern climate. Programs B2 and B3 will build on **IRA tax deductions credits**, such as the 179D Tax Deduction and Section 48 Investment Tax Credit, to reduce the overall costs of EE upgrades and maintenance for state-owned and local government buildings. The North Carolina General Assembly (NCGA) funds approximately four positions to assist state agencies to reduce their building energy consumption. However, funding for implementation of EE measures must be identified elsewhere. Additionally, there is no available funding for local governments to fund EE and electrification upgrades, beyond the Federal tax credits. This program will build on the success of the WRP program to provide energy audits with fully assessed and implementable projects, and NCDEQ will provide limited project funding.
- **Industry:** Program I1 plans to build on the success of the WRP program to expand the energy assessment contractors' capability in NC's industrial sector. Program I2 is ineligible to receive funding from the **Training for Residential Energy Contractors** Program and the **Energy Auditor Training Grant** as funding is limited to commercial and residential EE workforce training programs. There is also no available funding for industry-related EE workforce activities under Program I2. CPRG funds will fill this gap and leverage insights from the existing training programs and partners to create unified energy efficient workforce development programs. Small-to-medium sized enterprises often do not have the upfront capital available to take advantage of IRA tax credits that assist with GHG emissions reduction projects and operating expenses. Program I3 plans to braid the current NCDEQ RLF program with CPRG funds to provide short-term no-interest loans to bridge the financial gap between the time the upfront capital is due to when the tax refund is received.
- **Waste:** There is currently limited funding available for landfill gas reductions and since NC is not an oil and gas state, NCDEQ was not eligible for formula funding under the initial **Methane Emissions Reduction Program** (MERP) to reduce methane and other GHG emissions from landfills. CPRG funds are needed to provide near-term solutions to reduce methane which has more than 28-80 times the warming power of CO₂ in the first 10-20 years. By leveraging CPRG funding, the state can utilize these new approaches to and create a proof of concept to scale further as proposed under Programs W1 and W3. Forthcoming competitive grants under MERP could be braided together with CPRG funds to enhance landfill gas reductions proposed in W3 through the purchase of methane monitoring equipment.

CPRG funding for the proposed programs will cover projects that existing federal and state funding does not reach. In the case that a local government receives CPRG funding for a project that would otherwise be eligible under this program (e.g., MSA application and award), such a project would expressly not be eligible for funding under this proposed program. Furthermore, NCDEQ will follow the Excessive Benefits Rule to ensure that total subsidy (e.g., coalition support, tax credits) does not exceed the total project costs.

Section 1.3: Transformative Impact

Following the state's North Stars, NCDEQ designed and prioritized the proposed GHG reduction measures to build on the existing momentum of climate programs, target underserved groups and hard-to abate sectors, and deploy new market and innovative approaches to further reduce emissions and transform the state's market. The below narrative identifies how each implementation program can enable transformative impact across the State and improve the quality of life for North Carolinians:

- **Transportation:** NCDEQ has nearly 3 decades of experience in awarding and overseeing Mobile Sources Emissions Reduction Grants, including the administration of the State's share of the VW Settlement funds, aimed at vehicle replacement and Electric Vehicle Supply Equipment (EVSE) installation, and incentivize the state's transition to EVs in accordance with Governor Cooper's EOs 80, 246, and 271. The commitment and engagement to LIDACs under the VW Settlement Phase 2 Mitigation Plan increased the number of applications funded in historically under-resourced counties by 59% and the number of EVs funded increased by 173%. The state received funding requests of over \$215M for the approximately \$92M in available funding for the program. By targeting key areas of concern, utilizing the identified "shovel ready" vehicle replacement and EVSE projects not funded through the VW Settlement programs, and leveraging systems in place when administering CPRG funds, Programs T1-T3 will advance the state's environmental goals while fostering a culture of sustainability and innovation within the transportation industry. Program T4 will divert over 250,000 container movements from truck to rail and is expected to achieve breakeven and profitability no later than 2030, enabling it to be sustained by the private sector. Programs T5, CPRC2, and C2 will address key shortcomings from current VMT reduction programming and offer a low-cost approach to enabling alternative transportation options, street connectivity, transit rider support, and micro-mobility to further reduce VMT. These programs and the incentives they provide are strategically designed to pair with or address gaps in local, NCDOT, and federal investments to accelerate adoption making the transition of the transportation system less expensive. Leading by Example, as many of the measures aim to do, de-risks technologies and brings the price down for all adopters. Reducing overall VMTs and electrifying transportation addresses climate pollution and makes NC cleaner, safer, more resilient, and more enjoyable for all, especially LIDACs.
- **Buildings:** Lead by Example approaches and the innovative Make-Ready WAP+ program enable scale buildings decarbonization possible and more likely. WAP+ will help make forthcoming programs and IRA rebates more successful, especially for the most vulnerable to co-pollutants and climate impacts like heat. Program B2 will leverage the existing infrastructure of the USI program and list of identified projects to invest in electrification and EE updates. Since the program's inception, USI has avoided over \$1.3 billion in utility costs. Program B2 will serve as an example of what the cost savings can and should be, further incentivizing other state-owned assets and commercial buildings to invest in EE. Many of the state's community colleges and university campuses do not have energy managers and have never had an energy audit to identify, scope, and price potential energy saving and electrification projects, or to assess potential funding opportunities. Program B2 will address this barrier and identify and implement energy saving and decarbonization opportunities. Further, many local governments lack the upfront costs and personnel to be able to provide energy audits, identify potential EE projects and calculate the expected cost savings. In addition, there are little to no mechanisms to assist commercial property owners and faith-based buildings with the various barriers to entry into electrification and EE. Program B3 and Program CPRC1 will bridge this critical gap, supporting the public in navigating existing energy rebate programs and enabling EE upgrades to faith-based and commercial buildings. Prioritizing EE and retrofits in community spaces like faith-based institutions has been shown in other states to increase the rate of adoption in the surrounding communities as homeowners get more comfortable with the process and have a trusted example to follow. Furthermore, the buildings addressed under these programs often serve as critical infrastructure and disaster response locations. Projects carried out here will increase climate resiliency and our ability to adapt to the common hazards. The approach we lay out in CPRG punches above its weight class by combining existing and future funding sources to accelerate the energy transition in the buildings sector, particularly for low to moderate income households.
- **Industry:** Energy assessments through the WRP program have prompted industrial organizations to successfully implement approximately 65-80% of EE upgrades. Program I1 will leverage the success and existing infrastructure of the WRP to implement and maintain EE equipment upgrades to approximately 150 small to medium industrial facilities which will serve as further proofs-of-concept for other industrial players in

the market to understand the benefits of implementing these measures. Program I2 will address a critical market gap in energy contractors to implement energy measures at industrial facilities via workforce training and apprenticeship programs for the industrial workforce, allowing North Carolinians to gain the necessary skills to be adept at working in the EE industry and achieve a successful transition into the workforce for the long term. Program I3 will braid the forthcoming NCDEQ RLF funds with CPRG funding to maximize benefits for industrial EE and decarbonization efforts in this hard-to-abate sector.

- **Waste:** Nationally, more than one-third of food goes uneaten each year. In 2021, NC generated about 2.7 million tons of food waste. Despite the amount of food available, many North Carolinians are food insecure. Program W1 will promote significant methane reductions and divert approximately 1,900 tons of food waste annually to communities with food insecurity or organics recycling facilities if a higher use is not feasible. Program W3 will leverage new industry approaches to reducing fugitive emissions and improving collection efficiency to provide near-term solutions to reduce methane and create a proof of concept to scale further.

Section 2: Impact of GHG Reduction Measures

Section 2.1 – 2.3: Magnitude of GHG Reductions from 2025-2030 and 2025-2050 and Cost Effectiveness of GHG Reductions

Upon completion of the 5-year CPRG program, NCDEQ plans to reduce approximately 396,617 MTCO₂e of NC's current emissions. NCDEQ has designed these programs to enable permanent reductions, where possible. While some electrification and EE measures and EV improvements will have a limited useful life, it is unlikely that facility and fleet managers would revert back to less efficient and more costly (between capital and operational expenditures) measures in the future. VMT measures such as sidewalks will require maintenance, but once the infrastructure is installed will continue to enable use and mode switching, resulting in permanent reductions. Waste reduction measures have been designed to be permanent by establishing long-term food waste reduction programs in high-waste areas and installing infrastructure to facilitate lower emissions landfills. The cost effectiveness for the overall program is \$504.26 / MTCO₂e reduced over the 2025-2030 grant period. This value includes costs of each program in addition to NCDEQ administrative costs directed towards managing the implementation of all state-wide programs proposed under this application. The cost effectiveness of each program varies by sector and within sectors. These programs were strategically selected and designed to address key market gaps and catalyze emissions mitigation. Program I1 is the most cost-effective measure with the program planning to enable the identification and implementation of "low-hanging fruit" EE and decarbonization measures in high-energy use facilities, which will show large gains in emissions reductions at low costs. Programs B1-B3 being some of the less cost-effective programs compared to the others is consistent with expectations for the sector. These programs are still a key component along NC's critical path to achieving statewide emissions reduction goals and can build momentum for commercial building decarbonization. Program T5 has the lowest cost-effectiveness but is key to making permanent emissions reductions while also improving safety and health outcomes in LIDACs. Some potential projects that have been identified include installing a pedestrian infrastructure along a highway to connect a high-transit area to a LIDAC and a pedestrian crosswalk project that will safely connect existing pathways to a school to encourage pedestrian modes of transportation. The waste programs show promising cost-effectiveness, consistent with the effectiveness of reducing methane emissions.

Table 2: Magnitude and Cost Effectiveness of GHG Reductions Per Program

Program	Cumulative GHG Emissions Reductions (MTCO ₂ e)		Cost Effectiveness (2025 – 2030)
	2025 - 2030	2025 - 2050	
Program T1. Commercial Fleet and Fuel Transition Program	5,281	26,408	\$2,045.41
Program T2. EV Charging Infrastructure	28,105	140,525	\$220.15
Program T3. Government Fleet and Fuel Transition Program	7,834	39,171	\$3,928.39
Program T4. Port Operations Decarbonization	7,728	112,426	\$567.89
Program T5. Pedestrian VMT Program	751	3,755	\$15,726.75
Program B1. Weatherization+ Assistance Program	1,307	6,534	\$11,040.82
Program B2. State Building Decarbonization and Efficiency	2,162	10,810	\$8,998.10

Workplan: North Carolina CPRG Implementation Grant
Bridging Science, Communities, and Innovation for a Clean Energy Future

Program	Cumulative GHG Emissions Reductions (MTCO ₂ e)		Cost Effectiveness (2025 – 2030)
	2025 - 2030	2025 - 2050	
Program B3. Local Public Building Decarbonization and Efficiency	2,683	13,417	\$9,448.38
Program I1. Industrial Elec., Efficiency, and Emissions Reduction	65,813	438,750	\$68.38
Program I2. Industrial Decarbonization Workforce Development	0	0	N/A
Program I3. Industrial Decarbonization Loan Fund	71,555	477,032	\$94.33
Program W1. Organic Waste Reduction	81,945	409,726	\$67.14
Program W2. Waste Operations Electrification and Decarbonization	8,005	40,025	\$687.07
Program W3. Landfill Gas Reductions	101,250	506,250	\$44.43
Program CPRC1. Building EE and Emissions Reduction	525	2,624	\$16,168.40
Program CPRC2. VMT Reductions	1,061	5,307	\$6,195.23
Program C1. Building Decarbonization	9,132	55,167	\$515.03
Program C2. VMT Reductions	1,482	7,409	\$9,505.57
Total	396,618	2,295,336	\$504.26

Section 2.4: Documentation of GHG Reduction Assumptions

Information on the methodologies, calculations, and assumptions used to develop the above-listed GHG reductions can be found in the attached Technical Appendix.

Section 3: Environmental Results – Outputs, Outcomes, and Performance Measures

Section 3.1 – 3.2: Expected Outputs and Outcomes and Performance Measures and Plan

Table 3 outlines the expected outputs and outcomes for each proposed program, as well as potential performance measures for tracking. NCDEQ in coordination with contractors and sub-awardees will effectively track and measure implementation progress for each proposed program. NCDEQ will begin by establishing data collection and reporting mechanisms to determine what baseline data will need to be collected upfront, throughout the program, and post-implementation. NCDEQ will utilize the methodologies from the PCAP and this implementation application for GHG emissions reductions and the other planned outputs and outcomes tracking and will generate methodologies to track any new performance measures that develop during program implementation. To measure the performance and impact of these programs, NCDEQ will deploy a modeled approach and a measured approach depending on appropriateness of the methodology. Where data is not currently available, such as decibel measurement for the VMT programs, NCDEQ may explore deploying new data collection approaches such as sensors. Periodic intentional reviews will be conducted to gather insights from the data collected to adjust programming based on lessons learned and successes, which will be reported to the public. Status reports will be provided to EPA on a semi-annual basis and a final report will be provided to EPA upon program completion.

Table 3: Expected Outputs, Outcomes, and Performance Measures

Expected Outputs	Expected Outcomes	Performance Measures
Program T1. Commercial Fleet and Fuel Transition Program		
<ul style="list-style-type: none"> Approximately 40 new MHD EVs Approximately 20 new MHD clean diesel vehicles in LIDACs 	<ul style="list-style-type: none"> GHG reductions along transportation corridors Co-pollutant reductions along transportation corridors Improved health benefits in LIDACs especially for asthma and respiratory illness 	<ul style="list-style-type: none"> Net Metric Tons (MT) CO₂e of GHGs reduced MT of co-pollutants reduced
Program T2. EV Charging Infrastructure		
<ul style="list-style-type: none"> Approximately 700 new community-based charging stations across the state with a focus on deployment in rural communities and at MUDs 	<ul style="list-style-type: none"> Increase EV uptake by deploying an interconnected network of charging beyond the main transportation corridors addressed by DOT's NEVI program GHG reductions Co-pollutant reductions 	<ul style="list-style-type: none"> Net MTCO₂e of GHGs reduced MT of co-pollutants reduced

Workplan: North Carolina CPRG Implementation Grant
Bridging Science, Communities, and Innovation for a Clean Energy Future

Expected Outputs	Expected Outcomes	Performance Measures
Program T3. Government Fleet and Fuel Transition Program		
<ul style="list-style-type: none"> • Approximately 95 new LD EVs • Approximately 40 new MHD EVs • Approximately 24 new MHD clean diesel vehicles (key in cashflow constrained communities who cannot accommodate the time prior to reimbursement) 	<ul style="list-style-type: none"> • GHG reductions in urban and suburban areas and LIDACs along transportation corridors • Significant co-pollutant reductions • Improved health outcomes in LIDACs especially for asthma and respiratory illness 	<ul style="list-style-type: none"> • Net MTCO₂e of GHGs reduced • MT of co-pollutants reduced
Program T4. Port Operations Decarbonization		
<ul style="list-style-type: none"> • Progressively increase the number of containers transported by rail annually to 25,600 by 2030. 	<ul style="list-style-type: none"> • Divert 250,000 container boxes from trucks to rail by 2050 • GHG reductions primarily in LIDACs • Co-pollutant reductions in LIDACs due to reduced truck idling proximal to both wet and dry port sites • Improved health outcomes in LIDACs especially for asthma/respiratory illness 	<ul style="list-style-type: none"> • Number of container boxes diverted from truck to rail transportation annually • MTCO₂e of GHGs avoided • MT of co-pollutants avoided
Program T5. Pedestrian VMT Program		
<ul style="list-style-type: none"> • New pedestrian paths in LIDACs 	<ul style="list-style-type: none"> • LDV VMT reductions • LDV GHG reductions • Reduced road noise pollution • Improved health outcomes in LIDACs especially for asthma and respiratory illness • Reduced pedestrian accidents and fatalities 	<ul style="list-style-type: none"> • Linear feet of new pedestrian sidewalk lanes • MTCO₂e of GHGs reduced • MT of co-pollutants reduced • Decibel reductions
Program B1. Weatherization+ Assistance Program		
<ul style="list-style-type: none"> • Building envelope and structural repairs required to be eligible for the WAP • Reduced energy costs for LIDAC households 	<ul style="list-style-type: none"> • Reduced emissions • Improved indoor air quality • Reduced respiratory impact • Improved health outcomes in LIDACs especially for asthma and respiratory illness • Increased LIDAC homes eligible for WAP • Increased home values in LIDACs • Increased wealth generation in LIDACs related to home repairs and WAP uptake 	<ul style="list-style-type: none"> • \$ saved on residential utility bills • Number of residences removed from the WAP deferral list • Cost change in Fair Market Value of residences who have completed the Make Ready Program • Number of residences who complete a Make Ready project followed by a WAP+ project
Program B2. State Building Decarbonization and Efficiency		
<ul style="list-style-type: none"> • EE measures implemented at state buildings • Lower utility bills for state governments 	<ul style="list-style-type: none"> • Reduced emissions • Improved indoor air quality • Reduced respiratory impact 	<ul style="list-style-type: none"> • \$ saved on utility bills • Number of energy audits conducted • Number of buildings receiving energy measures • MTCO₂e of GHGs reduced on site and from indirect electricity usage
Program B3. Local Public Building Decarbonization and Efficiency		
<ul style="list-style-type: none"> • EE measures implemented at local government buildings • Lower utility bills for local governments 	<ul style="list-style-type: none"> • Reduced emissions • Improved air quality for LIDACs 	<ul style="list-style-type: none"> • Number of local government parties receiving TA • Number of energy audits conducted • Number of buildings and towns receiving energy measures • \$ saved on utility bills • MTCO₂e of GHGs reduced on site and from indirect electricity usage
Program I1. Industrial Electrification, Efficiency, and Process Emissions Reduction		
<ul style="list-style-type: none"> • Energy assessments at industrial sites • TA sessions with industries 	<ul style="list-style-type: none"> • Increased EE • Reduced GHG emissions • Reduced air pollution 	<ul style="list-style-type: none"> • Number of assessments completed • % of energy assessments that resulted in EE upgrades

Workplan: North Carolina CPRG Implementation Grant
Bridging Science, Communities, and Innovation for a Clean Energy Future

Expected Outputs	Expected Outcomes	Performance Measures
	<ul style="list-style-type: none"> •Reduced dependency on fossil fuels •Increased number of quality jobs 	<ul style="list-style-type: none"> •Projects implemented and \$ saved on utility bills
Program I2. Industrial Decarbonization Workforce Development		
<ul style="list-style-type: none"> •Trained workforce •Education programs at community colleges •Apprenticeship programs at workforce organizations 	<ul style="list-style-type: none"> •Increased number of quality, good paying jobs •Increased job retention 	<ul style="list-style-type: none"> •Number of increased workforce and increased skills •Number of job opportunities •Number of energy assessments completed •Number of EE upgrades completed
Program I3. Industrial Decarbonization Loan Fund		
<ul style="list-style-type: none"> •Short term, no-interest and low-interest loans for industrial facilities 	<ul style="list-style-type: none"> •Increased EE upgrades •Increased number of clean energy technology 	<ul style="list-style-type: none"> •MTCO₂e of GHGs reduced on site and from indirect electricity usage •Reduced fine particulate matter (PM 2.5) •Improved health benefits to LIDACs, especially for respiratory illnesses •Reduced dependency on fossil fuels based on BTUs reduced
Program W1. Organic Waste Reduction		
<ul style="list-style-type: none"> •Reduced food waste in landfills •Conserve landfill space and extend life of the site •Discarded food can be diverted to individuals and families facing food insecurity 	<ul style="list-style-type: none"> •Methane reductions at landfills •Improved air quality in LIDACs •Increased efficiency of food production and use 	<ul style="list-style-type: none"> •Amount of methane reduced •Number of individuals and households participating in new composting programs •Amount of food collected in composting program and diverted from a landfill
Program W2. Waste Operations Electrification and Decarbonization		
<ul style="list-style-type: none"> •Approximately 8-15 new electric or low-carbon fuel collection trucks 	<ul style="list-style-type: none"> •Reduced GHG emissions •Reduced co-pollutants •Improved health benefits, especially for respiratory illnesses 	<ul style="list-style-type: none"> •MTCO₂e of GHGs reduced •Net reductions in GHGs, accounting for electricity usage •Decibel reductions in noise •Co-pollutant reduced
Program W3. Landfill Gas Reductions		
<ul style="list-style-type: none"> •Gas efficiency upgrades and fugitive emissions reductions to approximately 40 acres of landfill area 	<ul style="list-style-type: none"> •Reduced GHG emissions •Reduced co-pollutants •Reduced odors •Improved energy resilience 	<ul style="list-style-type: none"> •Amount of methane reduced •MTCO₂e of GHGs reduced •Amount of co-pollutants reduced •Reduction in odor complaints
Program CPRC1. Building EE and Emissions Reduction		
<ul style="list-style-type: none"> •Building envelope and structural repairs required to be eligible for the WAP •Reduced energy costs for LIDAC households •EE measures implemented at commercial and faith-based buildings •EE measures implemented at MFH not eligible for WAP •Lower utility bills for commercial entities 	<ul style="list-style-type: none"> •Reduced emissions •Improved indoor air quality •Reduced respiratory impact •Improved health outcomes in LIDACs especially for asthma and respiratory illness •Increased LIDAC homes eligible for WAP •Increased home values in LIDACs •Increased wealth generation in LIDACs related to home repairs and WAP uptake 	<ul style="list-style-type: none"> •Utility bill savings •Number of residences removed from the WAP deferral list •Cost change in Fair Market Value of residences who have completed the Make Ready Program •Number of residences who complete a Make Ready project followed by a WAP+ project •Number of commercial and faith buildings with energy measures •Number of buildings receiving TA
Program CPRC2. VMT Reductions		
<ul style="list-style-type: none"> •New bicycle and pedestrian paths •Increased e-bikes and e-scooters •Reduced bus fares 	<ul style="list-style-type: none"> •LDV VMT reductions •LDV GHG reductions •Reduce road noise pollution 	<ul style="list-style-type: none"> •Linear feet of new sidewalk and bicycle lanes •Number of new e-bikes and e-scooters •Number of new bus riders

Workplan: North Carolina CPRG Implementation Grant
Bridging Science, Communities, and Innovation for a Clean Energy Future

Expected Outputs	Expected Outcomes	Performance Measures
	<ul style="list-style-type: none"> Improved health outcomes in LIDACs especially for asthma and respiratory illness Reduced pedestrian accidents and fatalities 	<ul style="list-style-type: none"> MTCO₂e of GHGs reduced MT of co-pollutants reduced Decibel reductions
Program C1. Building Decarbonization		
<ul style="list-style-type: none"> Building envelope and structural repairs to be eligible for WAP Reduced energy costs for LIDAC households EE measures implemented at MFH not eligible for WAP EE measures implemented at industrial facilities Lower utility bills for industrial organizations 	<ul style="list-style-type: none"> Reduced emissions Improved indoor air quality Improved health outcomes in LIDACs especially for asthma and respiratory illness Increased LIDAC homes eligible for WAP Increased home values in LIDACs Increased wealth generation in LIDACs related to home repairs and WAP uptake 	<ul style="list-style-type: none"> \$ saved on utility bills Number of residences removed from the WAP deferral list Cost change in Fair Market Value of residences who have completed the Make Ready Program Number of residences with Make Ready followed by a WAP+ project Number of industrial facilities participating
Program C2. VMT Reductions		
<ul style="list-style-type: none"> New bicycle and pedestrian paths Increased e-bikes Transit support 	<ul style="list-style-type: none"> LDV VMT reductions LDV GHG reductions Reduce road noise pollution Improved health outcomes in LIDACs especially for asthma and respiratory illness Reduced pedestrian and bicycle accidents and fatalities 	<ul style="list-style-type: none"> Linear feet of new sidewalk and bicycle lanes Number of new e-bikes Number of new transit riders MTCO₂e of GHGs reduced MT of co-pollutants reduced Decibel reductions

Section 3.3: Authorities, Implementation Timeline, and Milestones

NCDEQ receives state and federal funding to distribute grants and loans for a variety of environmental projects. NCDEQ awards millions in grant funding and other assistance each year to a variety of recipients, from local governments to businesses and non-profit organizations. Recurring and one-time funding sources provide opportunities for communities and governments across NC to achieve their environmental stewardship goals. The Environmental Stewardship Initiative, housed in NCDEQ, recognizes and supports companies and facilities that go above and beyond regulatory requirements to reduce their impact on the environment. Additionally, the programs and projects outlined above will support EOs and legislation in NC, including:

- **EO 271:** Instructs cabinet agencies to pursue and invest eligible federal funds, in a manner consistent with applicable law, toward growing the MHD ZEV market in NC, including but not limited to investing in charging infrastructure and vehicle purchase incentives. Cabinet agencies are instructed to support an affordable and reliable transition to ZEVs in the MHD sector, including but not limited to increasing affordability and access to MHD ZEVs in underserved communities.
- **EO 246:** NC's Transformation to a Clean, Equitable Economy establishes goals to increase the total number of registered ZEVs to at least 1,250,000 by 2030 and increase the sale of ZEVs so that 50% of in-state sales of new vehicles are ZEV by 2030 and instructs cabinet agencies to invest relevant federal and state funding, consistent with applicable law, to actions that reduce GHG emissions and air pollution in historically underserved communities.
- **EO 80:** NC's Commitment to Address Climate Change and Transition to a Clean Energy Economy, charged NCDEQ with collaborating with businesses, industries, power providers, technology developers, NC residents, local governments, and other interested stakeholders to increase the utilization of clean energy technologies and EE and clean transportation measures.
- **HB 951 / SL 2021-165:** Authorizes the NC Utilities Commission to take all reasonable steps to achieve a 70% reduction in emissions of carbon dioxide from electric public utilities from 2005 levels by the year 2030 and carbon neutrality by 2050, including authorizing performance-based regulation of electric public utilities; rulemaking to change utility funding options; and modification of power purchase agreements with eligible small power producers.
- **§ 130A-309.04:** Establishes the state's solid waste management policy and goals. This includes the directive to avoid waste disposal at landfill, with a preference for other methods in the following order: 1) Waste

Workplan: North Carolina CPRG Implementation Grant
Bridging Science, Communities, and Innovation for a Clean Energy Future

reduction at the source; 2) Recycling and reuse; 3) Composting; 4) Incineration with energy recovery; 5) Incineration without energy recovery. Additionally, this order requires state agencies to develop a waste recovery plan and encourages public-private partnerships to improve waste management outcomes.

- **Energy Policy Council (EPC) 2022 Biennial Report:** The EPC, pursuant to Chapter 113B of the NC General Statutes (GS), recommended NC's legislative and regulatory bodies to evaluate additional supportive funding and legislation, regulation, and policies needed to support further reduction of carbon emissions from the energy sector.
- **§ 143-64.12:** Set a goal for all state agencies and state institutions of higher learning to reduce energy consumption by 30%. To assist with this goal, the GS also established the USI which is charged with the management of energy, water, and other utility usage.
- **§ 130A-309.09B:** Governs local government bodies in their management of waste reduction programs and encourages the implementation of recycling, composting, and other sustainable waste management.
- **§ 130A-309.10:** Prohibits acts relating to packaging to support recycling efforts and other sustainable waste management practices and governs the disposal of coded plastics to landfill or incinerator.
- **§ 130A-309.11:** Governs compost standards and applications to protect the state's natural lands and water sources from improper waste disposal.
- **GS 143B-344.42, Part 32 Energy Loan Fund:** SEO has the power to establish RLFs not greater than \$1 million per entity for industrial and commercial business in NC that install EE and renewable energy improvements. To encourage development and use, SEO has the option to provide loans as low as 0% and shall not exceed 3%.
- **NCDOT NC Ports:** Under existing RAISE grant from U.S. Department of Transportation, NC Ports will complete a project by the end of 2024 to build a dedicated Intermodal Rail Yard at the Port of Wilmington that will expand rail capacity to more than 50,000 container rail movements annually. With existing NCDOT NC Ports Authority, NC's goal is to secure operating funds to maximize utilization of this new intermodal container shipping capacity as quickly as possible over the next four years (2025-2029) to further reduce GHG and other pollutant emissions.

CPRC and Centralina are two of sixteen Councils of Government (COGs) that span the entire state. The two COGs each received a \$1M CPRG planning grants and collectively house approximately 43% of the NC population across their combined regions encompassing 18 of NC's 100 counties. NCDEQ is strategically partnering with the two COGs during implementation to broaden reach across the Raleigh-Cary, Durham-Chapel Hill, and Charlotte-Concord-Gastonia MSAs and achieve more for NC residents than can be achieved individually. The statutory authority for regional COGs is in G.S. 160A-470, et. seq. For example, regional COGs are specifically authorized by statute "[t]o apply for, accept, receive, and dispense funds and grants made available to it by [NC] or any agency thereof, the United States of America or any agency thereof, any unit of local government (whether or not a member of the council), and any private or civic agency[,] ... [t]o contract with consultants[,] ... [t]o contract with [NC], any other state, the United States of America, or any agency thereof, for services[,] ... [t]o promote cooperative arrangements and coordinated action among its member governments ... [and] [a]ny other powers that are exercised or capable of exercise by its member governments and desirable for dealing with problems of mutual concern to the extent such powers are specifically delegated to it from time to time by resolution of the governing board of each of its member governments which are affected thereby, provided." G.S. 160A-475. NC statute views its COGs and Regional COGs as local governments, and as such the code that governs COGs/Regional COGs is the same as the code that governs their member governments.

The below table outlines the implementation timeline and the implementing entities for each proposed measure. The authority for each of the below listed entities to implement is discussed above.

Table 4: Implementation Timeline Per GHG Reduction Measures

Implementation Task/Milestone	Dates (MM/YY)	Implementing Entity and Role
Program T1. Commercial Fleet and Fuel Transition Program		
Establish competitive grant program	10/24 - 4/25	NCDEQ - DAQ (Transportation Manager, staff); Program Support (contractor); Commercial Entities (contractor)
Make awards to commercial entities	4/25 – 5/25	
Entities purchase new electric and clean diesel MHD vehicles	5/25 – 10/29	
Program T2. EV Charging Infrastructure		

Workplan: North Carolina CPRG Implementation Grant
Bridging Science, Communities, and Innovation for a Clean Energy Future

Implementation Task/Milestone	Dates (MM/YY)	Implementing Entity and Role
Prepare 3 RFPs for solicitation	10/24 – 4/25	NCDEQ - DAQ (Transportation Manager, staff); Program Support (contractor); Awardees (contractor)
Procurement and award	4/25 – 10/25	
Implementation of EV charging infrastructure under 3 contracts	10/25 – 10/29	
Program T3. Government Fleet and Fuel Transition Program		
Prepare 2 RFPs for solicitation	10/24 – 4/25	NCDEQ – DAQ (Transportation Manager, staff); Program Support (contractor); State and local govt. awardees (contractor)
Procurement and award	4/25 – 10/25	
State and local governments awarded assess current vehicle use and prioritize	10/25 – 2/26	
State and local governments facilitate replacements	3/26 – 10/29	
Program T4. Port Operations Decarbonization		
New Intermodal Rail Yard completed and existing CMAQ funding ends	10/24	NC Ports Authority (sub-awardee)
Execute rail operations as container volume increases annually	12/24 – 10/29	
Program T5. Pedestrian VMT Program		
Finalize project sites	10/24 – 12/24	NCDOT (sub-awardee); Construction manager (contractor)
Project design development	1/25 – 12/25	
Construction of pedestrian infrastructure	1/26 – 10/29	
Program B1. Weatherization+ Assistance Program		
Conduct home readiness repairs	10/24 – 10/27	NCDEQ – SEO (energy managers, WAP PM); Program Support (contractor)
Workforce development and TA	10/24 – 10/27	
Program B2. State Building Decarbonization and Efficiency		
Training and TA to identify implementation projects	10/25 – 4/27	NCDEQ – SEO (PM, energy managers)
Implement EE and electrification projects for state government facilities	5/27 – 10/28	
Program B3. Local Public Building Decarbonization and Efficiency		
Training and TA to identify implementation projects	10/25 – 4/27	NCDEQ - SEO (PM, energy managers)
Implement EE and electrification projects for state government facilities	5/27 – 10/29	
Program I1. Industrial Electrification, Efficiency, and Process Emissions Reduction		
Identify small and medium industrial facilities to target	10/24 – 12/24	NCDEQ - SEO (Project Analyst); Waste Reduction Partners (contractor for energy assessments); Technical assistance (contractor)
Conduct energy assessments and provide recommendations	1/25 – 1/27	
Provide TA to industrial organizations around EE projects	10/24 – 10/29	
Program I2. Industrial Decarbonization Workforce Development		
Establish working group to retain workforce	10/24 – 10/27	NCDEQ – SEO (Energy Managers, Project Analyst); Workforce Building (contractor); Pre-apprenticeship program (contractor); Apprenticeship program (contractor)
Develop workforce training programs	10/24 – 10/27	
Conduct workforce training, pre-apprenticeship, & apprenticeship programs	10/25 – 10/29	
Program I3. Industrial Decarbonization Loan Fund		
Staff officer and set up loan fund	10/24 – 12/24	NCDEQ – SEO (Business officer)
Provide loans to industrial organizations	12/24 – 10/29	
Program W1. Organic Waste Reduction		
Prepare RFP for solicitation	10/24 – 4/25	NCDEQ (PMs); Awardee (contractor); Organics Refrigerator Program Manager (contractor)
Procurement and award	5/25 – 10/25	
Implementation of organics diversion programs	11/25 – 10/29	
Implementation of refrigerator program	11/24 – 10/29	
Program W2. Waste Operations Electrification and Decarbonization		
Prepare RFP for solicitation	10/24 – 4/25	NCDEQ (PMs); Awardee (contractor); Wake Forest Pilot Program Manager (contractor)
Procurement and award	5/25 – 10/25	
Implementation of refuse and waste recovery vehicle replacements	11/25 – 10/29	
Implementation of Wake Forest pilot program for EVs	11/24 – 10/29	

Workplan: North Carolina CPRG Implementation Grant
Bridging Science, Communities, and Innovation for a Clean Energy Future

Implementation Task/Milestone	Dates (MM/YY)	Implementing Entity and Role
Program W3. Landfill Gas Reductions		
Prepare RFP for solicitation	10/24 – 4/25	NCDEQ (PMs); Awardee (contractor)
Procurement and award	5/25 – 10/25	
Implementation of landfill gas collection	1/25 – 10/29	
Program CPRC1. Building EE and Emissions Reduction		
Conduct home readiness repairs	10/24 – 10/29	CPRC (sub-awardee)
Implement EE and electrification projects for non-residential buildings	10/24 – 10/29	
Program CPRC2. VMT Reductions		
Finalize project sites and conduct design development	10/24 – 4/26	CPRC (sub-awardee)
Construction of VMT infrastructure	4/26 – 10/29	
Program C1. Building Decarbonization		
Conduct home readiness repairs	10/24 – 10/29	Centralina (sub-awardee)
Implement EE and electrification projects for non-residential buildings	10/24 – 10/29	
Program C2. VMT Reductions		
Finalize project sites and conduct design development	10/24 – 4/26	Centralina (sub-awardee)
Construction of VMT infrastructure	4/26 – 10/29	
General		
Prepare semi-annual CPRG reports	4/25 – 10/29	NCDEQ (PM)
Prepare final CPRG report	10/29	

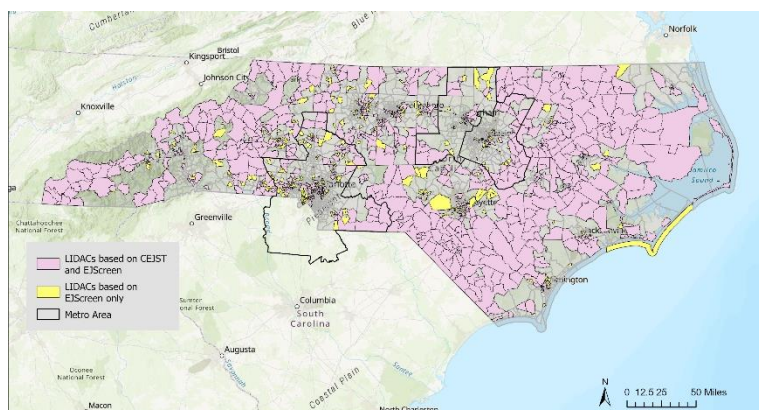
Section 4: Low-Income and Disadvantaged Communities

Section 4.1: Community Benefits

Benefits to LIDACs are prioritized at every opportunity of NC's approach and GHG emissions reduction measures selection. Geographic coverage and the diverse cross-sector nature of benefits to LIDACs is also a notable feature of the approach. Partnering directly with the CPRC and Centralina MSAs who represent the two major population centers has been a key collaboration in the development of this application enabling benefits to accrue to the

greatest number of people living in NC's LIDACs. Outside of the largest cities are vast natural lands home to rural communities, and one federally recognized tribe who is in the western most corner of the state. LIDACs across the state have challenges in common as well as challenges distinct to their particular contexts. Benefits included in this section, and throughout this application, represent the current understanding of community priorities combined with project feasibility and viability considerations like size and impact area. The state's LIDAC map is

Figure 1: NC's LIDAC Map



noted in Figure 1 and further sector and program specific geospatial maps are exhibited in the Technical Appendix. The purple census tracts are disadvantaged under the Climate and Economic Justice Screening Tool (CEJST) while the yellow block groups are disadvantaged under the 90th percentile threshold in EJ Screen. NC has 884 disadvantaged tracts under CEJST out of 2195 total tracts, representing 40.3% disadvantaged. Table 3 in Section 3 reflects each measure's planned outputs, outcomes, and performance measures. Section 4 focuses just on the benefits specifically to LIDACs. This is not a comprehensive list as additional direct and indirect benefits are likely to accrue as projects proceed, as leading practices are applied, as states and localities learn from each other, as community engagement uncovers new insights, and as communities' priorities change, as benefits are measured and tracked, and as adjustments are made over time to create the best outcomes.

Workplan: North Carolina CPRG Implementation Grant
Bridging Science, Communities, and Innovation for a Clean Energy Future

Census tract and block group numbers for community benefits by measure, where known, can be found in the Areas.xlsx attachment. As noted in the ReadMe tab of the Areas.xlsx file, some CPRG measures have the potential for statewide impact. As noted above, 884 tracts of a total 2195 census tracts in NC are qualified LIDACs, amounting to 40.3% of all tracts. For that reason, NCDEQ considers statewide measures compliant with the spirit and letter of Justice40. Pursuant to the LIDAC guidance provided by EPA under this funding opportunity for at least 40% of the benefits of investments to accrue to LIDACs, a number of NC's measures will focus a majority of the benefits, up to 100%, in vulnerable areas. This approach is aligned with NCDEQ's North Star to prioritize investments and benefits in LIDACs wherever possible.

Table 5: Direct Benefits to LIDACs for CPRG Activities in NC (see key)

Program	LIDAC Commitment	Expected Benefits to LIDACs **
T1. Commercial Fleet and Fuel Transition Program	40% LIDAC carve out under the RFP	
T2. EV Charging Infrastructure	40% LIDAC carve out under the RFP	
T3. Government Fleet and Fuel Transition Program	40% LIDAC carve out under the RFP	
T4. Port Operations Decarbonization	Nearly 100% LIDACs*	
T5. Pedestrian VMT Program	Nearly 100% LIDACs*	
B1. Weatherization+ Assistance Program	100% of homes on WAP deferral list are in LIDACs*	
B2. State Building Decarbonization and Efficiency	At least 40% of projects selected will be in LIDACs	
B3. Local Public Building Decarbonization and Efficiency	At least 40% of projects selected will be in LIDACs	
I1. Industrial Electrification, Efficiency, and Process Emissions Reduction	At least 40% of projects selected will be in LIDACs	
I2. Industrial Decarbonization Workforce Development	At least 40% of projects selected will be in LIDACs	
I3. Industrial Decarbonization Loan Fund	At least 40% of projects selected will be in LIDACs	
W1. Organic Waste Reduction	100% of landfills are in LIDACs*	
W2. Waste Operations Electrification and Decarbonization	100% of landfills are in LIDACs*	
W3. Landfill Gas Reductions	100% of landfills are in LIDACs*	
CPRC1. Building EE and Emissions Reduction	90-100% of projects are in LIDACs	
CPRC2. VMT Reductions	40-50% of projects are in LIDACs	
C1. Building Decarbonization	50-60% of projects are in LIDACs	
C2. VMT Reductions	40-50% of projects are in LIDACs	



*denotes a geospatial map in the Technical Appendix to display the projected impact area

**LIDAC benefit calculation and geospatial measurement approach can be found in the Technical Appendix

Figure 2: Table 5 Key for Direct Benefits

Increased access to services and amenities in LIDACs	Reduced noise pollution in LIDACs
Increased housing quality, comfort, and/or safety in LIDACs	Reduced co-pollutants and/or VOCs in LIDACs (MT)
Reduced transportation burden as it related to cost, access, time, or safety in LIDACs	Jobs created in LIDACs and/or workforce development pathways for people facing barriers to employment
GHG emissions reductions in LIDACs (MTCO2e)	Improved public health resulting from reductions in co-pollutants in LIDACs (reductions in new asthma cases, ER visits and hospital admissions for respiratory or cardiac events, new cases of diabetes, increased life expectancy)

Workplan: North Carolina CPRG Implementation Grant
Bridging Science, Communities, and Innovation for a Clean Energy Future

 Reduced energy costs, increased energy resilience, and/or increased energy security in LIDACs	 Increased wealth generation resulting from increased home value due to home improvements in LIDACs
---	--

Reduced risk of extreme weather events, hurricanes, flood risk, and sea level rise are indirect benefits of NC's CPRG work that will accrue statewide. It is likely coastal communities, including LIDACs in flood and hurricane prone areas will be the greatest beneficiaries. Other measurable benefits to LIDACs accrued throughout the CPRG implementation include dollars spent and number of stakeholder engagement events held with LIDACs.

Potential disbenefits of GHG emissions reductions measures and proposed mitigation strategies:

<p>The construction of bicycle and pedestrian lanes and other various eligible VMT strategies, proposed under Programs T5, CPRC2, and C2, could add short-medium term burdens to proximal communities including noise and dust. Insights derived through community engagement where VMT projects would be created will determine the priority mitigation strategies to address this potential burden. Examples mitigation strategies could include limiting construction hours, requiring a dust management plan, and defining routes for construction vehicles to avoid vulnerable populations living in LIDACs.</p>
<p>Homes are on the WAP deferral list because they need repairs to be eligible for the WAP. Under Programs B1, CPRC1, C1, NC aims to invest in these important repairs and Make Ready for WAP. One of these example repairs is mold remediation. Disturbing the mold could result in the disbursement of spores and make respiratory issues worse for workers, households, and people nearby. To mitigate this potential burden, only Make Ready projects using certified mold remediation specialists will be eligible for funding under WAP+. There is currently no license or certification in the state. Certifications for mold remediation companies in other states require training, licensing, and minimum work standards like the use personal protective equipment, the use of disinfectants consistent with EPA standards, posted notice of the project and contractor license, and completion of post-remediation assessments. NC is considering either adopting these standards or excluding mold remediation from the measure so as not to increase burden on workers and LIDAC households.</p>
<p>Program W3 may demonstrate an increase in landfill gas collection efficiency. Under one EPA model, this project forecasts a potential for an increase in fugitive emissions. Because nearly all landfills in NC are located in LIDACs, this presents a potential disbenefit. The scientific community has published information and findings through field and theoretical research that runs counter to EPA's model. EPA has reviewed these findings and acknowledged that the model does not seem to represent likely outcomes. To mitigate the potential for disbenefits, NCDEQ will proceed with a pilot to with expanded sensing and monitoring capabilities to determine if fugitive emissions are occurring. If so, the project commits to a pause and re-evaluation including community consultation and additional mitigation strategies before proceeding.</p>

Section 4.2: Community Engagement

As the state moves into the CPRG implementation phase, additional and ongoing engagement will be a critical part of project site selection, project and program design, and actual implementation including the construction of measures, programs, and projects identified under the Transportation, Buildings, Industrial, and Waste sectors in Section 1 above. To the state, meaningful involvement means people have an opportunity to participate in decisions about activities that may affect their environment, health, or economic resilience. NC has and will continue to proactively seek out and facilitate the involvement of impacted stakeholders, and their input will be incorporated into the state's CPRG activities throughout the lifecycle of the project or program. The guiding principles of NC's community engagement approach are:

- Benefits that community stakeholders care about most are prioritized; the burdens/disbenefits that community stakeholders are most concerned about, are mitigated, or to the extent possible, eliminated.
- Engagement with impacted stakeholders begins before the project is designed and continues through the lifecycle of the project through implementation, commissioning, and decommissioning as relevant.
- Important historical context, cumulative burdens that a community experiences, the nature of trust between key stakeholders including the government and the community, and the potential for systemic barriers to stakeholders to participate meaningfully in engagement opportunities, the baseline awareness of the state's CPRG plan and its technical underpinnings are all considered during engagement and outreach planning.
- Highly impacted stakeholders (e.g., near a project, experience significant project benefits or disbenefits, etc.) who historically have less ability or access to influence decisions (e.g., LIDACs) are prioritized in the engagement process. Input from these stakeholders carry the most influence over project decisions.
- Engagement is a two-way experience, is done transparently and in good faith, and should build trust.
- Engagement should include both participatory and deliberative tactics. Engagement tactics used should be tailored to the needs of the stakeholder group, the nature of the project, and the stage of development.

Workplan: North Carolina CPRG Implementation Grant
Bridging Science, Communities, and Innovation for a Clean Energy Future

Where feasible and desired by the community, stakeholders may wish to have a role in the governance or hold some decision-making power in the project or program.

- Engagement should be accessible to all North Carolinians statewide. As such, a variety of formats should be used including virtual, in-person events with geographic coverage, online, and asynchronous. The format selection for each engagement opportunity should be tailored to the needs of the stakeholder group, the nature of the project, and the stage of project development. Accessibility will be prioritized to support engagement for all, including language translation services and reasonable accommodations.

NCDEQ conducted thorough outreach and engagement with a diverse group of stakeholders throughout the CPRG planning and implementation application development process. Stakeholder input, especially from LIDACs was prioritized and heavily influenced the design and selection of GHG reduction measures proposed. Further, benefits to LIDACs are a central theme across all GHG reduction measures selected for implementation in this plan. NCDEQ commits to additional and ongoing engagement during the implementation phase as is outlined below.

Outreach and engagement with LIDAC stakeholders during the planning phase: To begin, NCDEQ integrated the CPRG LIDAC geospatial definition using CEJST and EJ Screen block groups into outreach planning. NCDEQ prioritized its in-person public events in communities where there might be barriers to participation. Additional online virtual sessions were promoted through CBOs and community influencers including faith-based institutions, community centers, libraries, environmental organizations, environmental networks, local governments, local tribal organizations, public engagement centers at local universities, environmental justice groups, and social welfare groups. A mix of in-person and virtual sessions were held to encourage participation from a wider audience including those who might have transportation or childcare barriers, language barriers, might work non-traditional hours, or who might find virtual engagement a more convenient way to participate in the civic process. Meetings were promoted both in English and in Spanish with the option to request live interpretation services to increase accessibility. Prior to the in-person events in Fayetteville and Morganton, the NCDEQ Environmental Justice team conducted a search for contacts representing LIDACs in the surrounding 13-county areas for targeted outreach to increase participation. In these public and stakeholder engagement events, NCDEQ shared information about CPRG and asked for input from communities on how they would like to see the state prioritize climate action and funding. During each session, members of the public and organization representatives engaged with presenters by asking questions about the process, expressing concerns that they would like addressed, and proposing possible projects that they felt would be beneficial for their communities. Breakout sessions focused on specific sectors were offered to allow participants the chance to discuss topics in more depth. NCDEQ provided information and engagement opportunities with the NC Commission of Indian Affairs for amplification to their networks and offered a 1:1 meeting to discuss opportunities for involvement. Following this outreach effort, representatives of state-recognized tribes and tribal organizations attended LIDAC-focused CPRG engagement sessions. NCDEQ encouraged tribal organizations to share feedback on priority measures and potential CPRG project ideas through its online form. A website was set up to share information with the public during the process, and engagement meeting slide decks and recordings were posted for transparency. Additional engagement was performed including with state and local government agencies, with NC's 16 COGs, many municipalities, cities, and counties all of whom also serve and, in some cases, themselves represent LIDAC stakeholders. More information on the full range of engagement activities performed during the planning phase can be found in NC's PCAP.

Meaningful engagement planned during the implementation phase: To begin the implementation phase, NC will stand up a Climate Pollution Reduction Community Engagement Working Group whose majority is made up of citizens and community-based groups who represent impacted stakeholders with an emphasis on LIDACs. The working group will advise NC on the overarching engagement and outreach planning approach, the development of a stakeholder map, and engagement tactics suited to the diversity of contexts, track engagement over time, and advise on adjustments needed to engagement approaches to maintain a productive two-way communication.

Deliberative and participatory engagement methods and tactics will be employed during the implementation phase. Deliberative engagement tactics appropriate during the implementation phase may include but are not limited to stakeholder meetings and community events (in person, hybrid, and virtual), additional citizen advisory committees or working groups for more complex or long-running projects, open planning forums, partnered piloting, co-defined metrics development especially performance measures prioritized by LIDACs that address Justice40. Participatory engagement tactics appropriate during the implementation phase may include but are not

limited to collaborative project site down selection, climate pollution reduction 101 workshops to address technical gaps, webinars, fact sheets, presentations, video explainers, public comment periods, focus groups, polling, online forums, panels, 1:1 engagement, and participatory budgeting approaches.

NC will launch and accelerate high quality engagement with communities particularly with LIDAC stakeholders leveraging the advice and counsel of the Climate Pollution Reduction Community Engagement Working Group and in accordance with the guiding principles for community engagement noted above. A posture of openness to community stakeholder input and insight is a part of the culture of NCDEQ and this broader project team. In alignment with the state's values, engagement will be performed on an ongoing basis throughout the CPRG implementation phase. NC acknowledges the engagement and outreach needed to successfully execute the implementation phase of CPRG will exceed the engagement completed to inform the development of the PCAP and the CPRG planning phase.

Section 5: Job Quality

While NC encourages, but does not require, employers to implement the strategies listed in the CPRG NOFO, the State has several practices in place that help ensure NC companies create high-quality jobs in the energy-related sectors. One example is the Job Development and Investment Grant (JDIG) program for companies considering expansion or relocation in NC. Companies that receive JDIG awards commit to creating full-time jobs with benefits. The projected wages of these jobs compared to the country average is one of the factors in the formula used to determine the company's incentive package. These jobs typically pay a family-sustaining wage, defined as earning a family income equivalent to 300% or more of the federal poverty line. In the JDIG application process, the NC Department of Commerce (NCDOC) and the Economic Development Partnership of NC receive information about any additional benefits the company will provide to employees, the expected provision of training for the new employees, a list of prior citations under the Occupational Safety and Health Act (OSHA) within the last three years, and any efforts around corporate social responsibility, such as environmental responsibility, inclusive hiring practices, diversity, equity, and inclusion, and participation of historically excluded talent in executive leadership. Led by the NC Community College System, we continue to grow our apprenticeship programs as they provide greater opportunities for wage progression, skills development, and earning credentials.

In EO 303, Governor Roy Cooper directed a whole-of-government approach to improve the economic mobility of formerly incarcerated people. This EO specifically directed the NCDOC to increase the number of second chance employers hiring people prior to and following release and foster commitments within the business community to remove barriers for qualified applicants with criminal records. This aligns with the Department's *First in Talent* Strategic Economic Development Plan, which is built around differentiating NC from its peers by aggressively meeting the workforce challenges of our global economy. Relevant goals in this *Plan* include: (i) increasing access to high-quality early childhood education and decreasing childcare expenses for working families; (ii) improving regional access to quality, affordable housing and transportation to grow and retain a vibrant workforce; and (iii) supporting initiatives that seek to build healthier communities. In collaboration with NCDOC, NCDEQ plans to support retention and creation of high-quality, family-sustaining jobs via CPRG implementation.

Section 6: Programmatic Capability and Past Performance

Section 6.1: Past Performance

NCDEQ successfully manages a variety of grants, cooperative agreements, and competitive awards including, awarding and overseeing Mobile Sources Emissions Reduction Programs, awarded by EPA's Diesel Emissions Reduction Act (DERA) Program and the State's share of the VW Settlement funds, as previously highlighted in Section 1.3. Additionally, NCDEQ received over \$200 million from the American Recovery and Reinvestment Act funds for the combined State Energy Programs (SEP) and WAPs. Over the last three years, SEO was directly awarded and performed the following federal assistance agreements:

- **1) SEP Formula, DE-EE0009483; 2) SEP Competitive Planning for an Affordable, Resilient, and Sustainable Grid in NC, DE-EE0008607:** Awarded \$4,063,830 for 2021-2024 (SEP Formula) and \$360,000 for 2019-2023 (SEP Competitive to fund EE and clean energy projects, as well as develop a roadmap to be used during the integrated resource planning process to support investments that enhance grid resiliency, improve reliability,

Workplan: North Carolina CPRG Implementation Grant
Bridging Science, Communities, and Innovation for a Clean Energy Future

and maintain affordability. DOE, Myles Rogers (myles.rogers@hq.doe.gov; (240)-597-6348); DOE, Ryan Moore (ryan.moore@netl.doe.gov; (304)-285-5053)

- **3) WAP, DE-EE0009920, WAP, DE-EE0007939; 4) WAP Bipartisan Infrastructure Law (BIL) EE0010005; 5) DHHS FAIN 22B1NCLIEA, 23B1NCLIEA, 2301NCLIEA, and 2401NCLIEA:** Awarded \$12,625,218 for 2022-2024 (DOE), \$25,648,111 for 2017-2022 (DOE), \$89,776,045 (WAP BIL), and \$40,018,050 (DHHS' LIHEAP and HARRP program). The WAP provides annually awarded funding for EE and clean energy projects which increase the EE of the economy, reduce energy costs and energy waste, and promote economic growth. DOE, Christine Askew (christine.askew@hq.doe.gov; (202)-586-8224); DOE, Christine Askew (christine.askew@hq.doe.gov; (202)-586-8224); DHHS Claudia Gonzalez, (Claudia.Gonzalez@acf.hhs.gov, (202)-545-4918)

The SEP Formula Awards and WAP funds (in the bulleted list above) are awarded annually to NCDEQ from the DOE. The SEP Competitive (in the bulleted list above) was also awarded by DOE and was a one-time assistance award completed successfully by NCDEQ. NCDEQ utilizes internal staff members to effectively manage and monitor funding awards ensuring that grant agreements are completed as expected. NCDEQ utilizes its Financial Services Division, legal staff members, and internal auditors to assure that financial protocols and federal requirements are followed. NCDEQ staff are in regular communication with grant award federal representatives providing project progress and accomplishments. As part of regular communications, NCDEQ discusses anticipated barriers and seeks suggestions to solve those barriers. NCDEQ also consults with federal project liaisons and in-state technical experts for guidance on how to avoid implementation delays and ensure outcomes.

Section 6.2: Reporting Requirements

The above-mentioned assistance award agreements have multiple reporting requirements that were met in a timely manner in the Performance and Accountability for Grants in Energy (PAGE) system. NCDEQ reported the progress towards achieving expected outcomes and provided acceptable final reports as required on all assistance award agreements. The following are reporting requirements for all award agreements that NCDEQ has met:

- **Program/Quarterly Progress Reports (QPR):** Required quarterly within 30 days of end of quarter and within 90 days after the expiration or termination of award via the PAGE system.
- **Financial Reporting:** Required quarterly within 30 days of end of quarter and within 90 days after expiration or termination of award. The form is SF-425: Federal Financial Report, submitted through PAGE system.
- **Annual Indirect Cost Proposal:** The annual Indirect Rate Agreement or Cost Allocation Plan is submitted with the State Plan into the PAGE document library annually.
- **Historical Preservation:** Required annually via the PAGE system.
- **Davis-Bacon (applicable to WAP funds):** Required semi-annually at the end of each period.
- **Closeout Reporting (SF-428 and 428B Final Property Report):** Required 90 days after the expiration or termination of 3-year or 5-year Grant Period.
- **Special Status Reports:** Developed and submitted as required.

Section 6.3: Staff Expertise

NCDEQ has staff that develop, implement, monitor, evaluate, and report on CPRG implementation. NCDEQ staff include engineers, program specialists, program administrators, and account specialists providing a range of expertise and experience to successfully develop, manage, and carry out programs and initiatives. NCDEQ will utilize the staff noted below to implement the program activities, which includes staff from NCDEQ's partners CPRC and Centralina. Additional key personnel and positions to be added once the CPRG funding is awarded is included in the Team Biographies attachment.

Table 6: Key Staff Bios

Grant Role	Experience, Qualifications, and Knowledge
Julie Woosley, SEO Director, NCDEQ	
Program Administrator – will provide guidance and oversight to the overall implementation of the CPRG program.	Ms. Woosley currently serves as the Director of the SEO within NCDEQ and is a Certified Public Manager (CPM). She has extensive experience with environmental and energy programs including in 25 years with NCDEQ. During her tenure, she has successfully provided program oversight for more than \$75 million in federal, state, and private funds.
Michael A. Abraczinskas, Director, DAQ, NCDEQ	

Workplan: North Carolina CPRG Implementation Grant
Bridging Science, Communities, and Innovation for a Clean Energy Future

Grant Role	Experience, Qualifications, and Knowledge
Sector Program Manager – will provide guidance and oversight for implementation of the Transportation Sector programs included in the CPRG grant.	Mr. Abraczinskas is the Director of the DAQ. He has 25 years of experience with DAQ including regulatory development, planning, meteorological and air quality modeling, mobile sources emissions modeling, and mobile source compliance activities. He provided oversight for the State's share of the VW Settlement funds. Mr. Abraczinskas holds a Bachelor of Science (BS) in Meteorology from NCSU, is certified as an Engineer-In-Training (EIT), and a CPM.
Matthew Davis, WAP Manager, NCDEQ	
Program Consultant – will support program strategy development.	Mr. Davis currently manages the SEO's WAP and brings approximately 10 years of successful experience working with energy and environmental programs in NCDEQ. He currently manages, monitors, and implements over \$100 million in NC Weatherization Assistance funds.
Bridget Parrish, Engineer, NCDEQ	
Program Consultant – will provide program strategy and TA for the grant.	Ms. Parrish serves as an Engineer with the SEO and brings 10+ years of experience from the public and private sector. She has extensive knowledge in managing, monitoring, and researching energy and environmental technologies.
Stephanie C. Bolyard, PhD, Senior Engineer to the Assistant Secretary, NCDEQ	
Technical Program Manager – will provide technical support, oversight and guidance, and lead the waste sector implementation.	Dr. Bolyard serves as the Senior Engineer to the Assistant Secretary. Her 15+ years of experience and expertise includes solid waste management, wastewater permitting, environmental compliance, and emerging contaminants. Dr. Bolyard has a PhD and MS in Environmental Engineering from the University of Central Florida and a BS in chemistry.
Helen Hossley, Special Projects Manager, NCDEQ	
Program Consultant – will provide program strategy and implementation.	Ms. Hossley has extensive experience managing national and statewide programs. She navigated through the intricacies of government agencies and created ground swell involvement at the grass roots level. She has a BS from Rochester Institute of Technology.
Jason Wager, AICP, CEP Regional Planning Director, Centralina	
Regional Technical and Program Advisor – Oversees contract administration, scope/schedules, cost reviews, risk management, and QA/QC.	Mr. Wager serves as Director of Planning in support of the 9-county Centralina Region. He has 28+ years of experience, with a significant energy and environment focus, and has developed programs and projects that include the establishment of the DOE Clean Cities coalition affiliate for our area and leads the regional mobility vision and implementation recommendations of the CONNECT Beyond initiative. He holds a B.A. and Masters of Geography.
Emily Barrett, Director of Environment and Resilience, CPRC	
CPRC CPRG Administrator	With over 20 years of professional environmental experience in government and private sectors, Ms. Barrett has spent the last 14 years in local government sustainability implementation both at the local and regional levels. She is a graduate of UNC Chapel Hill with an MS in Environmental Science and Engineering from the School of Public Health.