



# Palmetto Air Quality Collaborative (PAQC)

Action Teams Kickoff Webinar Series



December 11-15, 2023





# Agenda

- Introductions
- CPRG and PAQC Overview
- Action Team Objectives and Expectations
- Greenhouse Gas Inventory (draft output)
- Reduction Measures
- Next Steps





# Climate Pollution Reduction Grant (CPRG)

- Established by the Inflation Reduction Act on August 16, 2022
- Administered by the U.S. Environmental Protection Agency (EPA)
- Focuses on developing state, tribal, and metropolitan climate plans that include GHG reduction measures

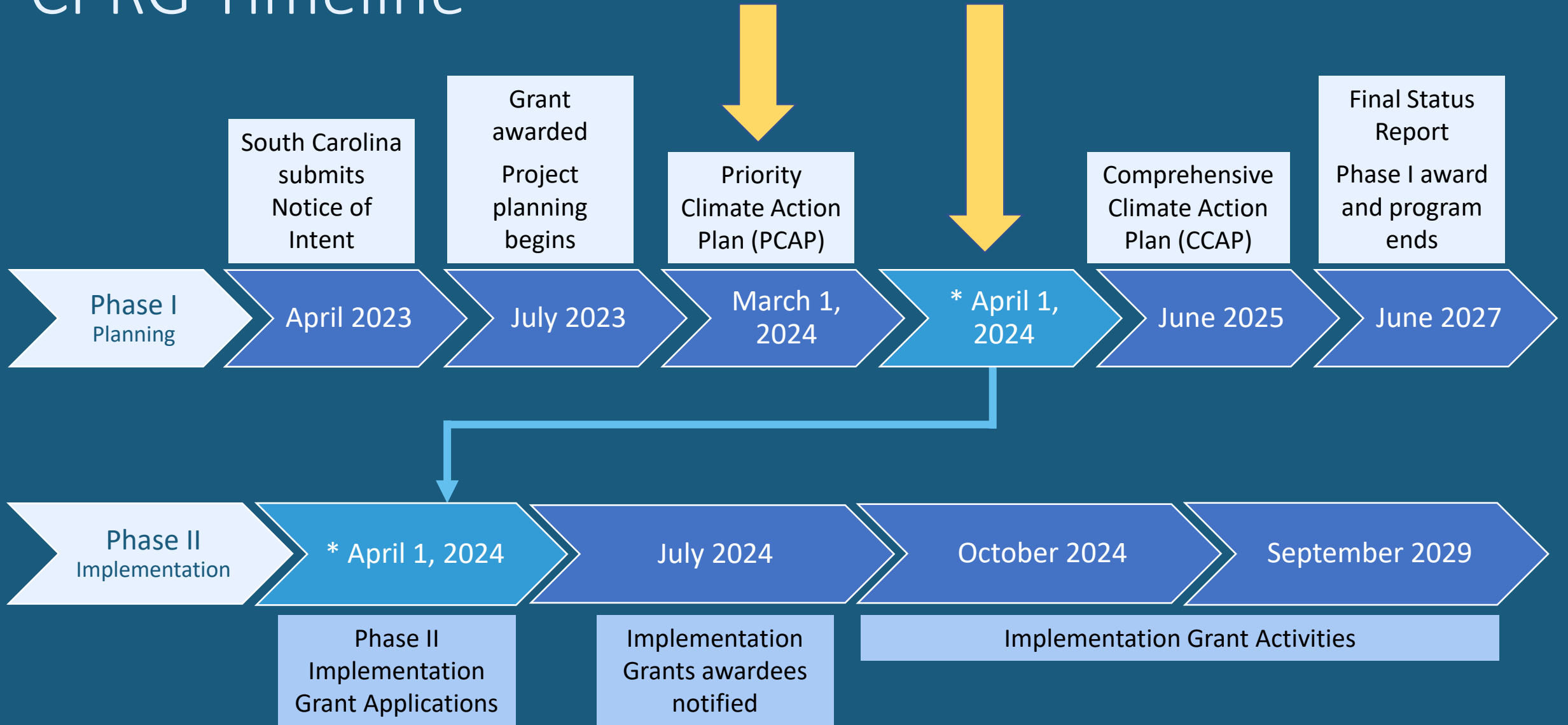
## Phase I: Planning Grants

- \$3 million for the statewide effort
  - Co-leads: SC DHEC and SC Office of Resilience
  - Sub-awardee: SC Ports Authority
- \$1 million for Charlotte, Columbia, and Greenville-Spartanburg MSAs
- Priority Climate Action Plan (PCAP) due March 1, 2024

## Phase II: Implementation Grants

- Competitive; \$4.6 billion available
- Due: April 1, 2024
- 30 to 115 expected awards, ranging from \$2 million to \$500 million

# CPRG Timeline





# The Palmetto Air Quality Collaborative (PAQC)



- Innovation
  - Innovate strategies to reduce greenhouse gases and other air pollutants in South Carolina



- Multiple Benefits
  - Engage communities, capitalize on workforce and economic development opportunities, and advance resilience initiatives



- Coordination and Collaboration
  - Develop actionable pollution reduction measures through interagency and intergovernmental collaboration, public and stakeholder engagement, and action team input

# Palmetto Air Quality Collaborative

## Process

## Deliverables

### Coordination Teams

#### Interagency Coordination

State Agencies, Catawba Nation  
COGs, Local Governments

#### Public & Stakeholder Engagement

SCOR, DHEC, Energy Office

### Action Teams

Transportation and Mobile Sources

Waste and Materials Management Recycling

Agriculture/ Natural and Working Lands

Climate / GHG Inventories and Analyses

Residential and Commercial Buildings / Energy Efficiency

Industry, Commerce, and Sustainability

PCAP:

March 1, 2024

Implementation Grant

April 1, 2024

CCAP:

June 2025

Status Report:

June 2027

# Action Team Objectives

- Provide expertise and insight about organization/community priorities
- Identify, review, prioritize GHG reduction measures
  - Quantifiable
  - Implementable
- Provide input on the draft PCAP
- Promote Implementation Grant participation



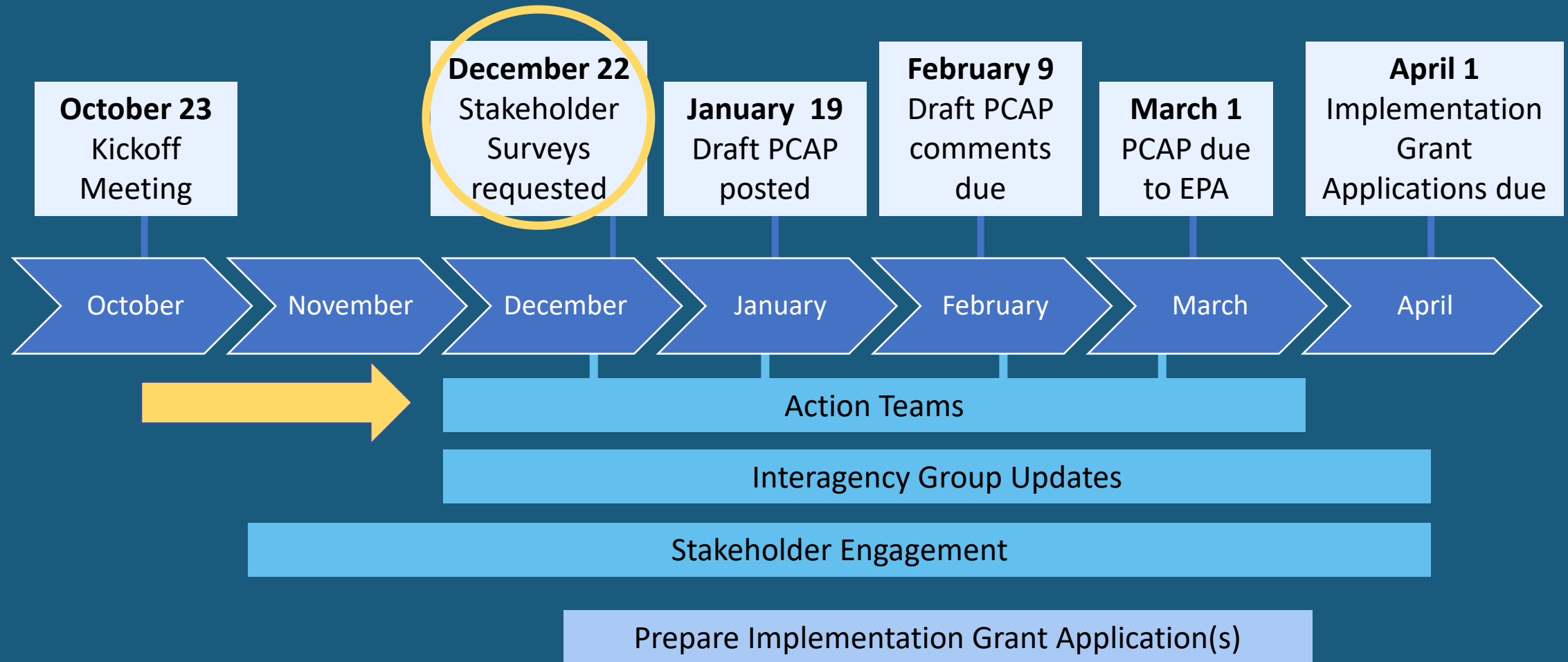
# Action Team Expectations

- Engage respectfully
- Attend and participate in meetings
- Share information
- Provide timely feedback





# PCAP Timeline and Targets



# Implementation Grants

## Applications due April 1, 2024

- Measures **MUST** be included in a PCAP
- Eligible applicants: state and local government agencies, regional Councils of Government, federally recognized tribes
- Coalitions, sub-awardees, and sub-contracts allowed

## EPA Priorities

- Actionable, quantifiable emissions reduction measures
- Community benefits
- Complement other funding sources



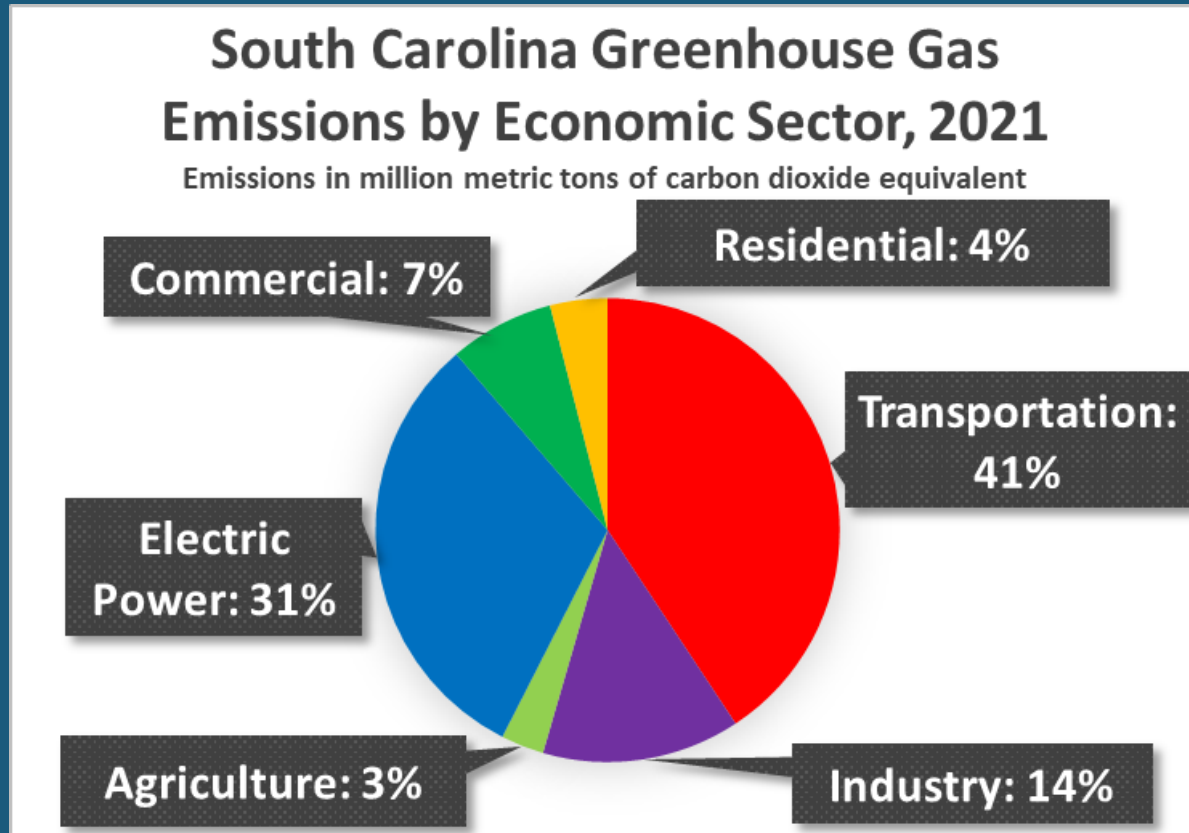
Questions?

# CPRG Requirements

Priority Climate Action Plan (PCAP): March 1, 2024	Comprehensive Climate Action Plan (CCAP): June 2025	Status Report: June 2027
GHG Inventory	GHG Inventory	Update encouraged
	GHG Emissions Projections	Update encouraged
	GHG Reduction Targets	
Quantified GHG Reduction Measures	Quantified GHG Reduction Measures	Status and updates required
Benefits Analysis	Benefits Analysis	Benefits Analysis
Review of Authority to Implement	Review of Authority to Implement	Update required
	Intersection with Other Funding Availability	Intersection with Other Funding Availability
	Workforce Planning Analysis	Workforce Planning Analysis
		Next Steps Future Budget and Staffing Needs

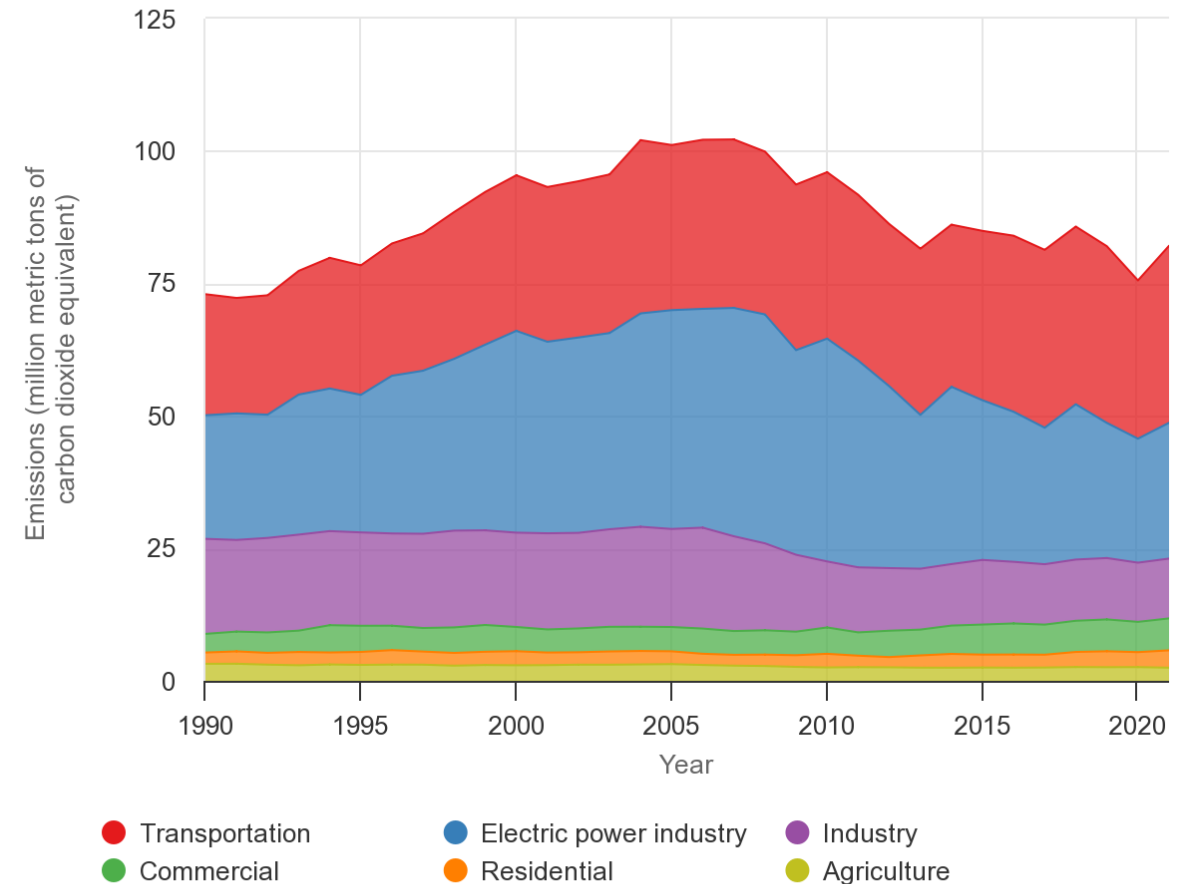
Monitor and Measure Program Performance: Outputs and Outcomes

# South Carolina GHG Emissions



Source: U.S. EPA's Inventory of U.S. Greenhouse Gas Emissions and Sinks by State: 1990-2021. GHG Inventory Data Explorer.  
<https://www.epa.gov/ghgemissions/inventory-us-greenhouse-gas-emissions-and-sinks>

### South Carolina Greenhouse Gas Emissions by Economic Sector, 1990–2021



Source: U.S. EPA's Inventory of U.S. Greenhouse Gas Emissions and Sinks by State: 1990–2021.  
<https://www.epa.gov/ghgemissions/state-ghg-emissions-and-removals>

  
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## Greenhouse gas inventory

[Energy Resources for State, Local, and Tribal Governments \(Home\)](#)

[State Topics](#)

[Local Topics](#)













[Tribal Topics](#)

[Resources](#)

# Download the State Inventory and Projection Tool

Welcome to the download page for EPA's State Greenhouse Gas Inventory and Projection Tools. The page includes zip files containing the tools and corresponding guidance documents. Note that the user's guides are companion documents to the tools, and EPA encourages users to consult them. This version of the State Inventory Tool (updated June 2023) has data updated through 2020. Please use the latest version of each State Inventory Tool module with the latest version of the Projection Tool so data can be imported correctly.

 [Download All State Inventory Tool Modules \(zip\)](#)

-  [Ag Module \(xls\)](#)
-  [CO2FFC Module \(xls\)](#)
-  [Coal Module \(xls\)](#)
-  [Electricity Consumption Module \(xls\)](#)
-  [IP Module \(xls\)](#)
-  [Land Use, Land-Use Change, and Forestry Module \(xls\)](#)
-  [Mobile Combustion Module \(xls\)](#)
-  [Natural Gas and Oil Module \(xls\)](#)
-  [Solid Waste Module \(xls\)](#)
-  [Stationary Combustion Module \(xls\)](#)
-  [Synthesis Tool \(xls\)](#)
-  [Wastewater Module \(xls\)](#)

 [Projection Tool \(zip\)](#)

<https://www.epa.gov/statelocalenergy/state-inventory-and-projection-tool>

# Greenhouse Gases

Common Name	Chemical Formula	Common Sources and Uses
Carbon Dioxide	CO <sub>2</sub>	Combustion (burning fossil fuels) Land cover change
Methane	CH <sub>4</sub>	Combustion Agriculture (livestock, rice) Waste and Landfill Decomposition
Nitrous Oxide	N <sub>2</sub> O	Combustion (burning fossil fuels)
Sulphur Hexafluoride	SF <sub>6</sub>	Electrical Insulator (gas used to fill spaces to insulate)
Hydrofluorocarbons	HFCs	Refrigerants (coolant)
Perfluorocarbons	PFCs	Aluminum production Industrial processes

# EPA SIT

- The State Inventory Tool (SIT) modules provide a standard methodology for states to calculate emission using national datasets and provide the opportunity to supplement with local data.
- SIT modules are Microsoft Excel spreadsheets.
- The Inventory of U.S. Greenhouse Gas Emissions and Sinks ([EPA 2022a](#)) is the basis for default national datasets.





# EPA SIT – PAQC Methods

- Workflow is organized by 5 “Tasks”
  - Transportation, Electric Power Generation, LULUCF, Major Emissions, Minor Emissions
- Default, EPA provided values are used in all SIT modules except for Task 3
  - Task 3, Natural Working Lands and Forestry, EPA does not provide hectares burned and this will be provided by SC Forestry Commission
- Emission units are in Million Metric Tons of Carbon Dioxide Equivalent (MMTCO<sub>2</sub>e)
  - SIT may report in Metric Tons of Carbon Dioxide Equivalent (MTCO<sub>2</sub>e)



# EPA SIT Walkthrough

Note: SC Greenhouse Gas Inventory output and figures are currently under review.



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## Quantifiable GHG reduction measures

- Voluntary
- Incentive-based
- Complementary
- Ability to scale to a statewide effort

### What is a measure?

- “...programs, policies, measures, and projects that will achieve or facilitate the reduction of greenhouse gas air pollution.”

# EPA Requirements

## PCAP

GHG Inventory

Priority Measures

- Implementation ready; can be completed in a 5-year Implementation Grant
- Align with and advance state priorities

For each measure, include at a minimum:

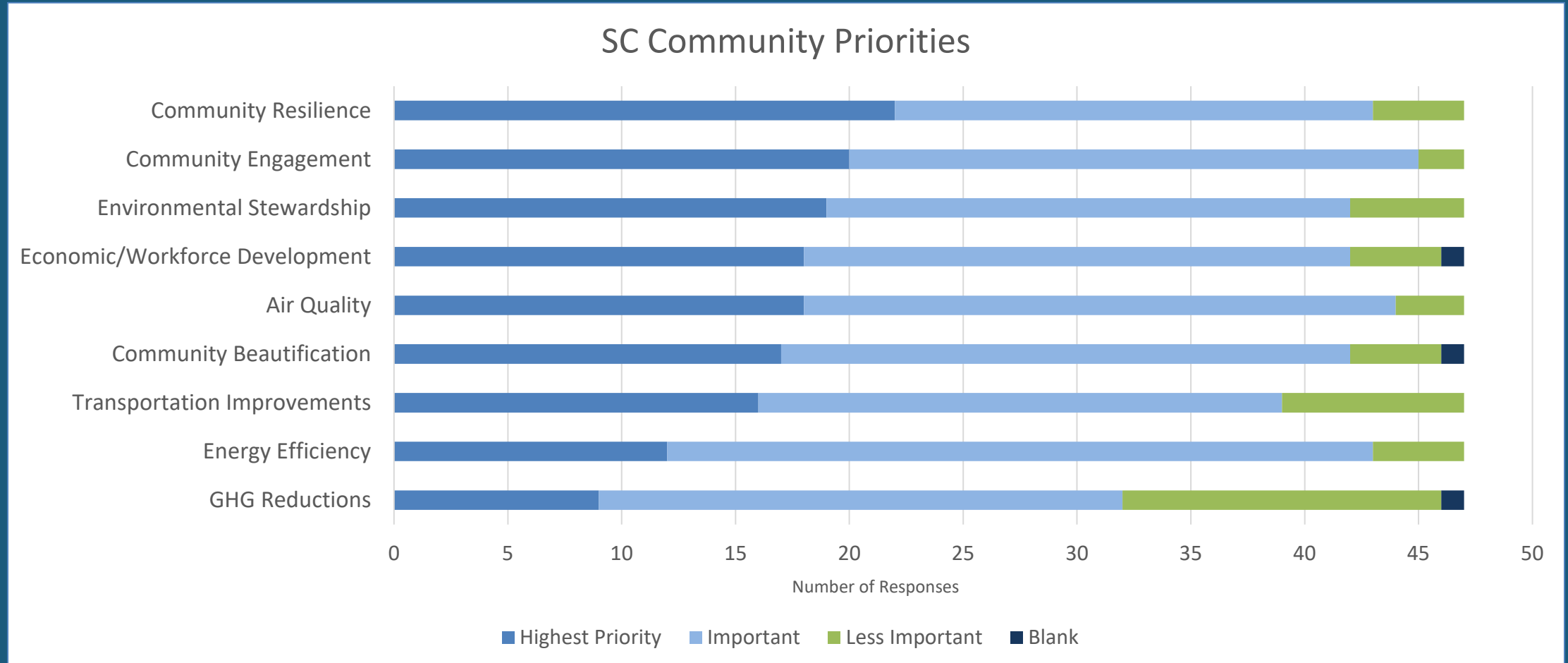
- GHG reduction estimates (2025-2035, 2025-2050)
- Implementing agencies; statutory or regulatory authority
- Discussion of community benefits
- Cost estimates

## Implementation Grant Application (for each proposed program or project)

- Description of the GHG reduction measure(s); must be in PCAP
- Magnitude of GHG reductions for 2025-2030 and 2025-2050
- Transformative impacts
- Intersection with other funding; demonstrate funding need
- Cost effectiveness of GHG reductions
- Co-benefits: co-pollutant emission changes, workforce opportunities
- Community engagement

# Survey Results

“How does your community or organization prioritize the following economic, health, and environmental benefits?”



47 responses as of Friday, Dec. 8<sup>th</sup>, 2023

# Reduction Measures by Action Team



- 1 Residential and Commercial Buildings
- 2 Agriculture / Natural & Working Lands
- 3 Greenhouse Gas Inventory
- 4 Waste and Materials Management
- 5 Industry
- 6 Transportation

# Residential & Commercial Buildings: Implementable Programs (Examples and Ideas)

Category	Measure Examples
Energy Efficiency and Weatherization	<ul style="list-style-type: none"><li>● Improve energy efficiency in existing aging housing inventory through energy efficiency retrofits, weatherization, energy management and rebate initiatives. Leverage existing rebate programs: specifically aim to assist Justice40 communities in funding HVAC systems and major appliances, reduce overall energy consumption, and resident utility expenses.</li><li>● Provide incentives and rebates for new residential, commercial, and public construction to include healthy, carbon-storing and energy efficient construction</li><li>● Provide incentives and rebates for energy efficiency measures in existing commercial and public buildings and facilities</li></ul>
Power Generation and Storage	<ul style="list-style-type: none"><li>● Provide incentives or rebates for renewable energy projects, for public facilities and privately owned buildings</li><li>● Install microgrids</li><li>● Use existing municipal facilities and buildings as test sites to determine the costs and benefits of solar, microgrids, or other strategies</li></ul>

# Residential & Commercial Buildings: Enabling Programs (Examples and Ideas)

Category	Measure Examples
Pre-Weatherization (Residential)	<ul style="list-style-type: none"><li>• Perform energy audits</li><li>• Address structural deficiencies, home health hazards, and critical home repair</li><li>• Pre-weatherization will maximize benefits for weatherization and energy efficiency retrofits</li></ul>
Research, Development, and Demonstrations	<p>Identify, develop, test, pilot, and demonstrate new strategies that can then be encouraged or implemented statewide, for example:</p> <ul style="list-style-type: none"><li>• Renewal energy (new technologies, policies to enable deployment)</li><li>• Energy efficiency (new technologies; local building codes, state energy standard)</li><li>• Building materials and designs to sequester carbon</li><li>• Remote/shared workspaces</li></ul>



# Agriculture/Natural & Working Lands: Implementable Programs (Examples and Ideas)

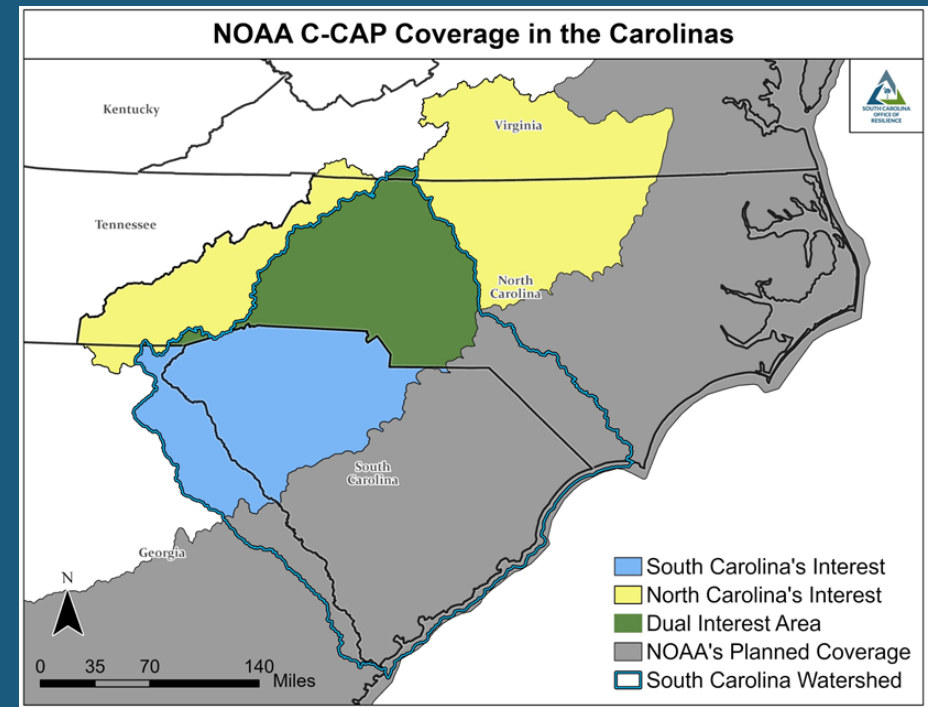
Category	Measure Examples
Climate Smart Agriculture	<ul style="list-style-type: none"><li>• Expand existing, successful programs and incentives for producers to implement climate-smart production practices</li></ul>
Sustainable Forest Management	<ul style="list-style-type: none"><li>• Deploy sustainable forest management for optimal carbon sequestration and preservation of carbon stocks</li><li>• Develop and deploy new technologies and products to help offset higher carbon emissions from other sectors</li></ul>
Urban Environments	<ul style="list-style-type: none"><li>• Expand urban tree planting and urban forestry programs</li><li>• Incentivize greenspace purchases and participation in tree protection programs</li></ul>
Ecosystem Restoration and Conservation	<ul style="list-style-type: none"><li>• Expand programs and funding to preserve, restore, and manage ecosystems with carbon sequestration benefits</li><li>• Expand conservation stewardship and easement incentives for agricultural / forest producers</li></ul>
Waste	<ul style="list-style-type: none"><li>• Establish new programs and incentives for reducing and reusing waste, for example through community composting programs, on-farm anaerobic digester systems, or biogas production</li></ul>

# Agriculture/Natural & Working Lands: Enabling Programs (Examples and Ideas)

Category	Measure Examples
<b>Agency Coordination</b>	<ul style="list-style-type: none"><li>• Develop multi-agency collaborations and strategies to identify and maximize co-benefits of land use planning and management activities</li><li>• Identify ways to support existing plans and coordination efforts, such as the South Carolina Green Infrastructure Plan</li></ul>
<b>Research, Development, and Demonstrations</b>	<p>Identify, develop, test, pilot, and demonstrate new strategies that can then be encouraged or implemented statewide, for example:</p> <ul style="list-style-type: none"><li>• Methods to monitor, report, and verify carbon sequestration and greenhouse gas benefits</li><li>• Markets and products to promote climate-smart agricultural and forestry practices</li></ul>

# CCAP Landcover Product

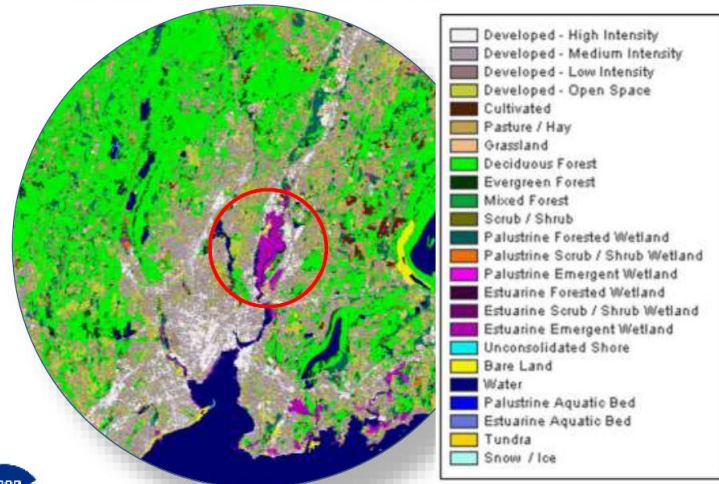
- NOAA 1-meter Landcover Product
- Blue and Green areas are being procured
  - Will be produced within ~6 months
- Great improvement from 30-meter NLCD



## Comparison of Resolutions

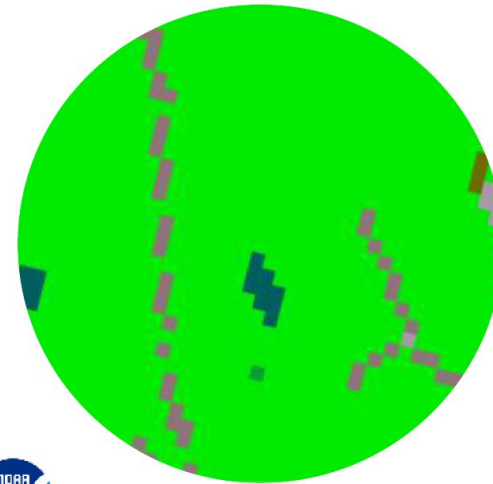
REGIONAL (30-METER)

LOCAL (1-METER)



REGIONAL (30-METER)

LOCAL (1-METER)



# GHG Inventories: Implementable Programs – All Sectors

Sector	Measure Examples
Agriculture	<ul style="list-style-type: none"><li>• Expand existing, successful programs and incentives such as Climate Smart Commodities for producers to implement carbon-reducing practices.</li><li>• Deploy sustainable forest management for optimal sequestration and preservation of carbon.</li><li>• Expand urban tree planting and greenspace programs.</li><li>• Expand programs to preserve and restore ecosystems with carbon sequestration benefits.</li></ul>
Residential and Commercial Buildings	<ul style="list-style-type: none"><li>• Improve energy efficiency in existing housing inventory through retrofits, weatherization, energy management, and rebate initiatives.</li><li>• Provide incentives and rebates for new residential, commercial, and public construction to include carbon-storing and energy efficient construction.</li><li>• Install microgrids.</li><li>• Update building codes.</li></ul>
Transportation	<ul style="list-style-type: none"><li>• Install EV infrastructure at certain locations around the state (e.g., city halls, schools) to create Resilience Hubs.</li><li>• Expand public transportation and other transportation options (walking, biking).</li></ul>
Industry	<ul style="list-style-type: none"><li>• Provide incentives to use biochar in cement production.</li><li>• Provide incentives to businesses to reduce power consumption during the production process.</li></ul>
Waste	<ul style="list-style-type: none"><li>• Establish new programs and incentives for reducing and reusing waste, for example through community composting programs, on-farm anaerobic digester systems, or biogas production.</li></ul>

# Waste and Materials Management: Implementable Programs (Ideas & Examples)

Category	Measure Examples
Landfills	<ul style="list-style-type: none"><li>• Expand methane gas collection systems and electricity production from methane emissions</li></ul>
Food Waste and Composting	<ul style="list-style-type: none"><li>• Expand food waste collection programs and industrial composting facilities</li></ul>
Recycling and Recycled Materials	<ul style="list-style-type: none"><li>• Expand recycling programs and facilities</li><li>• Incentivize use of carbon capturing and recycled building materials</li></ul>
Electrification	<ul style="list-style-type: none"><li>• Transition landfill equipment and operations fleets to electric</li></ul>

# Waste and Materials Management: Enabling Programs (Ideas and Examples)

Category	Questions
Education	<ul style="list-style-type: none"><li>• Expand and enhance trainings and technical assistance for professionals in the field</li><li>• Provide educational programs, webinars, workshops, and tours for communities on waste reduction, reuse, recycling, and composting</li></ul>
Markets	<ul style="list-style-type: none"><li>• Develop incentives and technical assistance programs to expand markets for compost and recycled materials</li></ul>

# Industry: Implementable Programs (Examples and Ideas)

Category	Measure Examples
Materials	<ul style="list-style-type: none"><li>• Incentives for businesses to use more sustainable practices and materials</li><li>• Incentives to use biochar in cement production</li></ul>
Energy Efficiency, Electrification, and Renewable Energy	<ul style="list-style-type: none"><li>• Grants to support equipment replacement and upgrades, particularly at the point of equipment turnover</li><li>• Grant or incentive programs to transition diesel engines to newer, less carbon intensive engines</li><li>• Incentives for use of alternative fuels or adoption of new technologies, such as carbon capture and storage</li><li>• Incentives for renewable energy projects, for on-site energy generation and storage</li><li>• Incentives for businesses to adopt technologies and practices that reduce energy consumption during production processes</li></ul>

# Industry: Enabling Programs (Examples and Ideas)

Category	Measure Examples
Collaboration	<ul style="list-style-type: none"><li>• Promote and expand partnerships around hydrogen research, infrastructure design, and supply chain activities</li><li>• Facilitate collaboration between industry and utilities to identify needs and establish pathways for industrial electrification</li></ul>
Technical Assistance	<ul style="list-style-type: none"><li>• Provide financial and technical assistance towards environmental product declaration development</li><li>• Study opportunities to use low carbon materials and transition to alternative fuels</li><li>• Implement demonstration projects to deploy new and emerging technologies</li></ul>
Sustainability Initiatives	<ul style="list-style-type: none"><li>• Develop voluntary certification programs for GHG or energy reduction measures</li><li>• Develop strategies to support South Carolina industries' efforts to monitor, report on, and achieve emissions, climate change, and energy goals</li></ul>



# Transportation: Implementable Programs (Examples and Ideas)

Category	Measure Examples
<b>Electrification and Alternative Fuels</b>	<ul style="list-style-type: none"><li>• Rebates for electric vehicle purchases</li><li>• Incentives or rebates for converting vehicle fleets to EVs (public and private sectors; passenger vehicles, light and heavy-duty trucks, buses)</li><li>• Incentive or rebates to electrify non-highway transportation and equipment (boats, rail, farm equipment, construction equipment)</li><li>• Incentives for use of alternative fuels</li><li>• Grant or incentive programs to transition diesel engines to newer, less carbon intensive engines</li></ul>
<b>Alternative Transportation Modes</b>	<ul style="list-style-type: none"><li>• Grant programs for public transit projects, enhanced biking and walking options, carpooling, and other initiatives to reduce vehicle miles</li></ul>
<b>Operational Efficiencies</b>	<ul style="list-style-type: none"><li>• Programs to reduce vehicle idling.</li></ul>

# Transportation: Enabling Programs (Examples and Ideas)

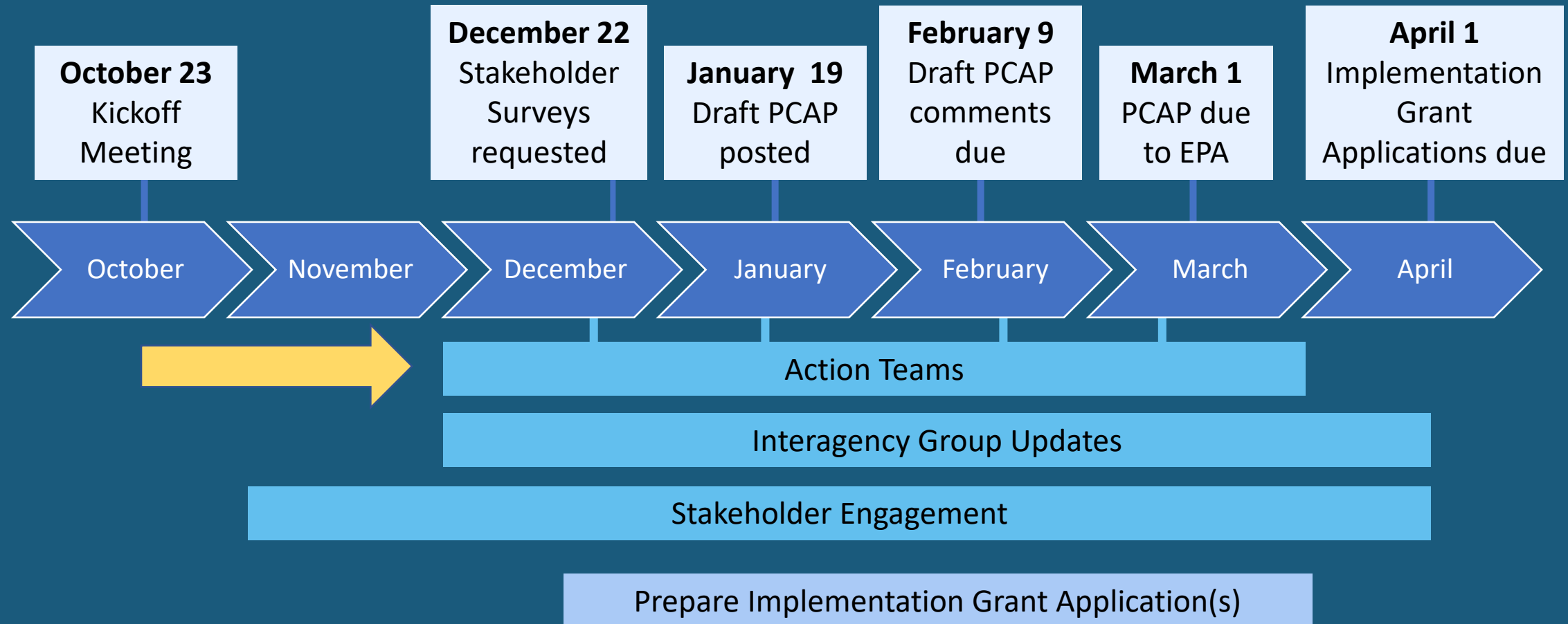
Category	Measure Examples
Infrastructure	<ul style="list-style-type: none"><li>• Grant or incentive programs to deploy EV charging stations</li></ul>
Technical Assistance and Education	<ul style="list-style-type: none"><li>• Professional training programs on effective planning and engineering practices for improved biking and walking infrastructure</li><li>• Community education on alternative (non-passenger vehicle) transportation options</li></ul>



# Discussion / Brainstorm

1. What is your organization and/or sector doing that relates to the PAQC and CPRG program?
2. What measures from this sector would you consider prioritizing for the PCAP?
3. What are the most effective ways to further engage and coordinate with your organization and/or sector?
4. Who else needs to be engaged or invited to participate?

# PCAP Timeline and Targets





# Next Steps

- Requests
  - Survey: Please submit and share as widely as possible
  - Disseminate information: <https://scor.sc.gov/paqc>
  - Share information with us about your organization's or community's activities
- Upcoming meetings:
  - **January 8 – 10, 2024**: Discussion of stakeholder survey results, draft write-ups of the GHG Inventory and GHG reduction measures ideas
  - **February 12 – 14, 2024**: Discussion of draft PCAP comments and responses; final GHG reduction measures; final projects and programs to include in the PCAP



Thank you for your interest in the PAQC!

Questions? Contact us at [PAQC@scor.sc.gov](mailto:PAQC@scor.sc.gov)