



Department of
**Environment &
Conservation**

Emission Reduction Planning Advisory Committee

Meeting #2

December 15, 2023

Meeting Agenda

Time	Agenda Item	Topics to Cover
10:00 – 10:10	Welcome & Introductions	
10:10 – 10:30	Public Participation Update	<ul style="list-style-type: none">• Overview• Reaching Low Income and Disadvantaged Communities• Public Meetings Observations• Public Survey Insights• Questions and Feedback for CCAP Public Engagement
10:30 – 11:30	Draft Greenhouse Gas (GHG) Inventory and Draft PCAP Measures	<ul style="list-style-type: none">• Draft GHG Inventory Results• Draft PCAP Measures• Questions and Feedback
11:30 – 11:50	CPRG Implementation Grant	<ul style="list-style-type: none">• Brief Review of Notice of Funding Opportunity• Coordination for ERPAC Entities Considering Implementation Funds• Questions and Feedback
11:50 – 12:00	Timeline and Next Steps	



Public Participation Update

Overview

Summer

Launching the Program

- Published TVERS website
- Opened TVERS email listserv (664 current subscribers)
- Established dedicated TVERS email (TDEC.TVERS@tn.gov)

September

Kickoff Webinar

- Hosted TVERS kickoff webinar
- Introduced CPRG and TVERS and answered public questions
- Slides and recording available online
- 29 attendees

September - October

Public Meetings

- Hosted 5 in-person meetings statewide: Chattanooga, Memphis, Knoxville, Nashville, and Kingsport
- Introduced CPRG and TVERS, answered public questions, and gathered feedback
- Partnered with local governments and CPRG entities
- 117 attendees formally signed in: Chattanooga (8), Memphis (30), Knoxville (36), Nashville (28), Kingsport (15)

October – November

Public Survey

- Launched public survey and encouraged Tennesseans to complete
- Pushed through social media, public meetings, sharing of QR codes, email newsletters, and other TDEC engagements
- Covered emissions reduction priorities, perceived challenges, and drivers/benefits
- Received 1,636 responses. Initial analysis revealed 38% came from LIDACs.
- Compiling summary to share with email listserv and those who took the survey

Reaching Low Income and Disadvantaged Communities (LIDACs)

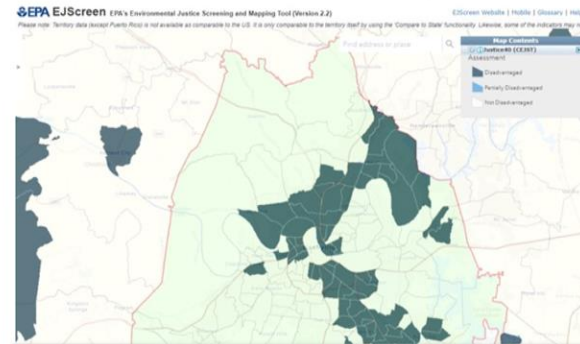
- TDEC ran EJScreen Reports for each public meeting location
 - Summary (Population, % Low Income, Limited English Households, and If Exceeding 80th Percentile (State) for EJ Indexes)
 - Spatially overlaid the Climate and Economic Justice Screening Tool indicator for disadvantaged communities with pertinent environmental indicators (PM2.5, Ozone, Air Toxics Cancer Risk, Toxic Releases to Air, and Cumulative Impacts) to identify disadvantaged or overburdened census tracts within each public meeting location

Reaching Low Income and Disadvantaged Communities (LIDAC)

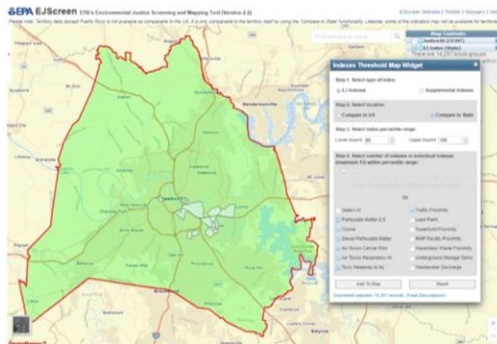
Davidson County- Summary

- Population: 708,490
- Low Income: 31%
- People of Color: 44%
- Limited English Households: 5%
 - English Spoken at Home: 83%
 - Spanish Spoken at Home: 9%
 - Arabic Spoken at Home: 2%
 - Other Indo-European Language Spoken at Home: 2%
 - Other and Unspecified Language Spoken at Home: 2%
- Exceeds 80th Percentile EJ Indexes relative to State Percentile...
 - Diesel Particulate Matter: 80th Percentile

Davidson County – Climate & Economic Justice Screening Tool Identified Disadvantaged Communities



Davidson County – Cumulative Impacts



- Highlighted block groups exceed the 80th percentile relative to the state for the following indexes: PM2.5, Ozone, Diesel Particulate Matter, Air Toxics Cancer Risk, Air Toxics Respiratory Health Index, Toxic Releases to Air, and Traffic Proximity
- There is ~50% overlap with these block groups and the CEJST identified disadvantaged communities

Davidson County – Outreach Recommendations

- **Translative Services**
 - Translate flyer/meeting materials into Spanish and potentially Arabic
 - Ask on RSVP form for request for translative services at public meeting and provide upon request
- **Community Focuses**
 - Emphasize outreach in: North Nashville, Donelson, South Nashville
 - Work with local community groups and non-profits to share opportunity
 - Provide outreach materials in public libraries and houses of worship if possible

Reaching Low Income and Disadvantaged Communities (LIDAC)

- Implemented outreach recommendations based on the analyses:
 - Utilized spatial data to drive a direct mailers campaign
 - Targeted email invitations and live presentations to community and neighborhood groups, cultural heritage organizations, affinity groups, and environmental NGOs.
 - Translated Nashville public meeting materials into Spanish and Arabic
 - Offered Spanish translation of public survey
- Spatial data collected via the public survey allows us to analyze survey results from LIDAC census tracts
- TDEC will continue public outreach and engagement in calendar year 2024
- ***Does the ERPAC have any suggestions or feedback to improve TDEC's strategy of reaching individuals from low income and disadvantaged communities?***

Public Meetings Report Out

5 Public Meetings

117 Attendees

Facilitated Breakout Sessions for Feedback and Input

Compiled Feedback for Consideration in PCAP Development

Distributed QR Codes with Public Survey Link

- **Observations**
 - Limited reach for new audiences given the time commitment (~90 minutes), prioritized completing the survey as the tool of gathering feedback
 - Small group discussions or stations for gathering specific feedback and input
 - Pivoted to gallery walk format, enabled better engagement, more efficient brainstorming, allowed more people to engage / minimized one or two people monopolizing the discussion
 - Considerable interest in the GHG inventory results
- ***Does the ERPAC have any suggestions or feedback to improve public meetings for the CCAP?***



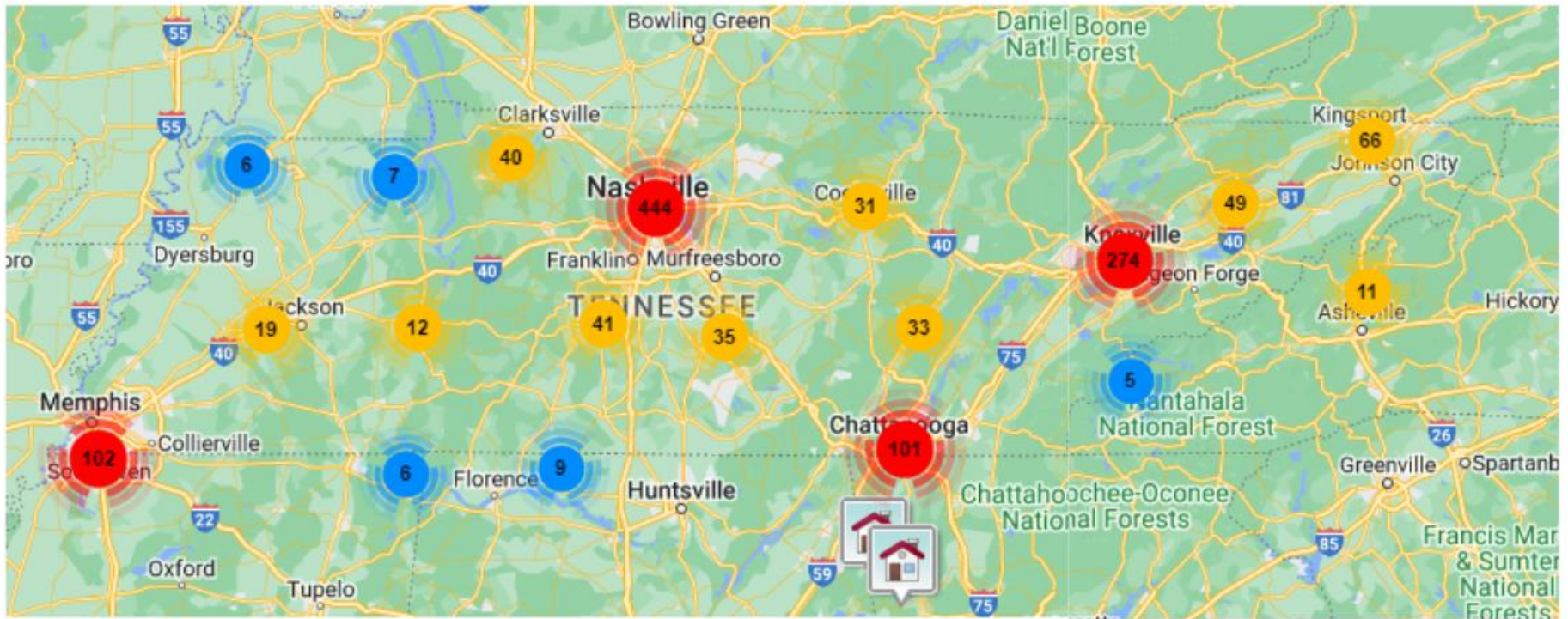
Public Survey Report Out

Open
September 7
to November
20

1,636
participants

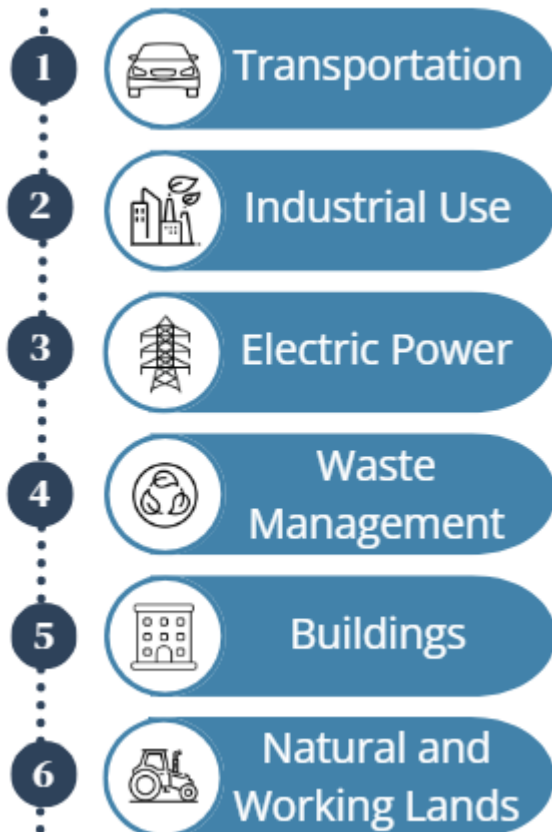
285 comments
received

38.3%
responses from
LIDACs



Public Survey Report Out

Emission Reduction Priority Sectors



Motivations

- Concern for the environment
- Concern for health and well-being
- Desire to reduce energy bills
- Community involvement

Obstacles or Challenges

- High cost of efficient alternatives
- Limited access to transit or multimodal alternatives
- Lack of government support or initiatives
- Time constraints or inconvenience

Next Steps



Compiling summary data from the public meetings and survey to share with those who engaged with the program in the fall



Utilizing data to inform sectors and measures to focus on in the PCAP



Developing the strategy for additional public engagement opportunities

- Sharing and discussing GHG inventory results
- Sharing and discussing PCAP and draft measures
- Engaging for CCAP



Questions /
Feedback



Department of
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Emissions Reduction Planning Advisory Committee (ERPAC) Meeting

December 15, 2023

Outline

Introduction

Kris Macoskey, CEC

Priority Climate Action Plan (PCAP) Greenhouse Gas (GHG) Emissions Inventory

Jenny Rickford O'Brien, CEC

Priority Climate Action Plan (PCAP) Greenhouse Gas (GHG) Reduction Measures

Margaret Ross-Martin, EY

Questions & Answers



Priority Climate Action Plan Greenhouse Gas Inventory

1. Inventory Process
2. Results
3. Limitations/Data Gaps

TN GHG PCAP Inventory Process

The Tennessee Greenhouse Gas (GHG) Inventory of major sources is required as part of the Priority Climate Action Plan (PCAP) funded by the Climate Pollution Reduction Grant (CPRG). The following steps were completed to develop the TN GHG Inventory.

1 Inventory Decisions

Baseline Year

2019

Global Warming Potential

GHG Protocol Fifth Assessment Report (AR5)

2 Inventory Sectors

1. Transportation
2. Electricity Generation
3. Industry
4. Agriculture
5. Commercial and Residential Buildings
6. Waste and Materials Management
7. Wastewater
8. Land Use, Land Use Change, and Forestry

3 Inventory Methods

EPA SIT Modules

The State Implementation Tool (SIT):

- Includes 12 modules
- Each module has default state data

The inventory has been prepared with default data included in SIT modules.

4

Quality Assurance Project Plan (QAPP)

Provides the methodology for developing a statewide Inventory and describes the Quality Assurance and Quality Control requirements for a reliable inventory.

The QAPP was approved by EPA in October 2023.

SIT Modules Compared to Inventory Sectors

As an aid to understanding how the sector totals have been derived from the State Implementation Tool (SIT) module output, this table maps each inventory sector (columns) against the respective SIT modules (rows) that have been used to compile the PCAP inventory.

SIT Module	Inventory Sector							
	Transport	Electrical Power	Industry	Agriculture	Comm + Res Bldgs	Waste-water	Waste Mgmt	Land Use & Forest
CO2 Fossil Fuel Combustion	X	X	X		X			
Stationary Combustion (CH ₄ & N ₂ O)		X	X		X			
Mobile (CH ₄ & N ₂ O)	X			X				
Industrial Processes			X					
Coal Mining			X					
Natural Gas & Oil			X					
Agriculture				X				
Solid Waste							X	
Wastewater						X		
Land Use & Forest							X	X

PCAP Sector-Specific Approaches

Transportation

- CO₂e emissions are based on fuel consumption (gasoline, diesel), not vehicle miles traveled
- Per EPA guidance: more accurate approach
- CO₂e emissions from VMT were calculated for informational purposes (i.e., reduction measure selection)

Electricity Generation

- CO₂e emissions are based on fuel used for electricity generation, not electricity consumption
- Per EPA guidance & best practice to avoid double counting
- CO₂e emissions from electricity consumption were calculated for informational purposes (i.e., reduction measure selection)

Industry

- Does not include electricity consumption (this is accounted for under Electricity Generation)
- Includes industrial process emissions (i.e., cement production)
- Includes fossil fuels consumed (i.e., natural gas space heaters, boilers, etc.)

Commercial & Residential Buildings

- Does not include electricity consumption (this is accounted for under Electricity Generation)
- Includes fossil fuels consumed (i.e., natural gas space heaters, etc.)

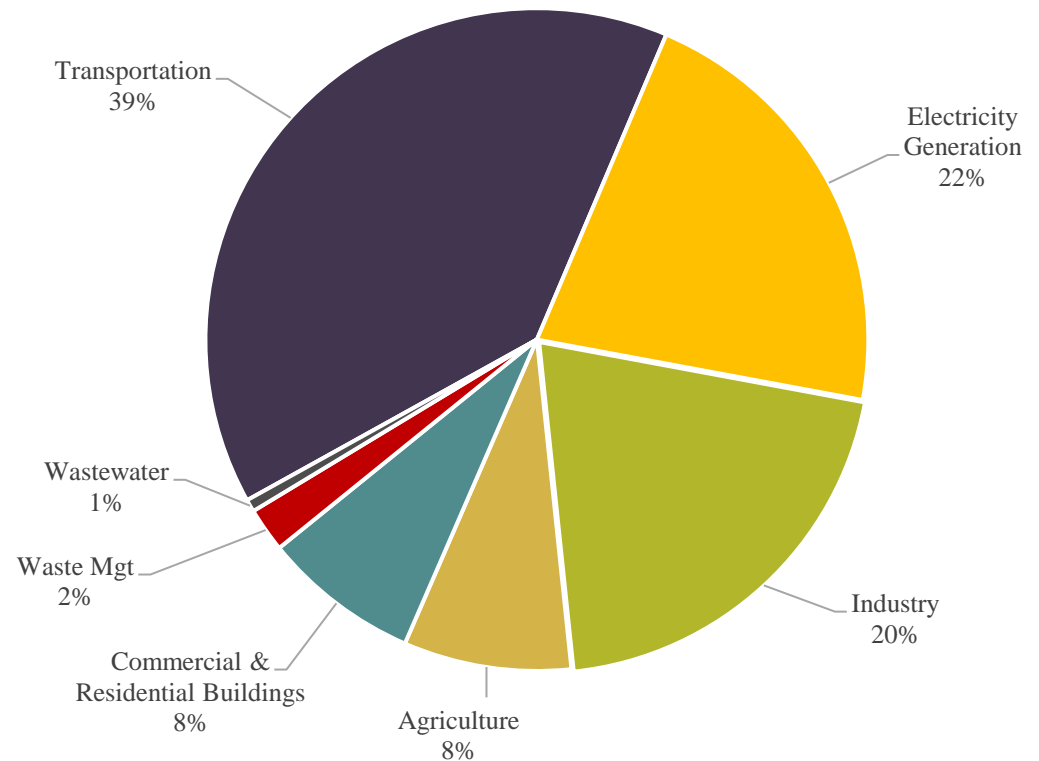
PCAP Inventory Results

The TN GHG PCAP Inventory with the baseline year of 2019 indicates that **Transportation** is the highest sector, followed by **Electricity Generation** and **Industry**. The top 3 sectors account for 81% of total emissions.

Million Metric Tons CO ₂	
Sector	Total
Transportation	44.2
Electricity Generation	24.1
Industry	22.9
Agriculture	9.2
Commercial & Residential Buildings	8.6
Waste & Materials Management	2.4
Wastewater	0.7
Total Emissions	112.1

Total emissions do not include carbon sinks.
CO₂e = carbon dioxide equivalents

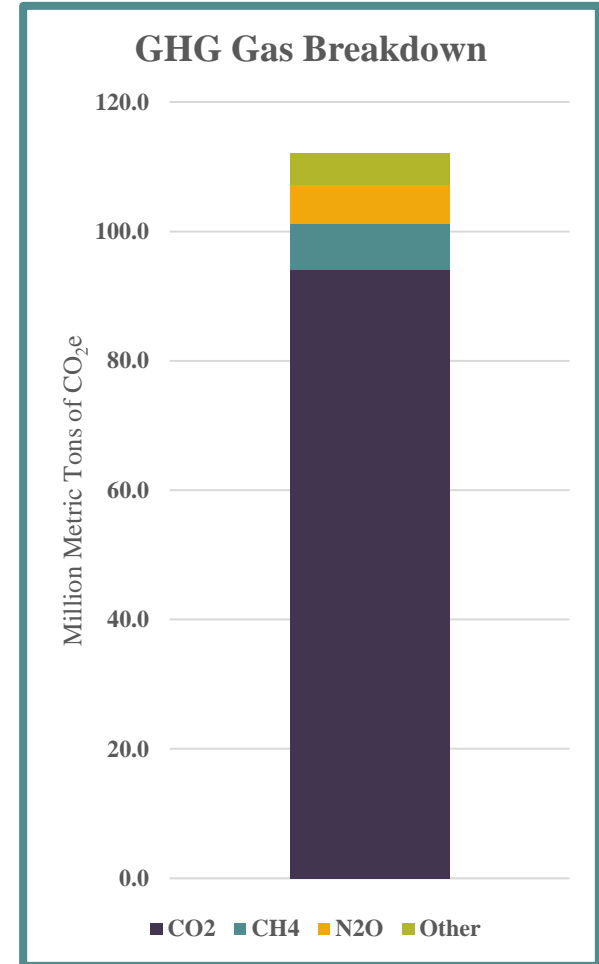
Sector CO₂e % of Total Emissions



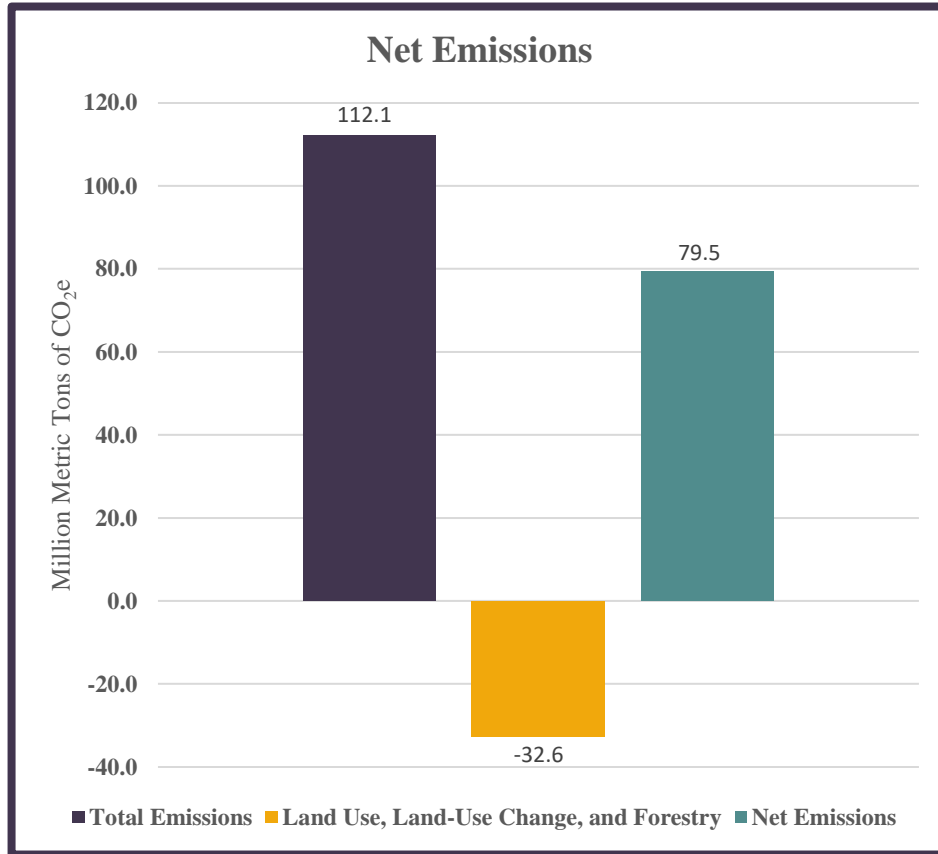
PCAP Inventory GHG Gas Breakdown

Million Metric Tons CO ₂ e (by GHG Gas)				
Sector	CO ₂	CH ₄	N ₂ O	Other
Transportation	43.7	0.1	0.4	0.0
Electricity Generation	24.0	0.0	0.1	0.0
Industry	17.9	0.1	0.1	4.8
Agriculture	0.2	3.6	5.4	0.0
Commercial & Residential Buildings	8.5	0.1	0.0	0.0
Waste & Materials Management	-0.2	2.7	0.0	0.0
Wastewater	0.0	0.5	0.2	0.0
Total Emissions	94.0	7.1	6.1	4.8

- CO₂ emissions account for 84% of total emissions.
- Agriculture accounts for the majority of the methane (CH₄) & nitrous oxide (N₂O) emissions.
- Other emissions includes fluorinated gases (e.g., HFC, PFC, SF₆, and NF₃.)
- Industry accounts for the majority of the "other" emissions.



PCAP Inventory Net Emissions



- Land use, Land-use Change, and Forestry (LULUCF) represent a carbon sink.
- LULUCF has a significant impact (-29% of the total emissions).
- Net emissions is 79.5 million metric tons CO₂e.

Limitations, Data Gaps, and Uncertainties

PCAP TN Inventory Limitations

- Completed using default data in the EPA SIT modules due to compressed schedule of grant deliverables
- State-wide and does not provide county-specific or facility-specific detail
- May vary in approach compared to other TN inventories (TVA Pathways, MSAs)

Data Gaps/Uncertainties (Preliminary Assessment)

- Data gaps/uncertainties are considered insignificant (<5% of the total inventory)
 - The data gaps were assessed using other EPA sources, literature review, etc.
 - The significance of each data gap will be discussed in the PCAP
 - Gaps/Uncertainties will be addressed in the CCAP Inventory



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Priority Climate Action Plan Greenhouse Gas Reduction Measures

1. Tennessee Volunteer Emission Reduction Strategy Measure Selection Enabler
2. Prioritized Measures
3. Next Steps

Overview of TVERS Measure Selection Enabler

The Tennessee Volunteer Emission Reduction Strategy (TVERS) Measure Selection Enabler was developed to support TDEC with **prioritizing emission reduction measures to model** for the Climate Action Plans funded by the EPA Climate Pollution Reduction Grant (CPRG).



250+ emissions reduction measures aggregated from EPA guidance as well as the Conveners Network, a cooperative of academic and policy organizations that provides CPRG technical assistance to state and local governments



Measures were cross-referenced with the Program Survey to determine **corresponding existing programs** within the state, and the Public Survey to identify **community and low-income and disadvantaged community (LIDAC) significance**



Measure sources are **cited to indicate which measures are relatively more or less common** across EPA and Conveners Network guidance



Each measure is **tagged to the relevant GHG inventory sector** and an additional “cross-sector” category was developed to capture measures applicable to multiple sectors



Measures can be **prioritized using a series of filters** to determine which are “near-term, high-priority, and implementation-ready,” aligned with TDEC and EPA guidance

Data Sources for the Compiled List of Measures

1

Emission Reduction Measures

Building Blocks of State Climate Policy

Policy toolkit for state legislatures and advocates that outlines policies states have enacted, published by Climate XChange and cited by EPA

CPRG Implementation NOFO

Emission reduction examples provided with the EPA's Notice of Funding Opportunity document

Quantified Climate Reduction Measures Directory

Emission reduction measures in state and local climate action plans (Jan. 2018 – Aug. 2023)

Conveners Network State Plans and Policies

Cooperative non-partisan group working with states that provide a non-exhaustive list of emission reduction measures from state plans and policies

2

Corresponding Programs

Program Survey

TDEC survey gathered data on emissions-related initiatives across the state of Tennessee

TDEC Daily News Summary

TDEC Daily News postings that mention emissions-reduction programs throughout Tennessee

3

Share of Emissions

PCAP GHG Inventory Summary

Overview of PCAP greenhouse gas inventory, disaggregated by emission types and sectors

4

Public and Stakeholder Engagement

Public Meetings and Survey

Public meeting and survey gathered community input regarding emissions reduction measures benefits and concerns

Low-income and Disadvantaged Communities (LIDACs)

Data specifically from members of low-income and disadvantaged communities

Prioritization Filters

EPA program guidance requires that the Priority Climate Action Plan identify emissions reduction measures that are “**near-term, high-priority, and implementation-ready.**” The Measure Selection Enabler includes filters aligned to each of these criteria.

	<i>Near-Term and Implementation-Ready</i>	<i>High-Priority</i>
<i>Prioritization Filters</i>	<ul style="list-style-type: none">▪ Existing program(s) relevant to measure in State of Tennessee? [Y/N] Indicates feasibility of implementing measures in near-term	<ul style="list-style-type: none">▪ Share of total emissions of corresponding emissions category in PCAP GHG inventory (%) Approximates emissions reduction potential prior to modeling▪ Low-income and disadvantaged community (LIDAC) priority Indicates the degree to which each measure is aligned with LIDAC priorities, maximizing benefits and minimizing concerns

Prioritized Transportation Measures

Transportation is the highest emitting sector as well as the **highest priority sector for decarbonization** for the public overall and for low-income and disadvantaged communities (LIDACs) specifically. Thus, to date, TDEC has prioritized selecting near-term, high-priority, and implementation-ready measures from this sector.

Prioritized transportation measure	Existing programs	LIDAC priority within sector	Potential co-benefits
(i) Programs to increase the share of electric light- and medium-duty vehicles	<ul style="list-style-type: none"> Tennessee Valley Authority (TVA) Fleet Electrification Shelby County Fleet Electrification Metro Nashville Fleet Electrification 	<div style="text-align: center;"> <div style="background-color: #f8d7da; padding: 2px; margin-bottom: 2px;">Low</div> <div style="background-color: #fff3cd; padding: 2px; margin-bottom: 2px;">Medium</div> <div style="background-color: #d4edda; padding: 2px; margin-bottom: 2px;">High</div> <div style="border: 2px solid red; padding: 2px; color: red; font-weight: bold;">Very High</div> </div>	<ul style="list-style-type: none"> Improved air quality and public health resulting from decreased air and noise pollution
(ii) Programs to expand electric vehicle (EV) charging infrastructure	<ul style="list-style-type: none"> Fast Charge Network – a TDEC/TVA program to develop a more robust network of fast chargers along Tennessee’s major highways and interstates 	<div style="text-align: center;"> <div style="background-color: #f8d7da; padding: 2px; margin-bottom: 2px;">Low</div> <div style="background-color: #fff3cd; padding: 2px; margin-bottom: 2px;">Medium</div> <div style="background-color: #d4edda; padding: 2px; margin-bottom: 2px;">High</div> <div style="border: 2px solid red; padding: 2px; color: red; font-weight: bold;">Very High</div> </div>	<ul style="list-style-type: none"> Upgrades to transportation infrastructure Workforce opportunities

Next steps

The team is currently collecting the data and assumptions required to model the prioritized measures. In the coming weeks, we will be focused on finalizing the list of measures to be included in the PCAP and modelling the co-benefits and emissions and air pollution reduction potential of each.

We are here

- Collect data, estimates, and assumptions to model prioritized measures

Next 1-2 weeks

- Finalize measures to include in PCAP
- Collect data, estimates, and assumptions to model all measures

Next 1-6 weeks

- Model selected measures and document methodology



Q&A

Please share your thoughts and feedback with us!



CPRG Implementation Grant

CPRG Implementation: Grant Overview

Phase 2

EPA is awarding approximately \$4.3 billion in competitive grants to eligible applicants to implement GHG reduction programs, policies, projects, and measures identified in a PCAP

KEY DATES

September 20, 2023	NOFO: REQUEST FOR APPLICATIONS ISSUANCE
February 1, 2024	OPTIONAL NOTICE OF INTENT TO APPLY IS DUE
March 15, 2024	DEADLINE FOR SUBMITTING QUESTIONS
April 1, 2024	NOFO CLOSES – APPLICATIONS DUE BY 11:59 PM (ET)
July 2024	ANTICIPATED NOTIFICATION OF FUNDING SELECTION
October 2024	ANTICIPATED AWARD

Implementation Grants: Program Objectives



Implement ambitious measures that will achieve significant cumulative GHG reductions by 2030 and beyond



Achieve substantial community benefits, particularly in low-income and disadvantaged communities



Complement other funding sources to maximize GHG reductions and community benefits



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

Implementation: Funding

Tier	Grant Ranges (million)	Funds Targeted for Each Tier (billion)	Anticipated Number of Grants to be Awarded
Tier A	\$200 to \$500	\$2	4-10
Tier B	\$100 to <\$200	\$1.3	6-13
Tier C	\$50 to <\$100	\$0.6	6-12
Tier D	\$10 to <\$50	\$0.3	6-30
Tier E	\$2 to <\$10	\$0.1	10-50
	TOTAL	\$4.3 billion	30-115

Applications will be evaluated and selected for award on a tier-by-tier basis

Implementation: Eligible Applicants

States

- States who accepted planning funding can apply to implement measures included in own PCAP
- Includes lead agency for planning grant and other state agencies

Municipality

- Municipalities and other municipal agencies can apply to implement measured in state or MSA PCAP
- Lead organizations for MSA CPRG planning grants

Tribes/ Territory

- Tribes and territories covered by a PCAP
- Note: there is a separate NOFO for \$300 million only for tribes and territories

Coalition of Eligible Applicants

- A coalition of two or more eligible applicants can apply to jointly implement one or more measures included in a PCAP

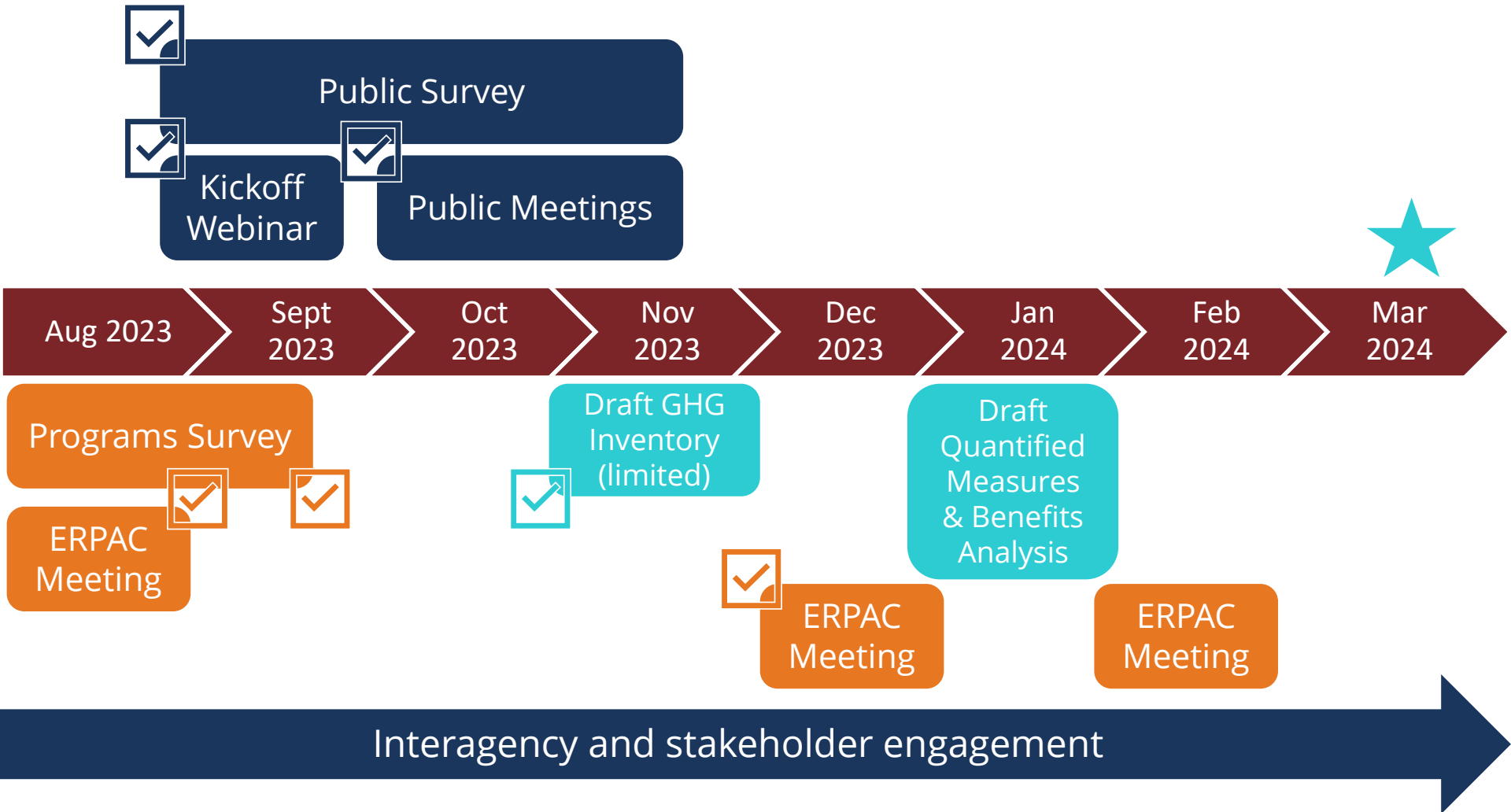
Implementation: Resources

- EPA Implementation Funding Page:
<https://www.epa.gov/inflation-reduction-act/about-cprg-implementation-grants>
- Notice of Funding Opportunity (NOFO, updated Dec 2023):
<https://www.epa.gov/system/files/documents/2023-09/CPRG%20General%20Competition%20NOFO.pdf>
- Questions and Answers, updated Nov 22, 2023:
<https://www.epa.gov/system/files/documents/2023-11/cprg-implementation-grants-general-competition-questions-and-answers.pdf>



Timeline and Next Steps

PCAP Timeline



Next Steps & Action Items

- Next ERPAC Meeting will be Thursday, February 15 from 10-12 CT
 - In-Person Attendance Strongly Encouraged
- Action Items and Key Dates



February 15

ERPAC Meeting – Review and Discussion of PCAP



March 1

Submission of PCAP to EPA



April 1

CPRG Implementation Grant Applications Due

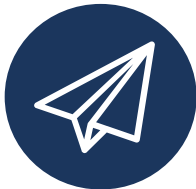
Questions?



tn.gov/environment/policy/tvers.html



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