Climate Pollution Reduction Grants:
The Landscape of Measure-level GHG Quantification in Existing Climate Action Plans

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Housekeeping Notes:

- Mics are automatically muted and all cameras are turned off.
- Please enter all questions in the chat box and “like” any questions already asked that you would also like answered. Please submit questions prior to the Q&A session, if possible. Questions will be answered during the Q&A session.
  - *Note: We cannot answer any questions regarding the implementation grants at this time.*
- Slides and links to additional resources will be shared after the training with training registrants.
- A recording and Q&A document will be posted to the CPRG website after the training.

Disclaimer

The information contained in this presentation is intended for the sole purpose of providing tools and technical assistance to planning grant recipients under EPA's Climate Pollution Reduction Grants program. Specific questions on how this information relates to a particular grantee's deliverables should be directed to that grantee's EPA Project Officer.

All the examples presented and discussed in this presentation are to help illustrate some approaches to GHG measure quantification. There are many types of measures we expect grantees will be considering that are not covered in this training. Nothing contained in this presentation should be construed as creating new requirements beyond those already enumerated in the CPRG planning grant program guidance or the terms and conditions that apply to the grantee.

Agenda

- CPRG Program Requirements
- EPA Research on Measure Quantification in State and Local Climate Action Plans
- Preliminary Research Findings
- Anticipated Future Release of Research Findings

What is a Measure?

“Measure” is intended to reflect the full breadth of the CPRG authorizing language directing planning grants to eligible entities for plans that include “programs, policies, measures, and projects that will achieve or facilitate the reduction of greenhouse gas air pollution.”

CPRG Measure Quantification Requirements

- States and locals / tribes and territories have two planning phase deliverables with GHG reduction quantification requirements:
  - Priority Climate Action Plans (PCAPs) due March 1, 2024 / April 1, 2024
  - Comprehensive Climate Action Plans (CCAPs) due 2 / 4 years from award (summer-fall 2025 / summer-fall 2027)

- Participants are asked to identify a diverse range of GHG mitigation measures:
  - Grantees encouraged to "adopt and implement ambitious GHG reduction measures across multiple key sectors" (i.e., industry, electricity generation, transportation, commercial and residential buildings, agriculture/natural and working lands, and waste and materials management)

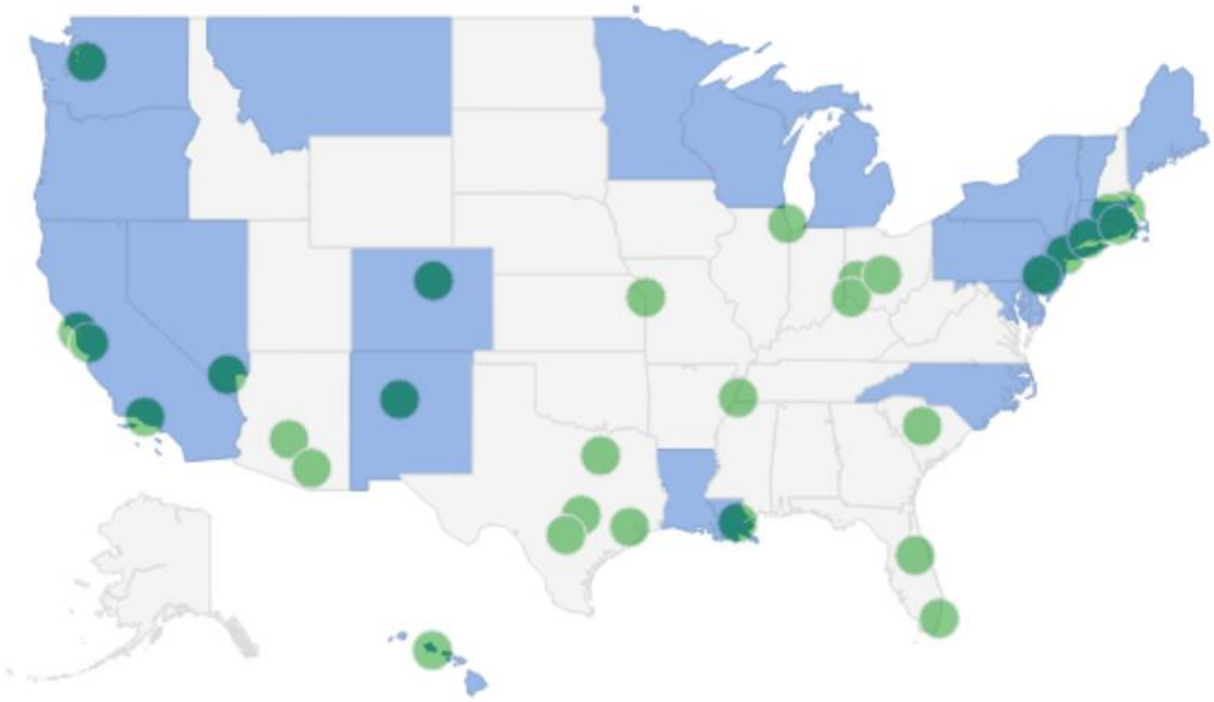
- They must also quantify the emission reductions associated with each measure:
  - PCAPs require measure-level GHG quantification for priority measures in one or more sectors
  - CCAPs require measure-level GHG quantification for measures across all key sectors

Supporting CPRG Measure Quantification

- How can state, local, and tribal CPRG program participants leverage existing climate action plans (CAPs) and related staff expertise to identify: (1) a broad set of potential GHG mitigation measures and (2) potential tools to quantify associated GHG reductions?
- Three guiding research questions:
  - What measures do you find in existing climate action plans?
  - What tools can you use to quantify those measures?
  - Who is using those tools?

Research Description

- Reviewed 24 state and 33 local climate action plans and supporting technical materials to identify quantified GHG reduction measures and the tools used to quantify them.
- For each quantified measure we recorded:
  - Measure description/type/sector
  - Source CAP/jurisdiction
  - Tool used
- Developed a quantified measure list and tables to summarize what we observed



How did this research define “quantified”?

- The plan review counted a measure as quantified if the climate action plan or a supporting document attributed a GHG emission reduction to that measure
- GHG emission reductions attributed to groups of measures were more challenging to assess. Generally, we counted a measure within a grouping as quantified if:
  - The number of grouped measures was small and/or limited to a subsector; or
  - The plan or a supporting document suggested individual measure-level modeling by associating one or more quantitative assumptions with a measure

Context and Limitations

- All results are based on publicly available documents (e.g., a climate action plan, a supporting technical appendix, or an associated report)
- Only quantified GHG mitigation measures are captured and described. Non-quantified measures, broader strategic goals, or sector-level results are generally excluded
- The quantification approaches identified focused on tools. Quantifications based on a reference to a separate study alone or on simple emission factor-based math were not recorded and are reserved for further review
- All results are preliminary and may change as the research is finalized
- These findings are purely descriptive. They do not imply EPA's endorsement of any quantification tool, specific measure, or measure-level quantification approach. Similarly, their absence does not imply EPA's skepticism of a tool, quantification approach or measure type.

Preliminary Findings* – Measure Identification

Quantified Measures by Sector	State	Local	State	Local
Transportation	92	104	33%	39%
Commercial and Residential Buildings	56	78	20%	30%
Electricity	43	48	16%	18%
Industry	45	8	16%	3%
Natural and Working Lands	28	17	10%	6%
Oil & Natural Gas Systems	15	0	5%	0%
Agriculture	18	0	7%	0%
Waste and Materials Management	9	38	3%	14%
Total Measures Identified:	276**	264**		

*Last updated August 1, 2023

**Totals do not align because some measures are multi-sector; Total measures identified used to calculate sector percentage share

Summary of Quantified Measure Types by Sector

Sector	Measure Type
Agriculture	Agriculture Operational Practices Sequestration Non-CO_2 Emissions Management and/or Control
Commercial and residential buildings	Electrification Non-CO_2 Emissions Management and/or Control Energy Efficiency Low Carbon Fuels Low Embodied Carbon Materials
Electricity	Clean and Renewable Electricity Emission Control Technology - CCS Energy Efficiency
Industry	Electrification Emission Control Technology – CCS Energy Efficiency Industrial Process Efficiency Low Carbon Fuels
Natural and working lands	Forest Management Sequestration
Oil & natural gas systems	Non-CO_2 Emissions Management and/or Control
Transportation	Electrification Fuel Efficiency Low Carbon Fuels Travel Demand Management
Waste and materials management	Non-CO_2 Emissions Management and/or Control Waste diversion

Illustrative List of Quantified Measures

Measure	Measure Type	Sector	Tool	Climate Action Plan
Increase electric passenger car penetration to 20% by 2030 and 95% by 2050	Electrification	Transportation	LEAP	Building a Low Carbon Future for Connecticut
Reduce power sector CO2 emissions 80% below 2005 levels by 2030 and 95% below 2005 levels by 2050	Clean and Renewable Electricity	Electricity	PATHWAYS	Colorado GHG Pollution Reduction Roadmap
Electrify 90% of residential and commercial building space and water heating by 2050	Electrification	Commercial and Residential Buildings	EnergyPATHWAYS & RIO	New Jersey's Global Warming Response Act 80x50 Report
Improve efficiencies and modernization of industrial processes by implementing industry energy efficiency standards	Energy Efficiency	Industrial	Energy Policy Simulator	Louisiana Climate Action Plan
Reduce agriculture emissions from animals and soils	Operational Practices	Agriculture	PATHWAYS	New York State Climate Action Council Scoping Plan
Reduce fugitive methane emissions from utility gas lines by 60% annually through Leak Detection and Repair (LDAR) program	Emission Control Technology	Oil and Natural Gas Systems	CO2Sight (including IPM)	Delaware's Climate Action Plan
Convert to electric irrigation pumps	Electrification	Natural and Working Lands	Custom-built tool	Sacramento County Climate Action Plan
Reduce food loss and food waste 50% compared with 2010 values by 2030	Waste Diversion	Waste and Materials Management	C40 Pathways tool (customization of CURB)	City of Phoenix Climate Action Plan 2021 Edition

Preliminary Findings* – State Tool Utilization

Quantification Tool	State Plans
Custom-built Excel-based Tool	DC, NJ
PATHWAYS-based tool	CA, CO, MD, NY
Long-range Energy Alternatives Planning System (LEAP)	CT, MD, VT
Energy Policy Simulator	LA, MN, NM, RI
CO2Sight (including Integrated Planning Model (IPM))	DE, PA
EnergyPATHWAYS and RIO tools	MA, NJ, WA
RESOLVE	CA, CO
Other tools	CA, ME, NV, NJ
Total Plans with Quantified Measures:	16**

*Last updated August 1, 2023
**Number of states listed does not sum to 16 because some plans use multiple tools

Preliminary Findings* – State Tool Utilization (Cont'd)

Other State Quantification Tools	State Plans
Electric Vehicle Regional Emissions & Demand Impacts (EV-REDI)	ME
Buildings Decarbonization Calculator	ME
EnCompass	ME
AVoided Emissions and geneRation Tool (AVERT)	NV
Custom-built Natural Working Lands Tool	CA
USCA Short Lived Climate Pollutants Tool	NJ
Total Plans using "Other" Tools: 4**	

*Last updated August 1, 2023
**Number of rows not equal to 4 because some plans use multiple tools

Preliminary Findings* – Tool Utilization (Local)

Quantification Tool	Local Plans
Custom-built Excel-based Tool	Austin, Boston, Honolulu, King County, Oxnard-Thousand Oaks-Ventura, Philadelphia, Providence-Warwick, Sacramento, San Francisco, San Jose
Climate Action and Urban Sustainability (CURB) Tool	Dallas, Memphis, San Antonio-New Braunfels, San Francisco
C40 Pathways Tool (A customization of the CURB tool)	Houston-The Woodlands-Sugar Land, New Orleans-Metairie, Phoenix-Mesa-Chandler
ClimateView	Cincinnati
ICLEI ClearPath tool	Columbus
WARM	Tucson
Total Plans with Quantified Measures:	19**

*Updated August 1, 2023

**Local plan jurisdictions do not sum to 19 because some plans use multiple tools, and some tools are were not specified in the plans.

State Quantification Tool Scope - Number of Quantified GHG Reduction Measures in Each Sector*

Sectors	Transportation	Commercial & Residential Buildings	Electricity	Industry	Natural & Working Lands	Oil & Natural Gas Systems	Agriculture	Waste and Waste Management
Total Number of Quantified Measures	92	56	43	45	28	15	18	9
Excel-based custom-built tool	6	4	4	2	3	2	1	1
PATHWAYS / NY PATHWAYS	33	13	2	18	16	8	13	4
EPS	22	12	17	15	7	2	1	2
EnergyPATHWAYS & RIO	9	6	8	2	0	1	0	0
LEAP	4	3	1	0	0	0	0	0
CO2Sight (including IPM)	11	9	6	6	1	2	2	1
Other	7	9	5	2	1	0	1	1

*These are preliminary results and were last updated August 1, 2023

Local Quantification Tool Scope - Number of Quantified GHG Reduction Measures in Each Sector*

Sectors	Transportation	Commercial & Residential Buildings	Electricity	Industry	Natural & Working Lands	Oil & Natural Gas Systems	Agriculture	Waste and Waste Management
Total Number of Quantified Measures	104	78	48	8	17	0	0	38
Excel-based custom-built tool	50	31	13	4	6	0	0	11
Climate Action for Urban Sustainability (CURB) Tool	24	25	15	2	3	0	0	13
ClimateView	13	8	5	0	2	0	0	3
C40 Pathways tool (customization of CURB)	8	8	7	1	2	0	0	6
ICLEI ClearPath Tool	7	4	5	0	0	0	0	3
WARM	0	0	0	0	0	0	0	1

*These are preliminary results and were last updated August 1, 2023

Conclusions

- Existing climate action plans contain helpful information for CPRG planning grant recipients as they work to meet the program's quantification requirements
- Different plans use the same tools differently
  - Measure impacts may be grouped by sector or subsector which can make it challenging to disaggregate measure-level impacts
- Quantified measures do not always align with plan measures
- Context is important when interpreting modeling inputs and results
  - Similar modeling inputs can represent different types of policies (e.g., a MWh can represent an incentive-based measure or a regulatory measure; a MWh can represent polices orginating from different sectors)
  - Many quantified measures lack specificity about the program or approach to achieve the outcomes (e.g., "improve industrial energy efficiency 10%" – how?)

Forthcoming Public Facing Resource

- In the coming months, EPA expects to release a public facing resource that will allow CPRG planning grant program participants to:
  - See the full list of quantified climate action plan measures identified from the review of state and local climate action planning documents
  - Identify the tool used to quantify each measure
  - Learn from peer expertise

INVESTING IN AMERICA CLIMATE ACTION FUNDING FAIR

U.S. Environmental Protection Agency

Investing in America: Climate Action Funding Fair: https://www.epa.gov/inflation-reduction-act/investing-america-climate-action-funding-fair

Session Title	Date	Time (90-120 min)
Electric Power	Monday, August 7	2pm ET
Agriculture and Working Lands	Tuesday, August 8	12pm ET
Tribal Programs	Tuesday, August 8	3pm ET
Transportation	Wednesday, August 9	3pm ET
Buildings	Thursday, August 10	2pm ET
Industrial and Waste	Friday, August 11	12pm ET

Upcoming Trainings

- **Aug 16, 2-3 PM ET:** Low Income/Disadvantaged Communities (LIDAC) Benefits Analysis
- **Aug 23, 2-3 PM ET:** Workforce Planning Analysis
- **Aug 30, 2-3 PM ET:** Meaningful Engagement - Update and Technical Resources

CPRG Technical Assistance Forums

- Opportunity for peer-to-peer technical assistance, collaboration, and mentoring
- Sharing of case studies, best practices, and lessons learned
- Forums will focus on key plan elements (e.g., emission inventories, best practices for collaboration, key sectors for GHG reductions, benefits to low income and disadvantaged communities, etc.)
- Facilitated and led by EPA subject matter experts and contractors
- Registration for forums were sent out to lead organizations this week!

Q & A

- Please enter questions via the chat box
- Please keep questions on-topic
- We are not able to answer questions about the implementation grants at this time