

**Climate Pollution Reduction Grants Program:**  
Technical Reference Document

**Benefits Analyses: Co-Pollutant Impacts**

United States Environmental Protection Agency  
Office of Air and Radiation

May 30, 2023

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## **Introduction**

The Climate Pollution Reduction Grants (CPRG) program provides states, municipalities, air pollution control agencies, tribes and territories flexible resources to plan for and pursue ambitious greenhouse gas (GHG) pollution reductions to achieve three broad objectives:

- Tackle damaging climate pollution while supporting the creation of good jobs and lowering energy costs for families;
- Accelerate work to address environmental injustice and empower community-driven solutions in overburdened neighborhoods; and
- Deliver cleaner air by reducing harmful air pollution in places where people live, work, play, and go to school.

In line with these objectives, EPA is committed to supporting the development and expansion of state, tribal, and local climate action plans to reduce GHG pollution. This includes providing technical tools and assistance that can be used by grantees when developing their climate action plans and accounting for benefits that may accrue from the adoption of GHG emission reduction measures. EPA considers that the benefits of this program are appropriately measured both in terms of the total GHG reductions achieved and the accompanying reductions in hazardous air pollutant (HAP) and criteria air pollutant (CAP) emissions (i.e., co-pollutants). For purposes of analyzing the benefits of the CPRG grants, the EPA expects grant recipients to account for co-pollutant benefits by providing emissions information.

This technical reference document provides guidance on the minimum expectations<sup>1</sup> of grantees when performing the “co-pollutant impacts analysis” that serves as the “benefits analysis” deliverable requirement. This document includes information on available data products, tools, analytical methods, and models that may be used by awardees. In developing these plans, grantees may also use data products, tools, analytical methods, and models other than those suggested here. EPA encourages grantees to work with their EPA Regional Office to discuss such alternative approaches. EPA Regional Offices can consult with the appropriate EPA Headquarters Office(s) for additional technical support in these circumstances.

For the co-pollutant impacts analysis, EPA has several datasets available for use by grantees:

- For base-year co-pollutant emissions data, the National Emissions Inventory (NEI) can be used by applicants as their base year co-pollutant inventory (<https://www.epa.gov/air-emissions-inventories/2020-national-emissions-inventory-nei-data>). EPA will soon be providing an improved data filtering and download approach to facilitate access and use of the 2020 NEI.

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<sup>1</sup> Please refer to the CPRG Program Guidance documents for [State, Municipalities, and Air Pollution Control Agencies](#) and [Tribes, Tribal Consortia, and U.S. Territories](#) for specific information related to planning grant program requirements. This document is intended as a resource to accompany the planning grant program guidance.

- In cases where future-year co-pollutant emissions data would be applicable, EPA has future-year emissions available and is providing an improved data filtering and download approach to facilitate access and use of these data.

To further assist recipients in meeting expectations under this program, EPA expects to provide future CPRG webinars and can provide additional guidance on accessing these data.

### **Co-Pollutant Benefits Analysis Based on Emissions: Tribes and Territories**

To the extent possible, tribes and territories are expected to include in their PCAP benefits analysis information on:

- 1) Base year emissions inventory of CAP (e.g., NO<sub>x</sub>, VOC, SO<sub>2</sub>, and direct PM<sub>2.5</sub>) and HAP emissions for impacted sources/sectors<sup>2</sup> in the jurisdiction.
  - EPA is making the NEI available to applicants to use as a base year co-pollutant inventory (<https://www.epa.gov/air-emissions-inventories/2020-national-emissions-inventory-nei-data>).
  - Consistent with EPA guidance on developing base year inventories for the transportation sector, the base year inventory for that sector does not need to be provided as part of this data element.
- 2) Co-pollutant emission changes from priority GHG reduction measures listed in the PCAP. Please note that specific types of GHG reduction measures may have different expectations:
  - For GHG reduction measures associated with land use, land-use change, and forestry (e.g., planting vegetation), co-pollutant impacts do not need to be quantified for CPRG planning grants.
  - For GHG reduction measures associated with industrial categories, impacts on co-pollutants should be provided, where feasible.
  - Tribes and territories are not expected to quantify co-pollutant impacts associated with non-industrial GHG reduction measures

In the CCAP, tribes and territories are expected to submit expected co-pollutant changes resulting from GHG reduction measures listed in the CCAP that were not submitted for the PCAP benefits analysis.

### **Co-pollutant Impact Benefits Analysis Based on Emissions: States, Municipalities, and Air Pollution Control Agencies**

A co-pollutant impact benefits analysis based on emissions should include the following:

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<sup>2</sup> Impacted sectors/sources/processes are those where activity and/or emissions are expected to change in response to proposed GHG reduction measures.

- 1) Base year inventory: a base year emissions inventory of CAP (e.g., NO<sub>x</sub>, VOC, SO<sub>2</sub>, and direct PM<sub>2.5</sub>) and HAP emissions for impacted sources/sectors<sup>3</sup> in the jurisdiction:
  - EPA is making the NEI available to applicants to use as a base year co-pollutant inventory (<https://www.epa.gov/air-emissions-inventories/2020-national-emissions-inventory-nei-data>).
  - Consistent with EPA guidance on developing base year inventories for the transportation sector, the base year inventory for that sector does not need to be provided as part of this data element.
  
- 2) Co-pollutant emission changes from priority GHG reduction measures listed in the PCAP. Please note that specific types of GHG reduction measures may have different expectations:
  - For GHG reduction measures associated with land use, land-use change, and forestry (e.g., planting vegetation), co-pollutant impacts do not need to be quantified for CPRG planning grants.
  - For GHG reduction measures associated with industrial and non-industrial categories, impacts on co-pollutants should be provided, where feasible.
  
- 3) Projected future co-pollutant emissions with and without GHG reduction measures, as feasible.<sup>4</sup>
  - EPA regularly develops future year projections for co-pollutants emissions and is making these data available for applicants to reflect emissions without GHG reduction measures (i.e., the “business as usual” (BAU) future scenario).<sup>5</sup>
  - Differences in projected co-pollutant emissions between BAU and CPRG plan scenarios can then be used to inform assessment of CPRG plan benefits in specific locations, e.g., LIDAC areas.

EPA provides GHG reduction measure tools that include co-pollutant impacts, and when these are not available, the sections below provide approaches that can be used depending on the circumstances of the GHG measures. More information is available below regarding the expectations of data to be provided for baseline year emissions inventories, co-pollutant emissions reductions, and projected future year inventories. EPA recognizes that grantees may vary in both technical capacity and types of GHG reduction measures proposed. For example, a small MSA may face different challenges than a large state when developing plans under CPRG. Thus, expectations for the level of rigor in submitted co-pollutant impact analyses are expected to vary accordingly.

### **Base year inventory for co-pollutants**

A base year inventory for co-pollutants establishes an analytical baseline from which the co-pollutant impacts of specific GHG control measures can be tracked and/or evaluated. Because air quality and

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<sup>3</sup> Impacted sectors/sources/processes are those where activity and/or emissions are expected to change in response to proposed GHG reduction measures.

<sup>4</sup> Please see page 51 of *Climate Pollution Reduction Grants Program: Formula Grants for Planning; Program Guidance for States, Municipalities, and Air Pollution Control Agencies*.

<sup>5</sup> EPA is providing an improved data filtering and download approach for a future-year BAU case.

public health impacts from co-pollutants manifest at the local scale, base year emission inventories for the purposes of co-pollutant impact assessments should be quantified at the county level or, where relevant and available, the facility level.

Consistent with the available data and tools provided by EPA, emissions datasets used for the co-pollutant impact analyses should be source-specific and spatially resolved to the county scale or use facility total emissions, where available. For the base year inventory of co-pollutants, any grantee can meet the minimum requirements by identifying the sources affected by the plan within the NEI and providing county total co-pollutant emissions data from these sources. For municipalities and tribes that do not conform to county boundaries, these awardees may simply select the counties that overlap and best represent their jurisdictions.

If a grantee chooses to develop their own co-pollutant inventory, the level of detail necessary to meet the emissions-based co-pollutant impact benefits analysis requirements depends on the GHG reduction measures and the available information. The information provided should support assessing co-pollutant emissions changes by county, pollutant, and source. In other cases, such as end-use energy efficiency measures, the reductions in activity occurring in the region under the applicant's jurisdiction could impact emissions of sources outside of that jurisdiction. In this case, the EPA does not expect grantees to quantify base year emissions outside of the grantee's jurisdiction.

### Co-pollutant emission changes from GHG reduction measures

As described in the CPRG Program Guidance for the "Quantified GHG Reduction Measures" deliverable requirement,<sup>6</sup> the rationale for selecting a measure for the plan may also include other factors, such as reduction of co-pollutant emissions. EPA assumes that applicants will use tools to estimate GHG changes from reduction measures under consideration. Some tools include CAP impacts in addition to GHG impacts (e.g., [AVERT](#)), while others include both CAP and HAP impacts (e.g., [MOVES](#)). Grantees are encouraged to consider the tools and resources listed elsewhere on the [CPRG website](#), since many of these resources can be used for both GHG and co-pollutant emissions quantification.

When a GHG reduction measure tool includes CAP and HAP impacts: Applicants can meet the co-pollutant impacts analysis by simply reporting the CAP and HAP impacts included in the GHG reduction measure tool.

When a GHG reduction measure tool includes CAP impacts only: Applicants can meet the co-pollutant impacts analysis by reporting the CAP impacts included in the GHG reduction measure tool. In some cases, these CAP impacts can also be used to estimate HAP impacts. For example, if a GHG reduction measure includes impacts on VOC and no additional information is available, an applicant could assume any HAP VOC (e.g., benzene, if applicable) is affected to the same extent as total VOC. Similarly, if a GHG reduction measure includes impacts on PM<sub>2.5</sub> and no additional information is available, an applicant could assume any HAP PM<sub>2.5</sub> (e.g., chromium compounds, if applicable) is affected to the same extent as total PM<sub>2.5</sub>.

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<sup>6</sup> Please see page 52 of *Climate Pollution Reduction Grants Program: Formula Grants for Planning; Program Guidance for States, Municipalities, and Air Pollution Control Agencies*.

When a GHG reduction measure tool does not include co-pollutant impacts: In the absence of co-pollutant information provided by a GHG reduction measure tool, applicants may use the following approaches to estimate co-pollutant impacts:

- If the GHG reduction measure(s) impact the underlying *activity* of an emissions source, a grantee can report the changes in the underlying activity.

Example: A grantee plans to implement a program that impacts the vehicle fleet (e.g., reduction in gasoline passenger vehicles). Without additional information, grantees may assume that the impacts on co-pollutants in these cases would be the same as the change in the emissions activity. As such, an applicant may alternatively provide the expected changes to the amount of vehicle miles traveled (by county or state) for those vehicle types.

- If the GHG reduction measure(s) involves energy efficiency, expected CAP and HAP impacts may not occur in the area implementing energy efficiency because power plants emit outside that area. In this case, changes to electricity demand for the area is preferred over CAP and HAP emissions changes when that is easier to provide.

Example: A state may implement a program to improve home energy efficiency that reduces electricity demand statewide by 2%. However, electricity for the state is generated by facilities located in many other states, in addition to the state of interest. In this case, the state could provide information on expected electricity demand reduction rather than emissions changes.

- If the GHG reduction measure(s) captures GHGs and other pollutants, the applicant may proportionally apply the changes estimated for GHGs to co-pollutants.

Example: A program to capture methane from abandoned drilling wells may also capture associated VOC (a CAP) and VOC-associated HAPs. In this case, the percent capture of the GHG pollutant could be assumed to also capture the VOC and VOC-associated HAPs. In addition, the applicant may also report reductions for all VOC HAP in bulk (i.e., rather than listing out each affected VOC HAP).

- If the GHG reduction measure(s) is not expected to have an impact on co-pollutants, the applicant may simply report no change in co-pollutants.

Example: A program to eliminate CFCs is simply a direct reduction for GHGs with no co-pollutant impacts.

### Projected future year co-pollutant emissions and reductions

For grantees that will have to provide future year BAU and control case co-pollutant emissions, the “future year” for the projected emissions and emissions reductions is determined by the grantees. EPA encourages grantees to select a future year that would represent as close to full impacts on co-pollutant emissions reductions due to the identified GHG reduction measures as possible, but if that is not available, grantees may use the available projected emissions years from EPA (provided for the BAU

case). EPA regularly develops future year co-pollutant emission inventories for use in regulatory and policy applications. To help grantees access this data, EPA will be providing an improved data filtering and download approach for a future-year BAU case.

Starting with the EPA's or the awardee's own BAU case, the controlled co-pollutant emissions can be estimated using the same strategies as listed in the previous section. If the GHG reduction measure tools provide co-pollutant impacts, those impacts can be applied to the future year BAU inventory to estimate controlled emissions. If the GHG reduction measure tools do not provide that information, then the other strategies listed above can also be used. In the case of energy efficiency measures that impact areas outside the jurisdiction of the awardee, EPA does not expect controlled emissions outside of the awardee's jurisdiction to be provided in any case.

EPA recognizes that grantees may vary in both technical capacity and types of projections of co-pollutant emissions and reductions. For example, a small MSA may face different challenges than a large state when developing projections under CPRG. Thus, expectations for the level of rigor in submitted projections of co-pollutant emissions and quantified reductions are expected to vary accordingly.