

California Air Resources Board

California Climate Investments Quantification Methodology Emission Factor Database Documentation



Note:

This document accompanies the California Climate Investments Quantification Methodology Emission Factor Database available on the [California Climate Investments resources webpage](#). This document explains how emission factors used in California Air Resources Board (CARB) quantification methodologies are developed and updated.

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Table of Contents

Introduction	1
California Climate Investments Quantification Methodology Emission Factor Database	1
Public Process for Emission Factors	1
Emission Factor Documentation	3

List of Acronyms and Abbreviations

Acronym	Term
CARB	California Air Resources Board
Database	California Climate Investments Quantification Methodology Emission Factor Database
GHG	Greenhouse Gas

Introduction

The State's portion of the Cap-and-Trade auction proceeds facilitate comprehensive and coordinated investments throughout California that further the State's climate goals. These investments, referred to as California Climate Investments, support programs and projects that reduce greenhouse gas (GHG) emissions and deliver additional social, economic, and environmental benefits, termed "co-benefits." The California Air Resources Board (CARB) is responsible for providing guidance on quantifying California Climate Investments project benefits, including GHG emission reductions and co-benefits. CARB, in coordination with administering agencies, develops quantification methodologies specific to each California Climate Investments program and/or project type through a public process. CARB quantification methodologies and accompanying benefit calculator tools are available on the [California Climate Investments resources webpage](#).

CARB quantification methodologies estimate both GHGs and select co-benefits utilizing project-specific inputs and emission factors specific to the type of project being quantified. When appropriate, CARB quantification methodologies use the same emission factors across project types.

California Climate Investments Quantification Methodology Emission Factor Database

CARB has established a single repository for GHG and co-benefit emission factors used in quantification methodologies, referred to as the California Climate Investments Quantification Methodology Emission Factor Database (Database). The Database is available on the [California Climate Investments resources webpage](#). This document accompanies the Database and explains how emission factors used in CARB quantification methodologies are developed and updated.

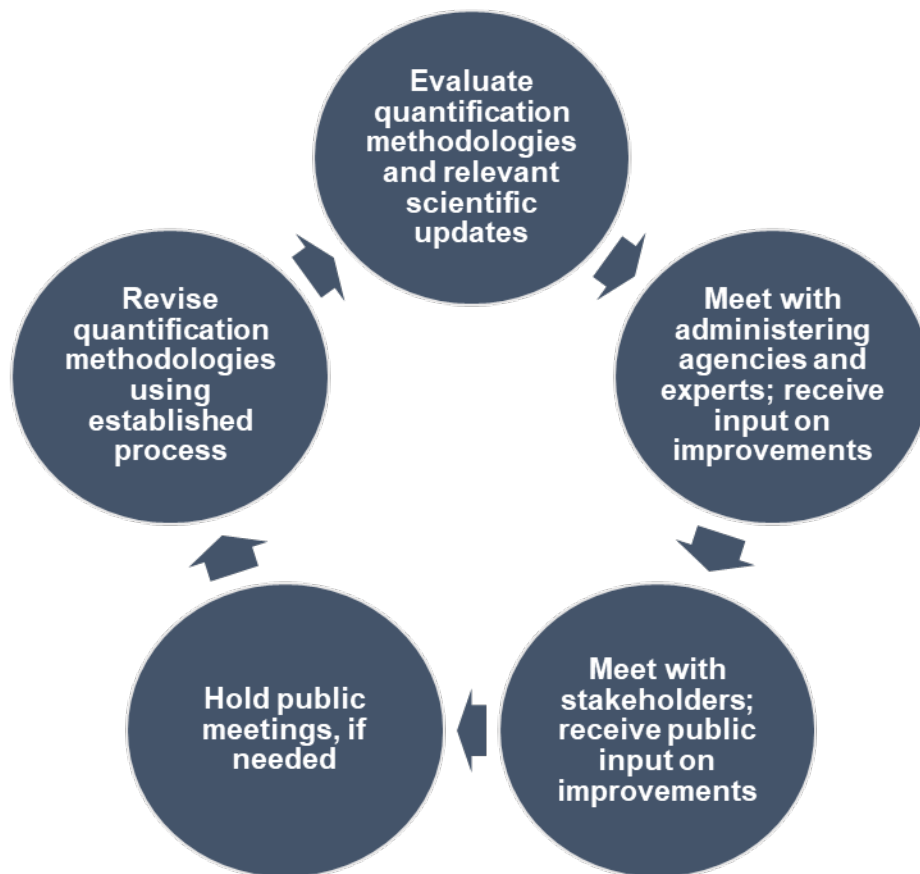
The Database and associated documentation consolidate the emission factors, and methods used to develop them, which have previously been contained in the appendices of individual quantification methodologies. Consolidating emission factors in a single repository and providing the supporting documentation provides greater transparency and simplifies updates to emission factors when appropriate. CARB will update and add new emission factors as necessary and, when developing quantification methodologies and benefit calculator tools, will use the emission factors in the most recent version of the Database.

Public Process for Emission Factors

Emission factors are subject to the same public process as CARB quantification methodologies. CARB will accept comments on emission factors used in a quantification methodology during the public comment period for that methodology. CARB staff periodically review existing quantification methodologies for effectiveness

and update them to be more robust, user-friendly, and appropriate to the projects being quantified. CARB also evaluates the quantification methodologies in light of new scientific developments or tools, or modifications in the analytical tools or approaches upon which the methodologies were based. The figure below shows CARB's process for reviewing and updating quantification methodologies.

Figure 1. Process for Reviewing and Updating Quantification Methodologies



With each major program update, CARB follows the process illustrated in Figure 1. Major updates to a quantification methodology typically occur before the solicitation is released, although minor revisions may be issued during the application period, if necessary. If updates are needed that apply to multiple quantification methodologies, CARB incorporates them as part of the update process for individual quantification methodologies (e.g., emission factor updates are incorporated as methodologies are revised). For existing methodologies that are being revised, a formal public comment period may only be needed when underlying methodologies or assumptions change.

Emission Factor Documentation

Methods used to develop each emission factor used in CARB quantification methodologies and benefit calculator tools are described in accompanying documents Appendix A - C which are grouped by sector, available on the [California Climate Investments resources webpage](#).

- Appendix A: Sustainable Communities and Clean Transportation covers project components characterized by sustainable communities and clean transportation. Investments in the sustainable communities and clean transportation sector can potentially reduce emissions by decreasing passenger VMT and/or reducing or displacing mobile fossil fuel use.
- Appendix B: Energy Efficiency and Clean Energy covers energy efficiency and clean energy projects, which reduce emissions by decreasing energy demand and/or reducing or displacing stationary fossil fuel use.
- Appendix C: Natural Resources and Waste Diversion covers natural resources and waste diversion, including forestry and agricultural land management. Investments in natural resources and waste diversion reduce emissions through a variety of ways, such as sequestering and storing carbon in vegetation and soils and diverting or recycling waste streams.

Note: The Database includes emission factors used in CARB quantification methodologies and benefit calculator tools released after August 30, 2017. CARB will add emission factors and documentation applicable to California Climate Investments programs as quantification methodologies become available. When appropriate, CARB updates emission factors to incorporate the most recently available data. When updates are made, the previous versions of the Database and documentation are available upon request.