

# Greenhouse Gas Guidance Document

## under the Montana Environmental Policy Act

### (MEPA)

*October 2025*



# Purpose of MEPA

The **Montana Environmental Policy Act** (MEPA) requires an environmental review to be conducted for state actions that have the potential to impact the quality of the environment.

*MEPA is procedural and disclosure of potential impacts.*



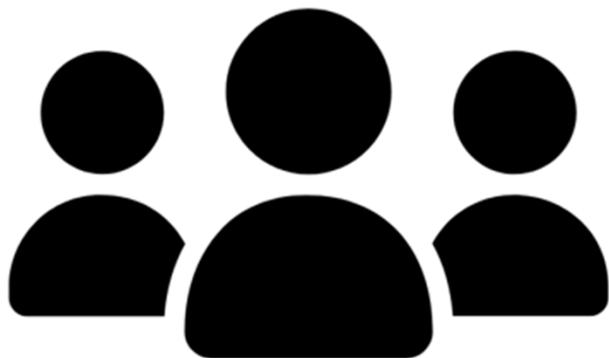


## Background

*As directed by SB221 and resulting changes to MEPA:*

“The department of environmental quality shall **develop a guidance document** for use by state agencies to determine when a GHG assessment may be necessary. The guidance must include **direction on methodologies** for completing a GHG assessment.”

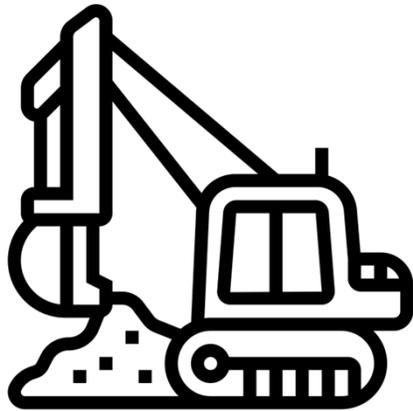
# Audience



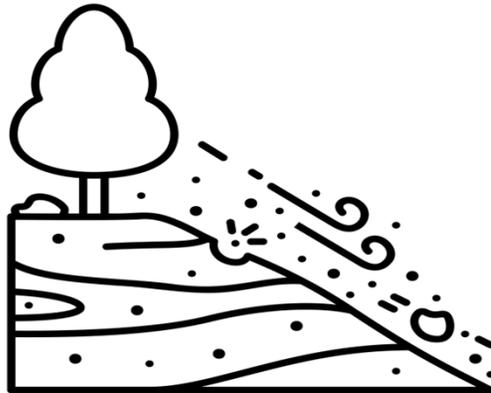
*Montana State Agencies*



# Analysis of Impacts under MEPA



**Direct impacts**

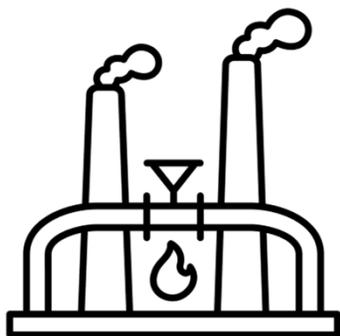


**Secondary impacts**

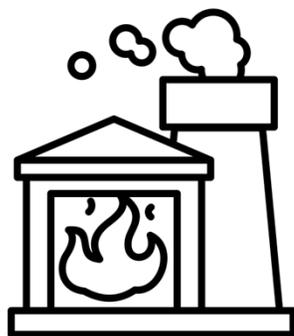


**Cumulative impacts**

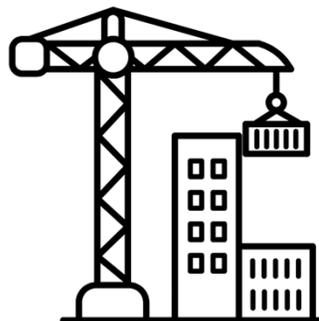
# When to conduct a GHG assessment



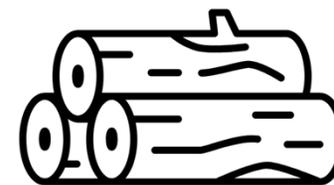
Fossil Fuels



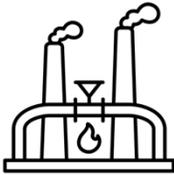
Stationary  
Combustion



Construction and  
Mobile Engine  
Operation

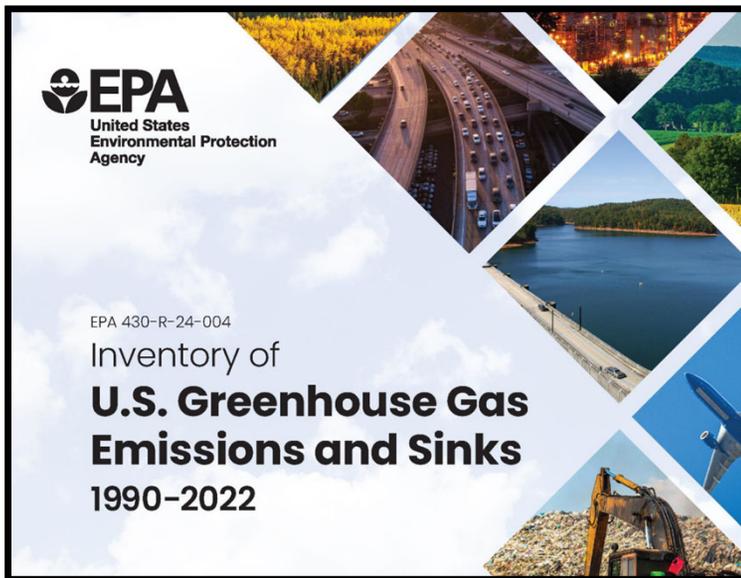


Land  
Management

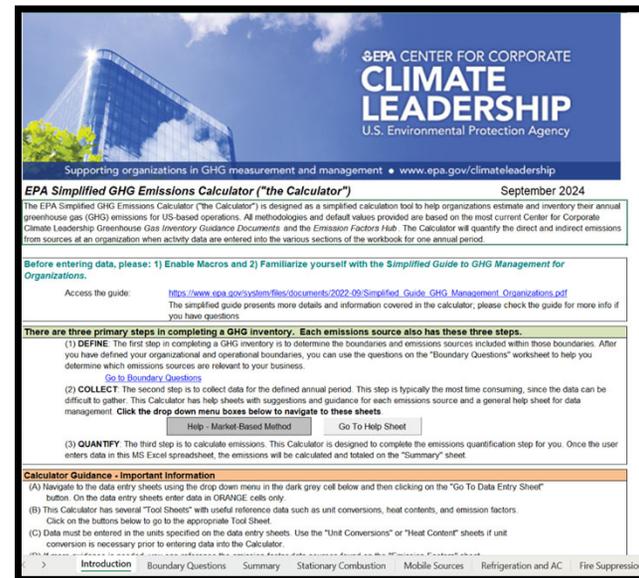


# Fossil Fuel Activity

A proposed action that authorizes the mining of coal, drilling for oil or natural gas, production of oil or natural gas, compression of oil or natural gas, or burning of coal, oil, or natural gas to generate energy for electricity.



EPA Inventory of U.S. Greenhouse Gas Emissions and Sinks



EPA Simplified GHG Emissions Calculator



# Stationary Combustion

A proposed action that creates direct emissions from stationary combustion devices including those that combust solid, liquid, or gaseous fuel, generally for the purposes of producing electricity, generating steam, or providing useful heat or energy, or combust waste.

**EPA CENTER FOR CORPORATE CLIMATE LEADERSHIP**  
U.S. Environmental Protection Agency  
Supporting organizations in GHG measurement and management • www.epa.gov/climateleadership

## Emission Factors for Greenhouse Gas Inven

Last Modified: January 15, 2025

Blue text indicates an update from the 2024 version of this document.

Typically, greenhouse gas emissions are reported in units of carbon dioxide equivalent (CO<sub>2</sub>e). Gases are converted to CO<sub>2</sub>e by multiplying by their global warming potential (GWP) the emissions by the corresponding GWP listed in the table below.

Gas	100-Year GWP
CH <sub>4</sub>	28
N <sub>2</sub> O	265

Source: Intergovernmental Panel on Climate Change (IPCC), Fifth Assessment Report (AR5), 2013. See the source note to Table 11 for further explanation.

### Stationary Combustion

Fuel Type	Heat Content (HHV)	CO <sub>2</sub> Factor	CH <sub>4</sub> Factor	N <sub>2</sub> O Factor
	mmBtu per short ton	kg CO <sub>2</sub> per mmBtu	g CH <sub>4</sub> per mmBtu	g N <sub>2</sub> O per mmBtu
<b>Coal and Coke</b>				
Anthracite	25.09	103.69	11	1.6
Bituminous	24.93	93.28	11	1.6
Sub-bituminous	17.25	97.17	11	1.6
Lignite	14.21	97.72	11	1.6
Mixed (Commercial Sector)	21.39	94.27	11	1.6
Mixed (Electric Power Sector)	19.73	95.52	11	1.6
Mixed (Industrial Coking)	26.28	93.90	11	1.6
Mixed (Industrial Sector)	22.35	94.67	11	1.6
Coal Coke	24.80	113.67	11	1.6

EPA GHG Emission Factors Hub

An official website of the United States government [Here's how you know](#)

**EPA** United States Environmental Protection Agency

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Home / Air Emissions Factors and Quantification

## Air Emissions Factors and Quantification

Basic Information

**AP-42**

Emissions Estimation Tools

Contact Us about Air Emissions Factors

## AP-42: Compilation of Air Emissions Factors from Stationary Sources

### Compilation of Air Pollutant Emissions Factors from Stationary Sources (AP-42)

**Alerts**

5/28/25 - EPA has finalized AP-42 Chapter 11, Section 7 - Ceramic Clay Manufacturing. The finalized factors, the comment received, the response to the comment, and the final AP-42 section can be found on the [Final Revisions to AP-42 Chapter 11, Section 7 - Ceramic Clay Manufacturing](#) page.

3/13/25 - EPA has extended the public

AP-42, *Compilation of Air Pollutant Emissions Factors from Stationary Sources*, has been published since 1972 as the primary compilation of EPA's emissions factor information. It contains emissions factors and process information for more than 200 air pollution source categories. A source category is a specific industry sector or group of similar emitting sources. The emissions factors have been developed and compiled from source test data, material balance studies, and engineering estimates. The latest emissions factors are available below on this website. Use the AP-42 Chapter webpage links below to access the document by chapter. Emission factors are being updated as

EPA AP-42

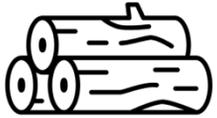


# Construction and Mobile Engine Operation

*A proposed action that would require prolonged or continuous operation of GHG-emitting construction equipment or mobile engine.*

The screenshot shows the title page of the EPA Simplified GHG Emissions Calculator. At the top, it features the EPA Center for Corporate Climate Leadership logo and the U.S. Environmental Protection Agency name. Below this, it states 'Supporting organizations in GHG measurement and management' and provides the website 'www.epa.gov/climateleadership'. The main title is 'EPA Simplified GHG Emissions Calculator ("the Calculator")' dated 'September 2024'. A brief description follows: 'The EPA Simplified GHG Emissions Calculator ("the Calculator") is designed as a simplified calculation tool to help organizations estimate and inventory their annual greenhouse gas (GHG) emissions for US-based operations. All methodologies and default values provided are based on the most current Center for Corporate Climate Leadership Greenhouse Gas Inventory Guidance Documents and the Emission Factors Hub. The Calculator will quantify the direct and indirect emissions from sources at an organization when activity data are entered into the various sections of the workbook for one annual period.' Below this, instructions are given: 'Before entering data, please: 1) Enable Macros and 2) Familiarize yourself with the Simplified Guide to GHG Management for Organizations.' A link is provided: 'Access the guide: https://www.epa.gov/system/files/documents/2022-09/Simplified\_Guide\_GHG\_Management\_Organizations.pdf'. The guide notes that the simplified guide presents more details and information covered in the calculator, and users should check the guide for more info if they have questions. Three primary steps are outlined: (1) DEFINE: 'The first step in completing a GHG inventory is to determine the boundaries and emissions sources included within those boundaries. After you have defined your organizational and operational boundaries, you can use the questions on the "Boundary Questions" worksheet to help you determine which emissions sources are relevant to your business. Go to Boundary Questions'; (2) COLLECT: 'The second step is to collect data for the defined annual period. This step is typically the most time consuming, since the data can be difficult to gather. This Calculator has help sheets with suggestions and guidance for each emissions source and a general help sheet for data management. Click the drop down menu boxes below to navigate to these sheets.' Two buttons are shown: 'Help - Market Based Method' and 'Go To Help Sheet'; (3) QUANTIFY: 'The third step is to calculate emissions. This Calculator is designed to complete the emissions quantification step for you. Once the user enters data in this MS Excel spreadsheet, the emissions will be calculated and listed on the "Summary" sheet.' A section titled 'Calculator Guidance - Important Information' follows with three points: (A) 'Navigate to the data entry sheets using the drop down menu in the dark grey cell below and then clicking on the "Go To Data Entry Sheet" button. On the data entry sheets enter data in ORANGE cells only.'; (B) 'This Calculator has several "Tool Sheets" with useful reference data such as unit conversions, heat contents, and emission factors. Click on the buttons below to go to the appropriate Tool Sheet.'; (C) 'Data must be entered in the units specified on the data entry sheets. Use the "Unit Conversions" or "Heat Content" sheets if unit conversion is necessary prior to entering data into the Calculator.' At the bottom, a navigation bar includes: '> Introduction Boundary Questions Summary Stationary Combustion Mobile Sources Refrigeration and AC Fire Suppre'.

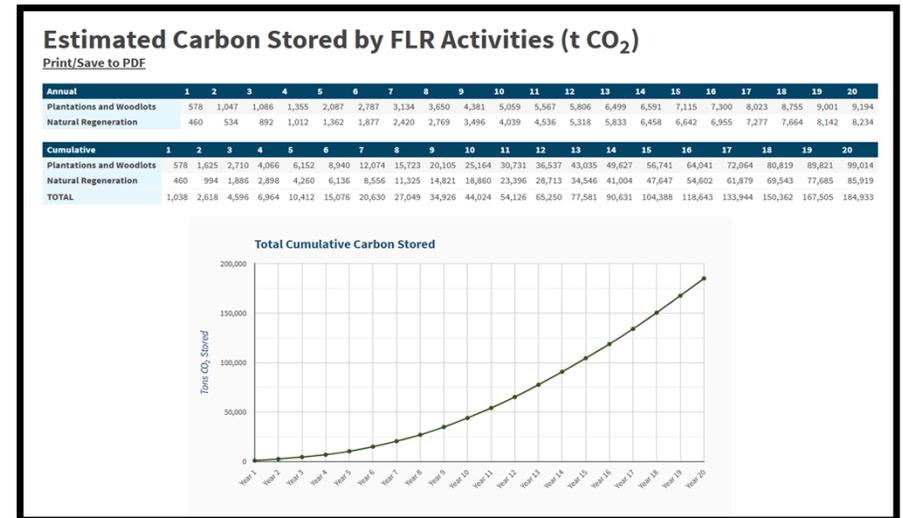
*EPA Simplified GHG Emissions Calculator*



# Land Management

A proposed action that authorizes the sale of timber, controlled or prescribed burns, forest thinning, noxious weed management, and grazing management.

BlueSky Framework



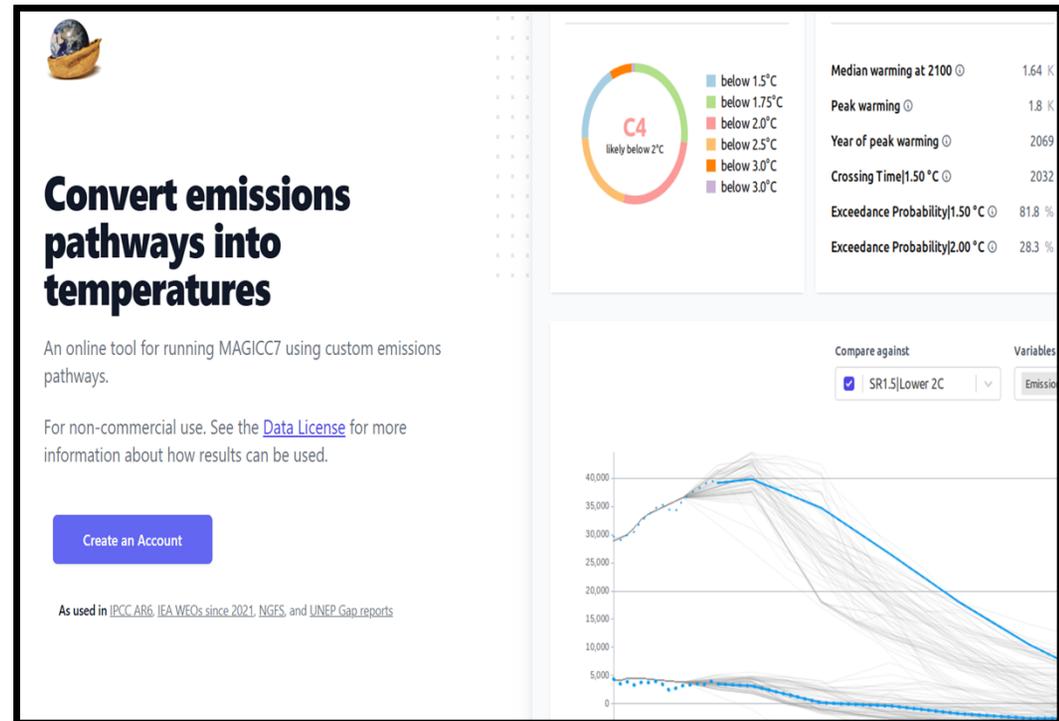
FLR Carbon Storage Calculator

# Secondary Impacts

*A further impact to the human environment that may be stimulated or induced by or otherwise result from a direct impact of the action.*

## Potential Secondary Impact tool to use:

- *Model for the Assessment of Greenhouse Gas Induced Climate Change (MAGICC)*
- *Method to calculate projected global surface temperature change based on emissions scenarios*
- *Resulting temperature difference offers a physically based estimate of the project's marginal contribution to future global temperature change*



# Cumulative Impacts – Social Cost of GHGs



# Cumulative Impacts

The collective impacts on Montana’s environment of the proposed action when considered in conjunction with other past and present actions related to the proposed action by location or generic type.

Potential Cumulative Impact tool to use:

- EPA State Inventory Tool (SIT)
- EPA Facility Level Information on Greenhouse Gases Tool (FLIGHT) database
- BLM’s fossil-fuel emissions projections
- Intergovernmental Panel on Climate Change (IPCC) AR6
- 5th U.S. National Climate Assessment or other MT specific reports
- Climate-viewer tools (i.e., National Climate Change Viewer, Climate Indicator Map Explorer)

Replacement Table 2 (p.5). Summary of GHG Emissions by Gas in Montana, 2019

GHG Emission Sources by Gas	Original	Updated
	2019 Emissions (MMT CO <sub>2</sub> e)*	2019 Emissions (MMT CO <sub>2</sub> e)*
<b>Carbon Dioxide (CO<sub>2</sub>)</b>	<b>38.14</b>	<b>37.45</b>
CO <sub>2</sub> from Fossil Fuel Combustion	29.26	28.4
Industrial Processes	0.87	0.87
Waste	0.01	0.01
Agriculture	--	0.25
Land Use, Land Use Change, and Forestry (LULUCF)	8.01	7.92
<b>Methane (CH<sub>4</sub>)</b>	<b>9.09</b>	<b>9.12</b>
Stationary Combustion	0.15	0.15
Mobile Combustion	0.01	0.01
Coal Mining	0.56	0.56
Natural Gas and Oil Systems	1.96	1.78
Agriculture	5.78	5.99
Waste	0.56	0.55
Wastewater	0.08	0.08
<b>Nitrous Oxide (N<sub>2</sub>O)</b>	<b>0.24</b>	<b>5.27</b>
Stationary Combustion	0.09	0.09
Mobile Combustion	0.08	0.09
Agriculture	0.04	4.96
LULUCF	--	0.09
Wastewater	0.03	0.03
<b>HFC, PFC, SF<sub>6</sub> and NF<sub>3</sub> Emissions</b>	<b>0.68</b>	<b>--</b>
Industrial Processes	0.68	--
<b>Indirect CO<sub>2</sub> from Electricity Consumption**</b>	<b>9.25</b>	<b>9.25</b>
<b>Gross Emissions</b>	<b>48.15</b>	<b>51.83</b>
<b>Sinks</b>	<b>0</b>	<b>0</b>
<b>Net Emissions (Sources and Sinks)</b>	<b>48.15</b>	<b>51.83</b>

\* The data was obtained from EPA’s Synthesis modules with the EPA’s State Inventory Tool (SIT). Slight variations exist between EPA’s Gas and Sector tables.

\*\* Emissions from Electricity Consumption are not included in totals in order to avoid double counting with Fossil Fuel Combustion estimates.

## Public Comment Period

Public comments were accepted from  
October 1-30, 2025.

DEQ held three public meetings in Billings, Helena,  
and Missoula.

Public comment were accepted in written and oral  
form at these meetings.





## Final Document Changes Based on Public Comment

1. Includes mitigation and alternatives for GHG analysis
2. Refined the use of the model to impacts in aggregate instead of individual projects.

# Final Greenhouse Gas Guidance Published

Published the Final Guidance on January 5, 2026

<https://deq.mt.gov/News/publicnotices-folder/ghg-01-05-25>

# Direct Impacts

are those that occur at the same time and place as the action that triggers the effect

## Potential Direct Impact tool to use:

- *EPA Simplified GHG Emissions Calculator*
- *EPA GHG Emission Factors Hub*
- *EPA AP-42 (Air Emissions)*
- *EPA Inventory of U.S. Greenhouse Gas Emissions and Sinks*
- *Calculating GHG Emissions from Proposed Projects Related to Ecological Functions*
- *BlueSky Framework*
- *Carbon Budget Model of the Canadian Forest Sector*
- *Fuel and Fire Tools: Fire emission Projection Simulator*
- *COMET-Planner*
- *FLR Carbon Storage Calculator*



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  - Scope 1 & Scope 2 Inventory Guidance
  - Scope 3 Inventory Guidance
  - Supply Chain Guidance
- GHG Emission Factors Hub
- Simplified GHG Emissions Calculator**
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## Simplified GHG Emissions Calculator



The Simplified GHG Emissions Calculator is a free tool that helps organizations estimate and inventory their annual greenhouse gas (GHG) emissions. It calculates scopes 1, 2, and 3 emissions based on an organization's activity data for one annual period.

### Intended Audience

The calculator is intended for organizations interested in developing a GHG inventory. While it can be used by organizations of all sizes, it is primarily intended for small- to medium-sized organizations who are in the early stages of GHG management.

### Steps in Completing a GHG Inventory

1. **DEFINE:** The first step in completing a GHG inventory is to determine the boundaries and emissions sources included within those boundaries. After you have defined your [organizational and operational boundaries](#), you can use the questions on the ["Determine Emissions Sources" webpage](#) to help you determine which emissions sources are relevant to your organization.
2. **COLLECT:** The second step is to collect data for the defined annual period. This step is typically the most time consuming, since the data can be difficult to gather. The calculator has help content with suggestions and guidance for each emissions source.
3. **QUANTIFY:** The third step is to calculate emissions. The calculator is designed to complete the emissions quantification step for you.

### Use the Calculator



# Draft Guidance Document

- Purpose and Introduction
- When to conduct a GHG Assessment in MEPA
- Methodologies for Conducting a GHG Assessment
- Appendices
  - Calculating GHG Emissions from Proposed Projects Related to Ecological Functions
  - Methods and Means of Quantifying Costs Related to GHG Emissions
  - Secondary Impacts from GHG
  - Cumulative Impacts from GHG

# Analysis of Impacts under MEPA

**Direct impacts** are impacts occur at the same time and place as the action that triggers the effect.

**Secondary impacts** are a further impact to the Montana environment that may be stimulated or induced by or otherwise result from a direct impact of the action.

**Cumulative impacts** are the collective impacts on Montana's environment of the proposed action when considered in conjunction with other past and present actions related to the proposed action by location or generic type.

# Welcome!

**SCAN**  
*for Draft  
Greenhouse Gas  
Guidance  
Documents and  
information to  
submit comment.*



<https://deq.mt.gov/News/publiccomment-folder/ghg-guidance-10-01-25>