



This tool calculates the CO₂, CH₄ and N₂O emissions from the combustion of fuels in boilers, furnaces and other stationary combustion equipment. It can be used by organizations from any sector.

Most of the time, you need only supply information on the the type and amount of fuel burnt, as well as the industry sector. Emissions are then automatically calculated using default emission factors, chosen to reflect this information. You must select a sector before the CH₄ and N₂O emissions can be calculated.



Changing the tool

The tool works as is. If you have more specific information, you can supply custom emission factors or change the default global warming potentials on the Settings page.

[Other tools can be downloaded from the GHG Protocol website](#)

GHG Protocol Guide to Definitions

This tool implements emission factors specific to many different types of fuels and sectors. To help you understand which emission factors most closely meet your needs, browse our definitions for our fuels and sectors:

Fuels:

Please select a fuel:

Natural gas should include: (1) Blended natural gas (sometimes also referred to as Town Gas or City Gas), a high calorific value gas obtained as a blend of natural gas with other gases; (2) City Gas, a high calorific value gas obtained as a blend of natural gas with other gases derived from other primary products, and usually distributed through the natural gas grid (eg coal seam methane); (3) Substitute natural gas, a high calorific value gas, manufactured by chemical conversion of a hydrocarbon fossil fuel, where the main raw materials are: natural gas, coal, oil and oil shale.

Sectors:

Please select a sector:

Examples include health and education operations (e.g., schools and hospitals), public administration, insurance and financial services, real estate, and Research and Development.

(Source: IPCC 2006 Guidelines for National Greenhouse Gas Inventories)



Unit conversions

While this tool automatically converts data amongst different measurement units, it does not cover all possible units. To perform other conversions, the online tool at www.onlineconversion.com may be helpful.



A note on heating values

Heating (or calorific) values are important if you input fuel consumption data using energy units (e.g., GJ or mmBtu of fuel burnt). Heating values measure the energy content of fuels and are expressed using either Higher Heating Values (HHVs; also know as Gross Calorific Values) or Lower Heating Values (LHVs; also known as Net Calorific Values). As a general rule, HHVs are used in Canada and the USA, and LHVs are used elsewhere; however, exceptions to this rule may occur. Before emissions can be calculated properly, the fuel consumption data and corresponding emission factors must be expressed in the same way - either on a HHV basis or on an LHV basis, but not both. So, you will be asked to indicate the heating value basis that underlies any energy data you supply. This will not happen when you supply fuel use data on a mass or volume basis.

Acknowledgements:

The emission factors used in this tool come from the 2006 IPCC Guidelines for National Greenhouse Gas Inventories.



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While the worksheets are largely self explanatory, for questions or suggestions on its contents, please contact

How do I calculate scope 2 emissions?

$$\text{Scope 2 Emissions} = \text{Activity Data} \times \text{Emission Factor (EF)}$$

MWh **mt CO₂e/
MWh**

For every MWh...
Need an EF for
each method.

MWh

Location-based

Market-based

EF represents
what's generating
on the grid

EF derived from
contractual
information,
applied on a
MWh basis

SCOPE 2 EMISSIONS in tCO_2e = (*Electricity consumed by Bukhara State University in 2023*)
*** (*Location based emission factor¹*) / 1000 =**
***2021400KWh* * *0.41805* / 1000 = 845.05 tCO_2e**

SCOPE 1 + SCOPE 2 EMISSIONS in tCO_2e = 1266 +
845 = 2111 tCO_2e