



This tool calculates the greenhouse gas (GHG) emissions associated with the generation of purchased electricity. It implements default emission factors, either for individual countries or for regions within countries. The default emission factors cover at least CO₂ - the principal GHG emitted by power facilities. Where emission factors for other GHGs are also available, these have been integrated into the tool too.



Required activity data

Users need to supply data on the amount of electricity that they have consumed over the accounting period. Sometimes, an organization may be a co-tenant of a building and lack data on the exact amount of electricity that it alone has consumed. In these cases, the GHG emissions can be estimated using proxies for the proportion of the building's electricity use that the reporting organization has consumed. One proxy is the percentage of the building's total floor area that is occupied by the reporting organization. Where relevant, users should enter this percentage information into the spreadsheet alongside data on the entire building's electricity usage.

Region-specific emission factors

Where possible, users should use the most specific emission factors available. For instance:

- The USA. This tool implements region-specific factors from the EPA's eGRID database: <http://www.epa.gov/cleanenergy/energy-resources/egrid/index.html>
- Brazil. Emission factors for different years and months are available at:
- Australia. Region-specific emission factors are available at: <http://www.climatechange.gov.au/workbook/index.html>
- Other countries. Please consult national power authorities, GHG reporting programs or other relevant entities. Users can enter custom emission factors directly into the spreadsheet by overwriting any default emission factors.

Global warming potentials (GWPs)

GWPs compare the climate impact of different greenhouse gases with that of CO₂, and they are used to calculate emissions in terms of CO₂-equivalents. As scientific understanding advances, the GWP values of GHGs can change. By default, this tool uses the GWP values from the IPCC's Fifth Assessment Report (1995), but you can use other GWP sets:



Please select a GWP set:

2014 IPCC Fifth Assessment Report

Note: The Fifth Assessment Report GWP values used in this tool exclude climate-carbon feedbacks for non-CO₂ emissions. Use of the latest GWP values is recommended.

Acknowledgements:

The emission factors used in this tool come from several sources:

- International Energy Agency Data Services. 2014. "CO₂ Emissions from Fuel Combustion (2013 Edition)".
 - The US eGRID database. <http://www.epa.gov/cleanenergy/energy-resources/egrid/index.html>
 - China emission factors come from three sources:
 - * "China(including Hong Kong)-IEA" is a national average emission factor, which comes from IEA.
 - * "China (mainland)" is a set of provincial emission factors, which comes from the GHG Protocol - A Calculation Tool for GHG Emissions from Fuel Use (2011) (available in Chinese only). The emission factors are calculated using data from the China Energy Statistics Yearbooks, IPCC, and China Key Energy Users Energy Use Reporting System.
 - * "Hong Kong, China" is a regional emission factor for Hong Kong, which comes from IEA.
 - * "Taiwan, China" is a regional emission factor for Taiwan, which comes from Bureau of Energy, Ministry of Economic Affairs in Taiwan. (available in Chinese only)
- http://www.moeaboe.gov.tw/promote/greenhouse/PrGHMain.aspx?PageId=pr_gh_list

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While the worksheets are largely self explanatory, for questions or suggestions on its contents, please contact the GHG Protocol at: ghgquestions@wri.org