



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

Please cite this tool using the following format:

World Resources Institute (2015). GHG Protocol tool for stationary combustion. Version 4.7.

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

Facility information				Consumption data			Emissions				Notes	
Facility description	% of electricity used by the facility	Country or Region	Region (if available)	Year	Fuel mix	Amount	Units	CO ₂ (tonnes)	CH ₄ (kg)	N ₂ O (kg)		CO ₂ e (tonnes)
Smug Sweater -2016	100	Bangladesh		2012	All	433659	kWh	249.404			249.404	
								249.404	0.000	0.000	249.404	



Revision History

Version	Revision Date	Updated By	Description
4.2	July 18, 2011	GHG Protocol	Incorporated emission factors for different subregions within mainland China. Emission factors are for years 2006 - 2008 and are sourced from the GHG Protocol's 'A Calculation Tool for GHG Emissions from Fuel Use (2011)', available in Chinese only.
	July 19, 2011	GHG Protocol	Incorporated emission factors for Taiwan, China. Emission factors are for years 2005-2010 and are sourced from Bureau of Energy, Ministry of Economic Affairs in Taiwan, China.
4.3	August 1, 2011	GHG Protocol	Added IEA emission factors for years 2007 and 2008, as well as US EPA eGrid emission factors for year 2007.
4.4	August 3, 2012	GHG Protocol	Added IEA and US EPA eGrid emission factors for year 2009
4.5	May 1, 2014	GHG Protocol	Added US EPA eGrid emission factors for year 2010 and IEA emission factors for years 2010 and 2011.
4.7	December 1, 2014	GHG Protocol	Restricted visibility of emission factors within tool per new agreement with data vendors
4.8	May 18, 2015	GHG Protocol	Added IEA emission factors for year 2012 and latest GWP values from IPCC Fifth Assessment Report