

Overview of Calculation Guidelines for GHG Emissions Targeted by Carbon Offset (Ver. 1.0, 6 Oct 2008)

The purpose of these guidelines is to build public confidence in carbon offset activities, which have recently been growing in popularity. This is achieved by establishing a consistent, fixed methods for calculating GHG emissions.

Calculation Methods for GHG Emissions Targeted by Carbon Offset: Basic concepts

GHG emissions can generally be calculated by identifying the *activity volume* and *emission factor* for the activity being targeted by carbon offset.

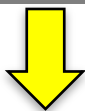
The guidelines provide three different levels of GHG emission calculation:

Level	Calculation method
Level 1 (Simple)	Standard values used for both activity volume and emission factor
Level 2 (Intermediate)	Activity volume calculated using specific data on the GHG-producing activity, with a standard value used for the emission factor
Level 3 (Complex)	Specific data on the GHG-producing activity used to calculate both activity volume and the emission factor

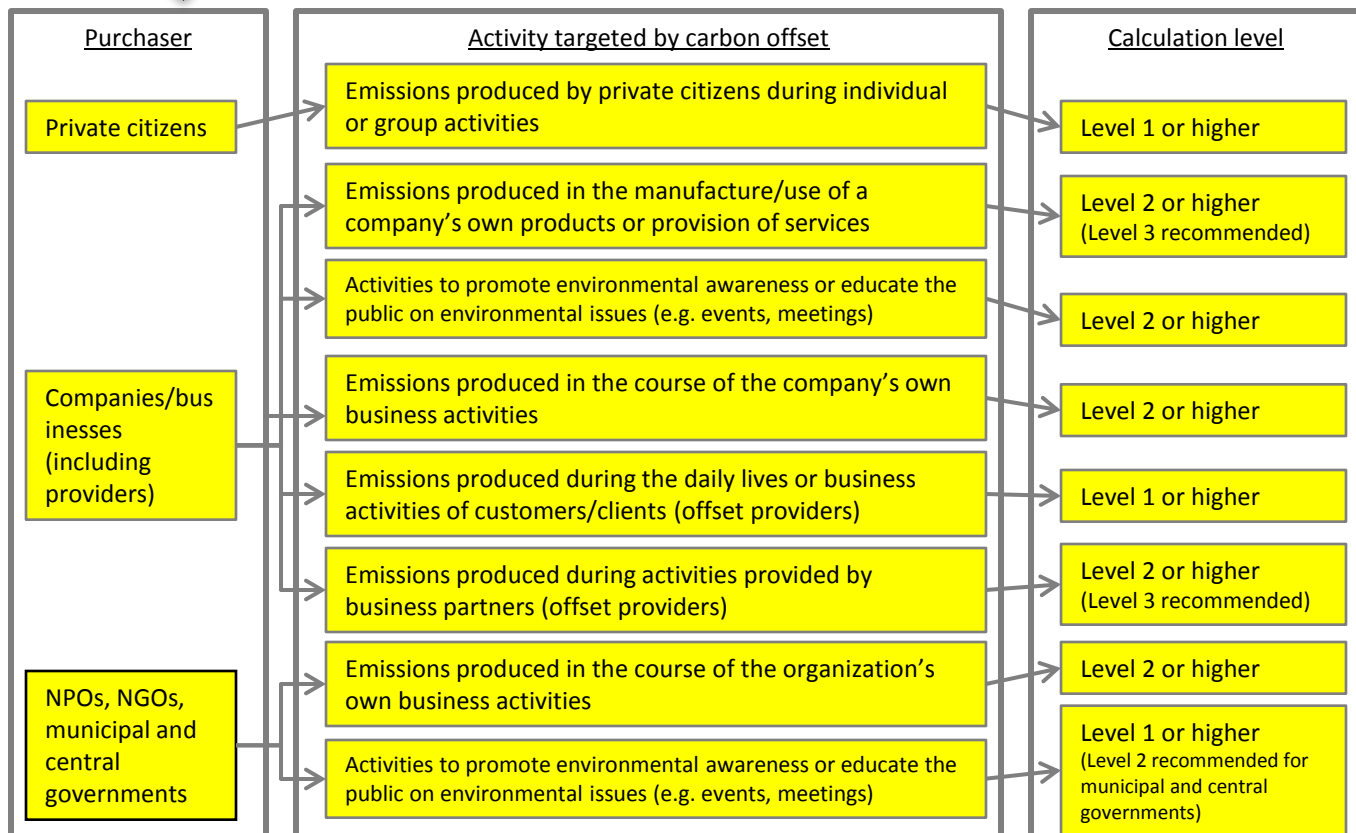
Used when it is difficult to ascertain the actual activity volume/emission factor, or when a high degree of precision is not required

When a standard emission factor value is used due to difficulty in obtaining the information necessary to calculate the actual figure

When a high degree of precision is required and detailed information can be obtained for both activity volume and the emission factor



The decision tree below can be used to select the appropriate calculation level:



Area and scope of GHG emission calculations covered by the *Guidelines*

GHG emission calculation areas:

The Ver. 1.1 *Guidelines* provide calculation methods for these areas:



Transportation: Air (domestic passenger travel), passenger trains, motor vehicles



Office equipment: Computers, servers, copy machines, printers



Home: energy and water consumption, waste

“Boundary” concept:



In general, boundaries are determined by the offset provider

Types of GHGs calculated:



CO₂, methane (CH₄), nitrous oxide (N₂O) hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulfur hexafluoride (SF₆), though Ver. 1.0 focuses on CO₂ calculations

Use of calculation methods or data not listed in the *Guidelines*

Use of calculation methods and/or data not listed in the *Guidelines* is not prohibited in cases where their use can be logically justified. If alternative calculation methods or data are used, we ask that documentation allowing third-party verification be kept on file.

Sample calculation methods for a specific activity targeted by carbon offset:

Transportation via passenger rail (JR bullet train, local JR line, private rail, subway)

Calculation scope:

Passenger rail GHG emissions are calculated per passenger for the rail distance between the original and destination rail station.

Basic formula:

GHG emissions = distance traveled × rate of fuel consumption × GHG emission factor



	Distance traveled	Rate of fuel consumption	GHG emission factor
Level 1	Calculations use standard values set forth in the <i>Guidelines</i> as well as information compiled through commercially available rail timetables and online route information.	Calculated using the yearly rail statistics (Ministry of Land, Infrastructure, Transport and Tourism). Example: Standard electrical consumption of 0.023 kWh per person per km)	Standard CO ₂ emission factor values used in the Governmental guideline for the GHG emission, reporting, and disclosure scheme.
Level 2		Calculated based on the average overall (for all trains) per-person/per-km fuel consumption rate data on file or published for each specific rail company.	
Level 3		Calculated based on company data on per-person/per-km fuel consumption rates for each type of train or published data for each type of train.	Average power or fuel emission factors for the rail company used by the passenger.

Useful links

Information regarding carbon offset:

- ◆ Ministry of the Environment, Japan: website introducing carbon offset http://www.env.go.jp/earth/ondanka/mechanism/carbon_offset.html
- ◆ Japan Carbon Offset Forum (J-COF) <http://www.j-cof.org>
- ◆ Third-party certification of carbon offset, labeling <http://www.4cj.org/label.html>
- ◆ Scheme for offset provider <http://www.4cj.org/provider.html>
- ◆ Offsetting Credit (J-VER) Scheme <http://www.4cj.org/jver.html>

Please direct questions or comments regarding carbon offset to the Japan Carbon Offset Forum (J-COF) help desk at:
Overseas Environmental Cooperation Center, Japan (OECC)
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MINATO-KU, TOKYO 105-0011
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