



NBAA SUSTAINABLE FLIGHT DEPARTMENT ACCREDITATION PROGRAM

Computing Greenhouse Gasses for Business Travel

The major source of greenhouse gas (GHG) for any business related travel is generally the flight portion. For business flights, doing an “exact” computation (although all methodologies are approximations) is possible. The International Civil Aviation Organization (ICAO) has developed a methodology (the ICAO Carbon Emissions Calculator) to estimate the CO₂ emissions from air travel¹. This relatively easy to use calculator is a good tool for computing CO₂ emissions associated with flying for business. However, the ICAO Calculator cannot provide estimates of GHG emissions for non flight elements of business travel.

The GHG Protocol² offers technical guidance for a number of approaches for a more comprehensive estimate of GHG emissions associated with business travel. The GHG Protocol business travel category includes emissions from the transportation of employees via a variety of models for business-related activities.

The GHG Protocol notes that GHG emissions from business travel may result from a number of activities, including:

- Air travel
- Rail travel
- Bus travel
- Automobile travel (e.g., business travel in rental cars or employee-owned vehicles other than employee commuting to and from work)
- Other modes of travel.

Companies may also include emissions from business travelers staying in hotels.

A reporting company’s scope 3 emissions from business travel include the scope 1 and scope 2 emissions of transportation companies (e.g., airlines).

The GHG Protocol notes that methodologies for computing GHG emissions from business travel can be based on

¹ <https://www.icao.int/environmental-protection/CarbonOffset/Pages/default.aspx>

² <https://ghgprotocol.org/>

activity (or fuel based method, which is similar to the ICAO calculator), distance traveled or amount spent on business travel. Each of these activities are described in the Protocol as follows:

- (a) The fuel-based method involves determining the amount of fuel consumed during business travel (i.e., scope 1 and scope 2 emissions of transport providers) and applying the appropriate emission factor for that fuel
- (b) The distance-based method involves determining the distance and mode of business trips, then applying the appropriate emission factor for the mode used
- (c) The spend-based method involves determining the amount of money spent on each mode of business travel transport and applying secondary environmentally extended input-output (EEIO) emission factors.

Chapter 6 of the Protocol³ offers instructions for the fuel and distance based methodologies. It provides a simple decision tree that can assist the business aviation entity applying for accreditation to select an appropriate method for calculating business travel emissions. The guidance refers extensively to Chapter 4 of the Protocol (upstream transport and distribution)⁴. The protocol provides guidance on both data collection and emission factors. Detailed tables and computation methods provided should assist the business aviation entity compute business travel emissions.

The fuel-based method is generally the preferred method. The method can be refined to include hotel stays, using the number of hotel nights by hotel types and applying emission factors accordingly.

The GHG Protocol notes that the calculation methodology for the fuel-based method does not differ from the fuel-based method in category 4 (Chapter 4, Upstream transport and distribution). For guidance on calculating emissions using this method, the business aviation entity can refer to the guidance for category 4 (Upstream transport and distribution). The business aviation entity may also optionally collect data on the number of hotel nights incurred during business travel by hotel type. Under this method, the number of hotel nights and the emissions factor for the appropriate hotel are used to compute GHG associated with hotel stays. Business aviation entities can use emission factors for hotel stays by hotel type (e.g., kilograms of CO₂e emitted per hotel night).

If data on fuel use is unavailable, the next preferred methodology is the distance-based method.

The distance-based method involves multiplying activity data (i.e., vehicle-kilometers or person-kilometers traveled by vehicle type) by emission factors (typically default national emission factors by vehicle type). Vehicle types include all categories of aircraft, rail, subway, bus, automobile, etc.

Chapter 6 of the GHG Protocol provides detail on activity data needed. This includes distance traveled by each mode of transport (air, train, bus, car, etc.) for employees in the reporting year.

Where possible, business aviation entities should also collect data on countries of travel, specific vehicle types and specific passenger vehicle types, as emission factors can vary. The business aviation entity may choose to compute emissions for hotel stays using the same methodology as for the fuel based method. The guidance provides formulas and emission factors to facilitate computations.

The guidance does indicate that for air travel emission factors, multipliers or other corrections to account for radiative forcing may be applied to the Global Warming Potential (GWP) of emissions from aircraft transport. If applied, the business aviation entity should disclose the specific factor used. Given the uncertainties associated with non CO₂ emissions, it is not required that multiplier factors be applied to air travel emissions.

If it is not possible to use either the fuel- or distance-based methods, business aviation entities may use the spend-based method. The spend based method calculation is described in Category 4: Upstream Transportation and Distribution (Chapter 4). The activity data is the amount spent on business travel by type/mode of transport. Chapter 4 provides emission factors associated with various spend categories and formulas to compute total GHG. Again, the business aviation entity may choose to collect data on the number of hotel nights incurred during business travel by hotel type and compute GHG emissions associated with hotel stays for the spend method.

For the initial year, the business aviation entity could rely on back records. As a minimum, the amount spent on business travel should be available. Going forward, business aviation entities are encouraged to automate data collection and train employees to seamlessly collect data to facilitate computation of GHG emissions associated with business travel.

³ https://ghgprotocol.org/sites/default/files/standards_supporting/Chapter6.pdf

⁴ https://ghgprotocol.org/sites/default/files/standards_supporting/Chapter4.pdf