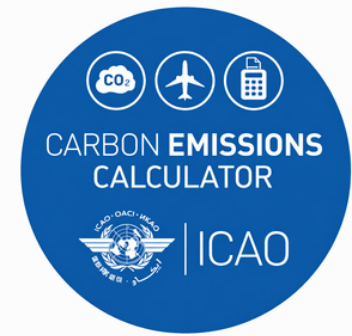




ICAO



UNITED NATIONS INTERFACE TO THE ICAO CARBON EMISSIONS CALCULATOR

FREQUENTLY ASKED QUESTIONS

VERSION 6.0

INTERNATIONAL CIVIL AVIATION ORGANIZATION
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1. WHAT IS THE UN ICEC?

The **ICAO Carbon Emissions Calculator (ICEC)** allows users to estimate the CO₂ emissions associated with passenger air travel and freight operations. It is easy to use and requires only a limited amount of information from the user. ICEC is the only internationally approved tool for estimating carbon emissions from air travel. Its methodology uses the best publicly available industry data and takes into account various factors, such as aircraft types, route-specific data, passenger load factors, and cargo carried.

The ICEC has been the official UN tool for calculating carbon emissions from air travel since 2009, when it was adopted by the UN Environment Management Group (EMG). It supports UN system-wide climate neutrality efforts and the annual preparation of greenhouse gas inventories. Using a common, transparent, impartial, and internationally approved methodology across the UN system enables the aggregation of air travel emissions data from different organizations and ensures the integrity and consistency of reported emissions.

ICAO provides the **UN ICEC** and related support services to UN agencies at no cost, supporting system-wide efforts to manage air travel emissions.

2. WHAT TYPES OF EMISSIONS DOES THE UN ICEC CALCULATE?

The UN ICEC is intended for calculating CO₂ emissions released into the atmosphere by aircraft engines during a flight. It is not designed to assess the broader climate impact of aviation emissions (for example, using Radiative Forcing Index (RFI) or other similar multipliers).

Work is ongoing in ICAO to enhance the scientific understanding of aviation's climate impacts and to address remaining uncertainties. This includes exploring means to quantify the potential climate impacts of non-CO₂ aviation emissions, as well as assessing technological and operational measures to address such impacts.

3. WHAT IS THE METHODOLOGY USED TO DEVELOP THE UN ICEC?

Please refer to the detailed methodology available on the ICEC website¹, which covers both passenger air travel and freight operations

4. WHAT IS THE ICEC UPDATE SCHEDULE FOR UN ORGANIZATIONS?

ICAO releases an updated version of the UN ICEC each year in March². The UN ICEC ZIP files are provided to the UNEP SUN team, which coordinates their distribution to UN agencies.

¹ ICEC Website: <https://icec.icao.int/Home/Methodology>

² Please note that, starting with UN ICEC version 6.0 (released in March 2026), there will no longer be a mid-year update (see Question 20 for further details).

5. HOW TO USE THE UN ICEC

Please refer to the latest UN ICEC User Guide included in the UN ICEC ZIP file distributed by the UNEP SUN team. To ensure the UN ICEC functions properly, the MS Access database and the UN ICEC Excel file must be saved in the same folder on the user's computer or local drive. In general, two inputs are required to run the UN ICEC:

- i. Complete trip routing (3-letter IATA airport codes)
- ii. Cabin class

These inputs must be entered into the UN ICEC using the format specified in the UN ICEC User Guide. For example:

| Route | Class |
|---------|-------|
| YUL/IAD | Y |
| DXB/BAH | C |

OR

| Route | Class |
|---------|-------|
| YUL-IAD | W |
| DXB-BAH | F |

6. WHICH CABIN CLASSES DOES THE UN ICEC SUPPORT?

As of March 2026, the UN ICEC (version 6.0) supports four cabin classes: Economy, Premium Economy, Business, and First.

| | | | |
|--------------------|----------------------------|---------------------|------------------|
| Economy = Y | Premium Economy = W | Business = C | First = F |
|--------------------|----------------------------|---------------------|------------------|

7. CAN I USE THE UN ICEC VERSION 6.0 TO CALCULATE EMISSIONS FOR PREVIOUS INVENTORIES (I.E. NOT 2025)?

Version 6.0 of the UN ICEC is specifically designed for the 2025 inventory and provides emissions calculations aligned with data from that year. Its use for previous inventories is not recommended, as it may produce results that are inconsistent with earlier flight schedules.

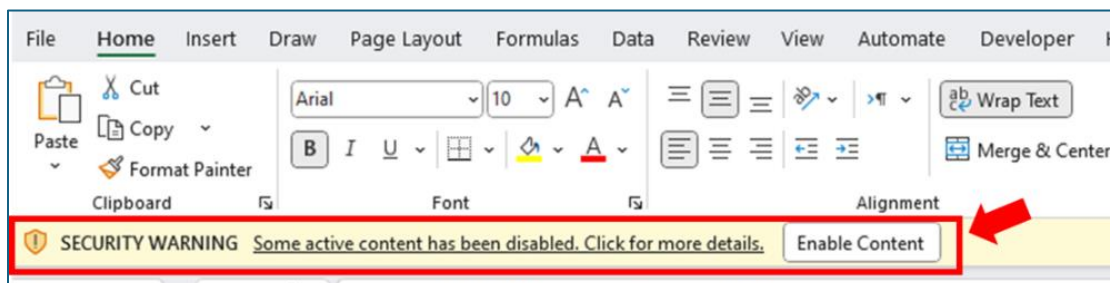
This version should only be used for its intended purpose, to ensure accurate and comparable reporting for the 2025 inventory.

8. WHY IS THERE AN ERROR MESSAGE RELATED TO THE ACCESS FILE?

The UN ICEC may not run if it is saved in a cloud-based location, such as a OneDrive or Google Drive folder. Please ensure that the entire UN ICEC ZIP file is downloaded and stored on a local drive (e.g. C:\) on the user's computer.

9. WHY IS THE MACRO RESTRICTED WHEN OPENING THE UN ICEC EXCEL FILE?

For possible causes, please check with your IT colleagues to enable macro use, or trust the file you downloaded and extracted.



10. WHY DOES NOTHING HAPPEN WHEN I PRESS THE “CLICK TO COMPUTE CO₂” BUTTON?

For possible causes, please check the following:

- i. Macros are enabled
- ii. The ICAO_Carbon_db.mdb file is in the same directory as the spreadsheet
- iii. Only flight routes are provided (the UN ICEC is meant for air travel emissions only; it does not cover rail transport)
- iv. The data format is aligned with the format specified in the UN ICEC User Guide.

11. WHY DOES THE CALCULATOR COMPUTE CO₂ FOR SOME TRIPS BUT STOP BEFORE COMPLETING OTHERS?

For possible causes, please check for any blank rows in the dataset and formatting errors in the inputs provided. For large datasets, the UN ICEC may also require additional time to complete the calculations.

12. WHY IS THE THREE-LETTER CITY CODE NOT RECOGNIZED BY THE UN ICEC?

The UN ICEC only recognizes IATA three-letter airport codes³. It will not operate correctly if city codes, rail station codes, or other non-airport codes are used as inputs.

³ IATA three-letter airport codes website: <https://www.iata.org/en/publications/directories/code-search>

13. WHY ARE AIRPORT CODES REQUIRED?

Airport codes enable the UN ICEC to map each flight to one of the aircraft types in its fuel-consumption database. CO₂ emissions are then calculated based on the aircraft type operating each route.

City names are not used because they can be ambiguous. For example, “San Jose” may refer to SJC (USA), SJD (Mexico), SJE (Colombia), SJI (Philippines), or SJO (Costa Rica). Please note that some airports that do not operate commercial scheduled flights may not have an IATA airport code.

14. WHY ARE CERTAIN ROUTINGS NOT COMPUTABLE USING THE UN ICEC?

Route pairs in the UN ICEC are based on available OAG aviation schedules. If the input route does not include a direct scheduled flight or a valid one-stop connection, the UN ICEC cannot process it. In such cases, please specify the connecting airport(s) to generate a result.

15. WHY DO CO₂ EMISSIONS FOR THE SAME ROUTE VARY ACROSS DIFFERENT VERSIONS OF THE CALCULATOR?

This may be due to updates to the fuel calculation methodology, changes in airline aircraft planning, modifications to seat configurations, or updates to route city pairs (as indicated in the first sheet of the UN ICEC Excel file). If you require a more specific and detailed explanation, please contact the ICAO Environment Office (e-mail: officeenv@icao.int).

16. WHERE CAN I GET DATA ON AIR TRAVEL?

This depends on the travel arrangements within your organization. For example, staff travel data may be obtained from your ERP system (e.g. ATLAS, IMIS), travel office, or travel agency.

In ICAO’s case, the Travel Services Unit provides a list of staff travel routes and cabin classes, which ICAO uses to calculate its annual air travel emissions.

17. CAN I SHARE THE UN ICEC WITH SOMEONE ELSE?

No. The UN ICEC may only be shared with individuals or organizations that use the Calculator exclusively for Sustainable UN purposes. A separate license agreement is required for non-UN users. For additional information, please contact the ICAO Environment Office (e-mail: officeenv@icao.int).

18. IS THERE A LIMIT TO THE NUMBER OF TRIPS THAT CAN BE CALCULATED?

Yes. The number of trips that can be calculated is limited only by the maximum number of rows supported by Microsoft Excel. For example, current versions of Excel (including Microsoft 365 and Excel 2021) support up to 1,048,576 rows per worksheet.

19. WILL THE TOTAL CO₂ CHANGE COMPARED TO THE PREVIOUS METHODOLOGY?

As a result of the updated methodology, total CO₂ emissions may differ from previous years' calculations, depending on the distribution of cabin classes. Comparisons with the baseline or with results from the previous two-cabin UN ICEC should not be used to inform decision-making, due to the change in methodology.

These differences reflect improved methodological accuracy rather than actual changes in travel activity. For example, total CO₂ emissions may increase significantly even if the total travel distance decreases, due to higher emissions associated with business- and first-class travel under the four-cabin methodology.

20. HOW DOES THE CALCULATION DIFFER BETWEEN THE FOUR CABIN CLASSES?

Under the new methodology, the total fuel burn and CO₂ emissions of a flight are allocated more accurately across the four cabin classes: Economy, Premium Economy, Business, and First. Each cabin class is assigned a share of the emissions based on factors such as seat space and typical occupancy. As a result, higher-class cabins, which occupy more space per passenger, are allocated a proportionally larger share of the flight's CO₂ emissions. This approach improves the precision of the calculations compared to the previous two-cabin methodology and provides a more accurate representation of emissions per passenger.

21. DOES THE UN ICEC PROVIDE SUPPLEMENTARY INFORMATION ON EMISSIONS OFFSETTING?

Starting with UN ICEC version 6.0 (March 2026), the tool provides supplementary information only on **ICAO's Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA)**⁴. Adopted by the ICAO Assembly, CORSIA is the only global market-based measure that applies to CO₂ emissions from international aviation.

Due to the global scope of CORSIA and the limited availability of comparable information on other market-based measures, the UN ICEC includes only data related to CORSIA. Please note that

⁴ ICAO CORSIA website: <https://www.icao.int/CORSIA>

this tool is not intended to guide offsetting policies, and any decision to offset air travel CO₂ emissions is entirely at the user's discretion.

22. WHAT IS THE “ADDITIONAL CO₂ RANGE (LOW/HIGH)” RESULT?

This result indicates how much the reported CO₂ value may vary from the baseline estimate under realistic schedule-based alternatives. The low value represents a possible downward adjustment (usually negative), while the high value represents a possible upward adjustment (usually positive).

This is a range of scenarios, not a statistical confidence interval. In cases where a cabin fallback is used (for example: “*Requested cabin class not available—emissions computed using Business class*”), this range may be blank because no route-specific estimate is available for the originally requested cabin class.

For further enquiries, please contact the ICAO Environment Office at the following email address:
officeenv@icao.int

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