SAP Concur

Methodology Summary

General

SAP Concur has partnered with Thrust Carbon to provide emissions information at Point of Sale. Thrust Carbon emission calculations for air, rail and car have undergone third party verification in accordance with ISO 14083.

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Multi-methodology

SAP Concur supports a multi-methodology framework for air travel, giving customers the flexibility to configure their preferred calculation methodology and calculation preferences. Supported methodologies for air travel include:

- ICAO+ (offers an ISO 14083 certified version)
- DEFRA (offers an ISO 14083 certified version)
- Travel Impact Model
- New Zealand National Methodology

As well as the methodology, users can customise their emissions calculations through a range of options:

- ISO enablement
- Flexible radiative forcing multiplier
- Well-to-tank (WTT) inclusion
- Haul definition

This configurability ensures organisations can align POS emissions data for Concur with their reporting, internal policies, or recognised international standards.

Flight Emissions Methodologies

ICAO+

The ICAO+ methodology gives SAP Concur customers the option to use the industry's leading carbon methodology, with state of the art datasets and modifiers to reflect the cutting edge of sustainability reporting. The ICAO+ methodology enables almost every aircraft factor to be taken into account when calculating carbon emissions. The methodology is based on the ICAO 2024 methodology, and builds upon this to incorporate real-time supplier data and full lifecycle emissions.

- **Distance traveled** - ICAO first calculates the great circle distance (GCD) travelled. In line with the requirements of ISO 14083, no uplift is applied for closed airspace and traffic to allow for comparability across flights.

- **Fuel burn** - the ICAO methodology then looks for the fuel burn for that aircraft over the stated distance, works out the fuel burn per-kilometer, and adjusts for the number of economy seats.
- **Passenger and Freight load factors** - This is then adjusted by the passenger and load factors for the supplier in the given month. We utilise external ICAO datasets that provide monthly passenger load volumes for over 500 leading carriers, covering well over 99.99% of commercial aviation flights. Where an airline is not supplied as an input to a calculation, we instead use datasets to find appropriate averages across the aviation sector for that year.
- **Class of Travel** - Once the fuel burn per economy passenger is known, it is then adjusted for travel class (e.g. business class or first class), and the number of passengers that travelled for the purpose of the calculation.
- **Emission factor** - Finally the estimated fuel burn is multiplied by an emission factor to obtain kgCO2e. The calculation uses a full lifecycle emission factor (tank-to-wheel and well-to-tank) in line with the requirements of ISO 14083.
- **Boundary** - calculations are full lifecycle (TTW+WTT) inline with GHG Protocol and Science Based Target Initiative guidance.
- **Radiative Forcing** - A radiative forcing multiplier of 1.7 is used inline with UK DEFRA latest climate science by default, but you can customise your radiative forcing factor to match your reporting requirements.

DEFRA

The DEFRA methodology gives SAP Concur customers the option to use the UK government's official carbon calculation framework, ensuring high-quality, standardized emission estimates.

- **Distance traveled** - DEFRA first calculates the great circle distance (GCD) travelled.
- **Combustion Emission Factors** – DEFRA specifies multipliers based on the haul (the length of the flight), domestic, short, long and international travel is selected based on flight distance.
- **Class of Travel** – DEFRA provides multipliers to account for variation in emissions based on travel class.
- **Boundary** - calculations are full lifecycle (TTW+WTT) inline with GHG Protocol and Science Based Target Initiative guidance.

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- **Radiative Forcing** - A radiative forcing multiplier of 1.7 is used inline with UK DEFRA latest climate science by default, but you can customise your radiative forcing factor to match your reporting requirements.

Travel Impact Model

The Travel Impact Model (TIM) is designed by Google to estimate carbon emissions from flights using a combination of external data sources and proprietary modeling. It incorporates factors such as aircraft type, flight distance, and operational conditions to generate accurate emissions estimates. For more information, please visit the TIM methodology page here.

New Zealand National Methodology

The New Zealand methodology uses data derived from Air New Zealand for domestic flights, and DEFRA for non-domestic flights.

Rail Emissions Methodology

The Thrust Carbon rail methodology uses local rail factors to capture regional specificity such as fuel types..

Local Rail Emission Factor Methodology

Thrust Carbon utilises the rail factors reported by that region's rail companies and governments. For example, in the UK this will be reported by the government's Department for Energy Security and Net Zero; in France this is reported by the train company SNCF.

- **Source** - Publications from over 30 rail companies and government authorities. Thrust Carbon will choose the most appropriate based on the location of travel.
- **Emission factor** - The calculation uses a full lifecycle emission factor (tank-to-wheel and well-to-tank) in line with the requirements of ISO 14083.
- **Emission Factor Date** - Reporting of rail factors typically lags current date by one year or more. Thrust Carbon will use the closest available dataset for the year of travel.
- **Appropriate Local Emission Factor** - Thrust Carbon identifies the routing and uses the most appropriate rail factor for the segment.

- **Travel Class** - In most cases, local rail factors do not account for class of travel. Where possible, Thrust Carbon will use local seat maps to identify the multiplier for different seat classes for different suppliers. Where this data is unavailable, Thrust Carbon defaults to 1.5x for business/first class.
- **Distance** - If distance is not provided with the segment data, Thrust Carbon will apply GCD (Great Circle Distance).

Car Hire Emissions Methodology

The base methodology for car emissions is currently using the DEFRA UK emission factors. Unfortunately, similar high quality models are not available for other nations.

DEFRA Base Methodology

- **Source** - The DEFRA car methodology is a model published by the UK government that enables the calculation of car emissions by the car's category, distance driven, and fuel type.
- **Emission factor** - The calculation uses a full lifecycle emission factor (tank-to-wheel and well-to-tank) in line with the requirements of ISO 14083.
- **Emission Factor Date** - Thrust Carbon will use the closest available dataset for the year of travel.
- **Appropriate Local Emission Factor** - Currently, the DEFRA factors 'Business travel - land' are used to calculate the emissions for all types of electric vehicles across all countries. We understand that these factors are using the UK grid mix and therefore we are working to add variation by country for battery electric and plug-in hybrid fuel types, to account for variations in electricity generating mixes.
- **Distance** - If the exact distance driven is provided in the rental data, it is directly used for the calculation. However, in most cases, only the number of rental days is available. Since there is no published average mileage for car rentals, Thrust Carbon analyzed its own data (excluding outliers) and determined that the average distance driven per day in a rental car is 113.01 km. This multiplier is applied when only the rental duration is known.

ACRISS Car Code to SMMT Car Segment

Most businesses only know the ACRISS car code for a car rental. This is a four letter code that is standard across the car industry and indicates the category of vehicle rented.

The DEFRA model works off of SMMT car segment categories. These do not match up directly with ACRISS car codes, so Thrust Carbon performs a lookup of the first letter in the ACRISS code to find the corresponding SMMT car code. Thrust Carbon then uses the last letter to match the appropriate fuel type to the vehicle rental.

In the event that the ACRISS is not supplied, Thrust Carbon will fall back to DEFRA's average car.

Hotel Emissions Methodology

SAP Concur uses the most appropriate of the following methodologies for hotel emissions (powered by Thrust Carbon):

Hotel Carbon Measurement Initiative (HCMI)
- Used when this data has been provided directly by the hotel.
- As of 2024, this is still exceedingly rare, although it will be more common in the coming years.

Greenview Hotel Footprinting Tool, Cornell Hotel Sustainability Benchmarking Index (CHSB)
- Used when no direct hotel data is available
- https://www.hotelfootprints.org/

Hotel Carbon Measurement Initiative (HCMI)

The Hotel Carbon Measurement Initiative (HCMI) is run by the Sustainable Hospitality Alliance (SHA) and provides a consistent methodology & tool which hotels use to measure their carbon emissions. In particular, the tool gives an output of:

- Carbon footprint per occupied room on a daily basis;
- Carbon footprint per area of meeting space on an hourly basis.

Unlike other methodologies - such as the CHSB (below) - using HCMI data is the only way to accurately report carbon emissions on a per-property basis.

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Scope of the HCMI Calculation

The Sustainable Hotel Alliance describes the HCMI calculation's scope as:

"The methodology includes all energy used 'on site' (including fuels such as natural gas, oil and other fuels, purchased electricity, and mobile fuels from vehicles and other equipment). It also includes, if applicable, carbon emissions from outsourced operations (e.g. laundry)."

https://sustainablehospitalityalliance.org/resource/hotel-carbon-measurement-initiative/

Greenview Hotel Footprinting Tool, Cornell Hotel Sustainability Benchmarking Index (CHSB)

When we do not have a hotel's HCMI calculation available we will fall back to the Greenviews Hotel Footprinting Tool, based on the Cornell Hotel Sustainability Benchmarking Initiative. This is an annual study that takes the HCMI data from over 20,000 hotels around the world. It is the only study of its kind and is considered the best-in-class for calculating hotel carbon emissions within a region.

Scope of the CHSB

The CHSB takes HCMI data, and therefore covers many of the data points discussed above.

Outputs from the CHSB

The CHSB provides sustainability data for a country/state/city. In addition, this data is sometimes broken down by hotel quality. For these segmentations, the following outputs are provided:

- Carbon footprint of a 1 room-night stay
  - This takes into account the hotel's occupancy
- Annual carbon footprint for a hotel divided by number of rooms
  - This is a cruder measure that does not consider the hotel's occupancy
- Annual carbon footprint for a hotel divided by the number of occupied rooms
- Annual carbon footprint of a hotel by square foot & square meter
- Carbon footprint of a hotel's meeting room, per square meter, per hour

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Hotel - Information available at point of sale

Travelers/Bookers will see a variety of data points on the results screen, to empower them to make sustainable hotel choices.

Emissions per night

Using the methodology/ies outlined below, travelers/bookers can expect to see a CO2e amount alongside all of the hotel properties.

Score

Many travellers would like to be able to directly compare the sustainability of different hotels in the same city, but with the data sets available in the hotel industry, this isn't always possible. With each hotel property, SAP Concur will display the Thrust Carbon - Hotel Sustainability Index score.

This scoring system takes into account as much sustainability information as possible for a hotel. It includes both hard information (such as HCMI or CHSB numbers), and soft information (such as net zero plans). The information factored into the scoring system includes:

Building Certifications
- These are certifications that measure the sustainability of a building's construction, not the hotel's operations. These certifications are factored into the Hotel Sustainability Index, but not as prominently as a hotel certification (above), and they do not classify a hotel as 'eco-certified' or 'sustainable'. These certifications currently include LEED, EnergyStar, high EPC scores within Europe, and others.

Hotel Certifications
- Thrust Carbon only uses hotel certifications that are shown to have a third-party audit, or have been recognised by the Global Sustainable Tourism Council (GSTC) for meeting their stringent methodology requirements. This list includes all GSTC certifications and certifications on [Travalyst's list of approved hotel certifications](#), (please contact Thrust Carbon for the current full list of recognised certifications).

Carbon Emissions

- Hotel Carbon Measurement Index (HCMI) data (see more details above)
- Greenview Hotel Footprinting Tool (GHFT), based on Cornell Hotel Sustainability Benchmarking Index (CHSB) data (see more details above)

Sustainability Initiatives at Organisation Level (Hotel Chains Only)

- A hotel chain's net-zero initiatives
- A hotel chain & brand's progress towards phasing out single-use plastics
- Specific sustainability initiatives: Waste diversion, LED light bulb replacement, Smart air conditioning, Non-daily laundry initiatives, Green energy generation and use
- Any other sustainability initiative reported

Thrust Carbon rates each item dynamically based on its impact and importance to sustainability for a chain or independent hotel.

Questions about the methodology?

SAP Concur and Thrust Carbon want you to have complete confidence in the methodologies applied to the data you see when using SAP Concur. If you have any questions, please contact SAP Concur support using the contact details on this page:

https://www.concur.com/en-us/contact-v2

Third party limited assurance on Thrust Carbon emission calculations for air, rail, and car has been conducted by LRQA in accordance with ISO 14083.

LRQA
CERTIFIED

ISO 14083