



# Carbon Emissions Calculator

## *Inputs that create the total flight emissions base*

### European Emissions Agency Base Estimations

- Request per Aircraft / Equipment Type
  - Some data lag (study date and publishing timelines)
  - New aircraft type estimated off available industry “savings” or manufacturer sourced estimates until permanent data becomes available
- Request includes elapsed time in minutes: Scheduled departure to scheduled arrival, so that the full emissions cycle is included:
  1. Taxi
  2. Takeoff
  3. Ascent
  4. Cruising
  5. Descent
  6. Landing
  7. Taxi

In our calculation, inputs are normalized for “shorter” and “longer” flights and then calculated at a per-minute emissions estimate to generate a total estimate per flight.

### Additional ITS Carbon Emissions ‘input variables’ (per Request)

- Optional request inputs:
  - Operating airline code - Airline specific estimates if data can be produced that might otherwise merit consideration vs the EEA study for a specific aircraft and engine type configuration
  - Flight Number - Alternate fuels (input as provided per airline, per specific flight)



## *Inputs to calculate the estimated amount per seat*

### **Capacity estimate assumptions - Effectively, total seats on plane**

- Economy seats, Premium, Business, and/or First Class
- First has an approximate 2 1/2 times greater usage of the allocated space or standard Main cabin equivalent per seat

Airline specific capacity adjustment inputs are welcomed as an input to ITS.

### **Load Factor - How many people “should” be on the flight to create a more estimate per person?**

- Seasonality - Peak demand, such as holiday travel periods are assumed to have 90% load factor multiplier - Off Peak 70%, load factor
- Time of Day - 8:00am - 9:30am & 4:00pm - 6:30pm - Both time bands operate at assumed “time of day” peak load levels
- Origin & Destination cities – Used to estimate current COVID travel load factor differences between International and Domestic markets

Airline specific inputs on historical load factor trends and future estimates per flight number are welcomed and encouraged.

### **Estimates Provided per NGS Shelf (Cabin)**

- Basic & Main - Same base multiplier
- Premium
- Business
- First
- Lie-Flat First