

## QAS certified calculation methodologies for clear.eco

**Data sources used for emissions factors:** 2023 BEIS tCO<sub>2</sub>e including emissions for the extraction, processing and production of fuels, their transport disposal and other activities not directly present at point of use, where available.



Both business and personal online offset products use the same methodologies for calculation.

### Flights

- All distance calculations are made using Great Circle calculations between actual airport lat/ long coordinates
- RFI 1.7 and 8% distance uplift for ATC routings and holding are used by default as recommended by the QAS
- International emissions factors are used which average out the efficiencies achieved on short, medium and long haul flights; economy flights under 1000km use domestic factors

### Car/ van/ motorcycle

- Uplift of 22% is included over and above manufacturer's data to allow for real world conditions.
- Figures for Plugin Hybrid Electric Vehicles (PHEV) and Battery Electric Vehicles (BEV) are calculated from energy calculations using fuel and country-specific emission factors for electricity and include t&d losses and WTT factors.

### Energy

- Natural gas uses gross CV figure for kWh conversion
- Domestic factors are used for coal
- Diesel & petrol/ gasoline use average biofuel blend as appropriate

### Commuting

- Our default working year of 220 working days per year is based on 253 minus 8 days of public holidays and 25 days of annual leave. This can be changed as required.

### International electricity factors

- International electricity emissions factors are based on the 2022 AIB residual mix factors for European countries and Climate Transparency 2022 dataset for non-European countries except the UK which is based on BEIS figures. WTT for generation and t&d are included.

### Internet

- Emails based on typical daily numbers of emails received/ sent by office workers and expected split into spam and with/ without attachments (Radicati, Mike Berners-Lee)
- Streaming figures based typical data usage for TV services (via CDN networks), 4K video, Zoom video, Skype video and music/ podcasts and kWh/ GB figures (Pihkola, Wandera, AndroidCentral) using country-specific grid intensities (see above). Additional data works in the same way.
- OS/ App updates are based on typical operating system & app update downloads for a device connected by Wifi.

### Skydiving

- The calculator uses load factors and reported fuel consumption figures from British Parachute Association (BPA) jump schools. The standard AvGas CO<sub>2</sub>e figures are used, combined with the capacity of the planes and the average reported load factors.

### Balloon flights

- Based on 100L LPG and 40 mile retrieval round trip in average diesel van per hour of balloon flight
- Includes adjustment for fuel distribution (WTT)

### Offline Business Carbon Footprint audit tools

- Methodology described under the Definitions tab of the tool itself

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