Department for
Business, Energy
& Industrial Strategy

# 2020 Government greenhouse gas conversion factors for company reporting

## Major changes to the conversion factors

July 2020



Any enquiries regarding this publication should be sent to Climatechange.Statistics@beis.gov.uk.

This document has been produced by Nikolas Hill, Rebekah Bramwell, Eirini Karagianni (Ricardo Energy & Environment) and Billy Harris (WRAP) for the Department for Business Energy & Industrial Strategy (BEIS).

# 1. Major Changes to the Conversion Factors

The following table provides a summary of major changes in conversion factors for the 2020 Greenhouse Gas (GHG) Conversion Factors, compared to the equivalent factors provided in the 2019 GHG Conversion Factors, and a short explanation for the reason for the change. We have considered major changes to be those greater than 5% for Scope 1 and 2 emission sources (applies to most fuel and electricity sources) and greater than 10% for Scope 3 (applies to most other emission sources). Please refer to the Glossary section at the end of this document for any acronyms used in the table below.

| Ref. number | Emission factor | GHG | Unit (all units are $kgCO_2e$ per "unit" of GHG, unless stated) | Magnitude of change vs 2019 update | Reason for change | For more information see relevant section in methodology report: |
|---|---|---|---|---|---|---|
| **Fuels** | | | | | | |
| 1 | Liquified Petroleum Gas (LPG) | $CH_4$ | All | 10 to 14% | Emission factors are calculated as a weighted average across all users. LPG emission factors are most sensitive to changes in the factors implied by the offshore combustion sector which saw trends shift between 2017/18. There has also been a slight change to the compositional assumptions behind the LPG calculations. | Section 2 |
| 2 | Diesel (average biofuel blend) | $CH_4$ | tonnes and litres | -17% | Improvements due to penetration of Euro VI vehicles for most road transport modes - in line with the recent trend amongst the road transport sources from previous years as a result of this continued turnover (proportionally more vehicles which emit less $CH_4$ per km). | Section 2 |
| 3 | Diesel (average biofuel blend) | $CH_4$ | kWh (net and gross CV) | 0% to -33% | Improvements due to penetration of Euro VI vehicles for most road transport modes - in line with the recent trend amongst the road transport sources from previous years as a result of this continued turnover (proportionally more vehicles which emit less $CH_4$ per km). This has had the effect of reducing emissions by 17%. However, rounding of the small kWh factor has skewed this reduction in $CH_4$ emissions. | Section 2 |

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|---|---|---|---|---|---|---|
| 4 | Diesel (100% mineral diesel) | $CH_4$ | tonnes and litres | -17% | Improvements due to penetration of Euro VI vehicles for most road transport modes - in line with the recent trend amongst the road transport sources from previous years as a result of this continued turnover (proportionally more vehicles which emit less $CH_4$ per km). | Section 2 |
| 5 | Diesel (100% mineral diesel) | $CH_4$ | kWh (net and gross CV) | 0% to -33% | Improvements due to penetration of Euro VI vehicles for most road transport modes - in line with the recent trend amongst the road transport sources from previous years as a result of this continued turnover (proportionally more vehicles which emit less $CH_4$ per km). This has had the effect of reducing emissions by 17%. However, rounding of the small kWh factor has skewed this reduction in $CH_4$ emissions. | Section 2 |
| 6 | Petrol (average biofuel blend) | $N_2O$ | tonnes and litres | -5% | Continued fleet turnover to less polluting engines which reduces the overall $N_2O$ emissions. | Section 2 |
| 7 | Waste oils | $CH_4$ and $N_2O$ | kWh | -7% and -5% | Changed from using the fuel oil density and calorific values, to gas oil, to be more in line with the underlying NAEI database, as indications are that waste oils included in the NAEI are more similar to gas oil than fuel oil. | Section 2 |
| 8 | Marine gas oil | $CH_4$ | kWh gross CV | -14% | Rounding of a very small number has caused a large percentage change compared to last year. Actual change, before rounding, is close to around 2%. | Section 2 |
| 9 | Coal (industrial) | $CH_4$ | All | 40% | The factor is calculated as a weighted average across all users (excluding domestic and power stations. The change to the relative proportions of the different coal users impacts on the weighted average factor. | Section 2 |
| 10 | Coal (industrial) | $N_2O$ | All | -17% | The factor is calculated as a weighted average across all users (excluding domestic and power stations. The change to the relative proportions of the different coal users impacts on the weighted average factor. | Section 2 |

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|---|---|---|---|---|---|---|
| 11 | Coal (electricity generation) | $CH_4$ and $N_2O$ | tonnes | -5% | The CV used to calculate the EF on a mass basis has changed from using DUKES data to using data from ETS for consistency with the data for carbon. | Section 2 |
| 12 | Coal (domestic) | All | tonnes | 5% | The CV used in the NAEI for domestic coal use has been revised to smooth an apparent inconsistency in the time series. This impacts on the EF on a mass basis as this is calculated from the energy-based EF. | Section 2 |
| 13 | Coal (electricity generation - home produced coal only) | $N_2O$ | All | -5% | Revision to the time-series of coal calorific values in DUKES means that the time-series averaged NCV/GCV ratio has changed. There are also wholesale changes to coal use in other industrial combustion, and in related sectors. | |
| **Bioenergy** | | | | | | |
| 14 | Biodiesel (all types) | $CO_2e$ | All | 422% | Now accounting for fossil component of biodiesel to align with NAEI estimates; Based on stoichiometric analysis of chemical compounds (using C content to derive CEF). An assumption applied is that the methanol components of FAME and MTBE are fossil based. | Section 9 |
| 15 | Grass/straw | $CO_2e$ | All | 84% | The emission factor is calculated as a weighted average for all uses, recalculations reflect the differing proportions allocated to each user in a given year. This year there has been an increase in the amount of straw used in agriculture stationary combustion which has a higher emission factor and a decrease of the straw used in power stations which has a lower emission factor. Driven by a revision to the activity estimates for power stations. | Section 9 |
| **Refrigerants and other** | | | | | | |
| No changes | | | | | | Section 4 |

| Ref. number | Emission factor | GHG | Unit (all units are kg$CO_2e$ per "unit" of GHG, unless stated) | Magnitude of change vs 2019 update | Reason for change | For more information see relevant section in methodology report: |
|---|---|---|---|---|---|---|
| **Passenger Vehicles** | | | | | | |
| 16 | Motorbike - large | $CH_4$ | km and miles | -11% | Emissions are reducing as more recent Euro standards (with lower EFs) penetrate into the fleet and the higher polluting earlier Euro standards are now reducing (in terms of share of vkm). | Section 5 |
| 17 | Cars (by segment): all, Diesel | $CH_4$ | km | -19% | Large change to a small number but downward trend is as expected, due to penetration of later Euro standards in the fleet with lower EFs. Change not reflected in the EF for miles due to rounding of small numbers. | Section 5 |
| 18 | Cars (by segment): Executive/Luxury, Unknown fuel | $CH_4$ | km and miles | -13% | As above | Section 5 |
| 19 | Cars (by segment): Dual purpose, Unknown fuel | $CH_4$ | km | 14% | Changed due to a greater proportion of petrol vehicles compared with last year. | Section 5 |
| 20 | Cars (by size): all, Diesel | $CH_4$ | km | -19% | Large change to a small number but downward trend is as expected, due to penetration of later Euro standards in the fleet with lower EFs. | Section 5 |
| 21 | Cars (by size): large, Hybrid | $CH_4$ | km | -11% | As above | Section 5 |
| 22 | Cars (by size): large, Hybrid | $CO_2$ | km and miles | 10% | Genuine trends in SMMT raw data values; g$CO_2$/km are lower and new registrations for large hybrid cars are higher compared with last year | Section 5 |
| 23 | Cars (by size): large, Unknown | $CH_4$ | km | -11% | Large change to a small number but downward trend is as expected, due to penetration of later Euro standards in the fleet with lower EFs. | Section 5 |
| 24 | Cars (by segment) - Supermini Plug-in Hybrid Electric Vehicle (PHEV) | $CO_2$ and $CO_2e$ | km and miles | -24% | Methodology improvement for supermini, in the small category which resulted in a reduced emission factor. | Section 5 |

| Ref. number | Emission factor | GHG | Unit (all units are kg$CO_2e$ per "unit" of GHG, unless stated) | Magnitude of change vs 2019 update | Reason for change | For more information see relevant section in methodology report: |
|---|---|---|---|---|---|---|
| 25 | Cars (by segment) - Supermini Plug-in Hybrid Electric Vehicle (PHEV) | $CH_4$ | km and miles | -22% | As above | Section 5 |
| 26 | Cars (by segment) - Supermini Plug-in Hybrid Electric Vehicle (PHEV) | $N_2O$ | km and miles | -25% | As above | Section 5 |
| 27 | Cars (by size) - Small Plug-in Hybrid Electric Vehicle (PHEV) | $CO_2$ and $CO_2e$ | km and miles | -24% | As above | Section 5 |
| 28 | Cars (by size) - Small Plug-in Hybrid Electric Vehicle (PHEV) | $CH_4$ | km and miles | -22% | As above | Section 5 |
| 29 | Cars (by size) - Small Plug-in Hybrid Electric Vehicle (PHEV) | $N_2O$ | km and miles | -25% | As above | Section 5 |
| **Delivery vehicles** | | | | | | |
| 30 | HGVs (all diesel)- All | $CH_4$ | km and miles | -25% to -11% | Due to more recent Euro standards (with lower EF) penetrating into the fleet | Section 6 |
| 31 | HGVs refrigerated (all diesel)- All | $CH_4$ | km and miles | -25% to -11% | As above | Section 6 |
| 32 | HGVs (all diesel)- Rigid- All | $N_2O$ | km and miles | -21% to -18% | 4% difference in the underlying NAEI database for $N_2O$ for rigids, due to more recent Euro standard (equipped with NOx aftertreatment, i.e. with higher $N_2O$ EFs) penetrating the fleet. The 2019 factor has been revised since the initial publication, the % difference here presents the change from the original data. | Section 6 |
| 33 | HGVs refrigerated (all diesel)- Rigid- All | $N_2O$ | km and miles | -21% to -18% | As above | Section 6 |

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|---|---|---|---|---|---|---|
| 34 | HGVs (all diesel)- Artics- All | $N_2O$ | km and miles | 16% | 2% difference in the underlying NAEI database for articulated HGVs. This is due to later Euro standard (equipped with NOx aftertreatment, i.e. with higher $N_2O$ EFs) penetrating into the fleet. Difference also between the revised 2019 factor set has caused a larger % difference. | Section 6 |
| 35 | HGVs refrigerated (all diesel)- Artics- All | $N_2O$ | km and miles | | As above | Section 6 |
| 36 | Petrol Vans- Class I and III | $CO_2$ and $CO_2e$ | km and miles | -13% to -11% | Combination of reasons, changes in the NAEI $CO_2$ factor due to more recent Euro standards with lower EFs that penetrate into the fleet and genuine trend in raw data (the 6-year weighted average of g $CO_2$/km for petrol Class I & III is lower than last year's average) | Section 6 |
| 37 | Petrol Vans- All classes | $N_2O$ | km and miles | -20% to -19% | General decrease expected as more recent euro standards with lower EFs penetrate into fleet. | Section 6 |
| 38 | Diesel Vans- All classes | $CH_4$ | km | -100% | General decrease expected as more recent euro standards with lower EFs penetrate the fleet. The rounding (to 5 decimal places) of a very small number has caused the km figure to change to zero (causing a 100% difference) and changed the difference for miles to be 0%. Actual difference, before rounding, for all vans $CH_4$ is -26% | Section 6 |
| 39 | CNG Vans- Average class | $N_2O$ | km and miles | -21% to -20% | Expect a general decrease as more recent Euro standard (with low EFs) penetrate the fleet. | Section 6 |
| 40 | LPG Vans- Average class | $N_2O$ | km and miles | -21% to -20% | As above | Section 6 |
| **UK Electricity** | | | | | | |
| 41 | UK Electricity | $CO_2e$ and $CO_2$ | kWh | -9% | There was a significant decrease in coal generation, and an increase in renewable and nuclear generation since the previous year. | Section 3 |
| 42 | UK Electricity | $CH_4$ | kWh | 11% | Increase in municipal solid waste incineration which has higher $CH_4$ emissions. | Section 3 |

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| **UK electricity for EVs** | | | | | | |
| 43 | Cars (by segment) - All-Plug-in Hybrid Electric Vehicle (PHEV) | $CO_2$ and $CO_2e$ | km and miles | -53% to -18% | The combined result of a reduction in UK electricity emissions and changes to the calculation methodology. | Section 5 |
| 44 | Cars (by segment) - Lower medium, Upper medium, Executive, Luxury, Sports, Dual purpose 4X4, MPV - Plug-in Hybrid Electric Vehicle (PHEV) | $CH_4$ | km and miles | -45% to -18% | As above | Section 5 |
| 45 | Cars (by segment) - Lower medium, Upper medium, Executive, Luxury, Sports, Dual purpose 4X4, MPV - Plug-in Hybrid Electric Vehicle (PHEV) | $N_2O$ | km and miles | -50% to -28% | As above | Section 5 |
| 46 | Cars (by segment) - Dual purpose 4X4 - Battery Electric Vehicle (BEV) | $CO_2$ and $CO_2e$ | km and miles | -12% | Due to the reduction in UK electricity emissions compared to 2019. | Section 5 |
| 47 | Cars (by segment) - Mini, Supermini, Lower medium, Luxury, MPV - Battery Electric Vehicle (BEV) | $CH_4$ | km and miles | 13% to 21% | Due to the reduction in UK electricity emissions compared to 2019. The $CH_4$ emissions of electricity have increased, but the large difference is due to rounding (5 decimal places) of a very small number. | Section 5 |
| 48 | Cars (by size) - All- Plug-in Hybrid Electric Vehicle (PHEV) | $CO_2$ and $CO_2e$ | km and miles | -43% to -18% | The combined result of a reduction in UK electricity emissions and changes to the calculation methodology. | Section 5 |

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|---|---|---|---|---|---|---|
| 49 | Cars (by size) - Medium, Large, Average- Plug-in Hybrid Electric Vehicle (PHEV) | $CH_4$ | km and miles | -33% to -20% | As above | Section 5 |
| 50 | Cars (by size) - Medium, Large, Average- Plug-in Hybrid Electric Vehicle (PHEV) | $N_2O$ | km and miles | -37% to -31% | As above | Section 5 |
| 51 | Cars (by size) - All - Battery Electric Vehicle (BEV) | $CH_4$ | km and miles | 11% to 14% | Due to the change in UK electricity emissions compared to 2019. The $CH_4$ emissions of electricity have increased, but the large difference is due to rounding (5 decimal places) of a very small number. | Section 5 |
| 52 | Vans - All- Battery Electric Vehicle (BEV) | $CO_2$ and $CO_2e$ | tonne.km | -33% to -13% | Decrease reflects change in 2020 data for average load capacity. Also due to changes in the electricity emission factors. | Section 6 |
| 53 | Vans - All- Battery Electric Vehicle (BEV) | $CH_4$ | tonne.km, km and miles | -19% to 14% | As above | Section 6 |
| 54 | Vans - Class I, II and Average- Battery Electric Vehicle (BEV) | $N_2O$ | tonne.km | -25% to -18% | As above | Section 6 |
| **Heat and Steam** | | | | | | |
| No changes | | | | | | Section 3 |
| **Well-to-tank (WTT) - fuels** | | | | | | |
| 55 | Coal (domestic) | $CO_2e$ | tonnes | 9% | The CV used in the NAEI for domestic coal use has been revised to smooth an apparent inconsistency in the time series. This impacts on the EF on a mass basis as this is calculated from the energy-based EF. | Section 2 |

| Ref. number | Emission factor | GHG | Unit (all units are kg$CO_2e$ per "unit" of GHG, unless stated) | Magnitude of change vs 2019 update | Reason for change | For more information see relevant section in methodology report: |
|---|---|---|---|---|---|---|
| **WTT - bioenergy** | | | | | | |
| 56 | Biodiesel (from Tallow) | $CO_2e$ | All | 26% | Due to changes to the carbon intensity in the underlying raw data from the DfT (RTFO 05 table). | Section 9 |
| **Transmission and distribution (T&D)** | | | | | | |
| 57 | UK Electricity T&D Losses | $CO_2e$ and $CO_2$ | kWh | -8% | Decreased losses from the grid, coupled with lower emissions from generation. | Section 3 |
| 58 | UK Electricity T&D Losses | $CH_4$ | kWh | 20.0% | The burning of municipal solid waste for power generation has increased compared to last year which has higher $CH_4$ emissions. Also, the impact of rounding of a very small number. Actual change before rounding is 12%. | Section 3 |
| **UK electricity T&D for EVs** | | | | | | |
| 59 | Cars (by segment) - All-Plug-in Hybrid Electric Vehicle (PHEV) | $CO_2$ and $CO_2e$ | km and miles | -53% to -17% | Due to revised methodology on the efficiency (Wh/km) factors and changes in the UK electricity emission factors | Section 5 |
| 60 | Cars (by segment) - Sports - Plug-in Hybrid Electric Vehicle (PHEV) | $CH_4$ | km and miles | -100% | Rounding of a very small number has led to a 100% decrease. | Section 5 |
| 61 | Cars (by segment) - Lower medium, Upper medium, Executive, Luxury, Sports, Dual purpose 4X4 - Plug-in Hybrid Electric Vehicle (PHEV) | $N_2O$ | km and miles | -67% to -33% | Due to revised methodology on the efficiency (Wh/km) factors and changes in the UK electricity emission factors, coupled with rounding of small numbers. | Section 5 |
| 62 | Cars (by segment) - Dual purpose 4X4 - Battery Electric Vehicle (BEV) | $CO_2$ and $CO_2e$ | km and miles | -11% | Due to the reduction in UK electricity emissions compared to 2019. | Section 5 |

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|---|---|---|---|---|---|---|
| 63 | Cars (by segment) - Supermini, Upper medium, Luxury, Dual purpose 4X4, MPV - Battery Electric Vehicle (BEV) | $CH_4$ | km and miles | 50% to 100% | Due to the reduction in UK electricity emissions compared to 2019. The $CH_4$ emissions of electricity have increased, but the large difference is due to rounding (5 decimal places) of a very small number. | Section 5 |
| 64 | Cars (by segment) - Lower medium, Dual purpose 4X4, MPV - Battery Electric Vehicle (BEV) | $N_2O$ | km and miles | -17% to 50% | Due to the reduction in UK electricity emissions compared to 2019. The large difference seen for $N_2O$ is a result of rounding (5 decimal places). | Section 5 |
| 65 | Cars (by size) - All- Plug-in Hybrid Electric Vehicle (PHEV) | $CO_2$ and $CO_2e$ | km and miles | -42 to -17% | Due to revised methodology on the efficiency (Wh/km) factors and changes in the UK electricity emission factors | Section 5 |
| 66 | Cars (by size) - Medium, Large and Average-Plug-in Hybrid Electric Vehicle (PHEV) | $N_2O$ | km and miles | -50% to -33% | As above | Section 5 |
| 67 | Cars (by size) - Small and Large - Battery Electric Vehicle (BEV) | $CH_4$ | km and miles | 50% to 100% | Due to the reduction in UK electricity emissions compared to 2019. The $CH_4$ emissions of electricity have increased, but the large difference is due to rounding (5 decimal places) of a very small number. | Section 5 |
| 68 | Cars (by size) - Medium and Small - Battery Electric Vehicle (BEV) | $N_2O$ | km and miles | 33% to 50% | Due to the small increase in UK electricity emissions for $N_2O$ compared to 2019. The large difference seen for $N_2O$ is a result of rounding (5 decimal places). | Section 5 |
| 69 | Vans - All- Battery Electric Vehicle (BEV) | $CO_2$ and $CO_2e$ | tonne.km | -32% to -12% | Decrease reflects change in 2020 data for average load capacity. Also due to changes in the electricity emission factors. | Section 5 |
| 70 | Vans - Class I and III-Battery Electric Vehicle (BEV) | $CH_4$ | tonne.km | -17% to 20% | As above | Section 5 |

| Ref. number | Emission factor | GHG | Unit (all units are kg$CO_2e$ per "unit" of GHG, unless stated) | Magnitude of change vs 2019 update | Reason for change | For more information see relevant section in methodology report: |
|---|---|---|---|---|---|---|
| 71 | Vans - Class I and III- Battery Electric Vehicle (BEV) | $N_2O$ | tonne.km | -29% to -19% | As above | Section 5 |
| **WTT- UK elec** | | | | | | |
| 72 | WTT UK Electricity | $CO_2e$ | kWh | -10% | There was a significant decrease in coal generation, and an increase in renewable and nuclear generation since the previous year. | Section 3 |
| 73 | WTT UK Electricity T&D Losses | $CO_2e$ | kWh | -9% | As above. | Section 3 |
| **WTT- overseas electricity (generation)** | | | | | | |
| 74 | WTT- overseas electricity (generation) - Electricity: France | kg $CO_2e$ | kWh | -49% | Reflects trend in electricity conversion factor as reported by RTE. | Section 10 |
| 75 | WTT- overseas electricity (generation) - Electricity: Ireland | kg $CO_2e$ | kWh | -13% | Reflects trend in electricity conversion factor as reported by SEAI. | Section 10 |
| 76 | WTT- overseas electricity (generation) - Electricity: Netherlands | kg $CO_2e$ | kWh | -12% | Reflects trend in electricity conversion factor as reported by CBS. | Section 10 |
| **WTT- overseas electricity (T&D)** | | | | | | |
| 77 | WTT T&D losses - Electricity: Belgium | $CO_2e$ | kWh | -11% | Driven by a reduction in T&D losses and a ~ 6-7% reduction in WTT emissions | Section 10 |
| 78 | WTT T&D losses - Electricity: Brazil | $CO_2e$ | kWh | -10% | Driven by a reduction in T&D losses and a ~ 6-7% reduction in WTT emissions | Section 10 |
| 79 | WTT T&D losses - Electricity: Bulgaria | $CO_2e$ | kWh | -12% | Driven by a reduction in T&D losses and a ~ 6-7% reduction in WTT emissions | Section 10 |
| 80 | WTT T&D losses - Electricity: Croatia | $CO_2e$ | kWh | -13% | Driven by a reduction in T&D losses and a ~ 6-7% reduction in WTT emissions | Section 10 |

| Ref. number | Emission factor | GHG | Unit (all units are kg$CO_2e$ per "unit" of GHG, unless stated) | Magnitude of change vs 2019 update | Reason for change | For more information see relevant section in methodology report: |
|---|---|---|---|---|---|---|
| 81 | WTT T&D losses - Electricity: Cyprus | $CO_2e$ | kWh | -22% | Driven by a reduction in T&D losses and a ~ 6-7% reduction in WTT emissions | Section 10 |
| 82 | WTT T&D losses - Electricity: Denmark | $CO_2e$ | kWh | -18% | Driven by a reduction in T&D losses and a ~ 6-7% reduction in WTT emissions | Section 10 |
| 83 | WTT T&D losses - Electricity: France | $CO_2e$ | kWh | -46% | Large decrease in French electricity factor compared to previous year | Section 10 |
| 84 | WTT T&D losses - Electricity: Gibraltar | $CO_2e$ | kWh | -10% | Driven by a reduction in T&D losses and a ~ 6-7% reduction in WTT emissions | Section 10 |
| 85 | WTT T&D losses - Electricity: Greece | $CO_2e$ | kWh | -74% | Losses have decreased substantially, comparared to the 2019 update | Section 10 |
| 86 | WTT T&D losses - Electricity: Hungary | $CO_2e$ | kWh | -13% | Driven by a reduction in T&D losses and a ~ 6-7% reduction in WTT emissions | Section 10 |
| 87 | WTT T&D losses - Electricity: India | $CO_2e$ | kWh | -11% | Driven by a reduction in T&D losses and a ~ 6-7% reduction in WTT emissions | Section 10 |
| 88 | WTT T&D losses - Electricity: Indonesia | $CO_2e$ | kWh | -14% | Driven by a reduction in T&D losses and a ~ 6-7% reduction in WTT emissions | Section 10 |
| 89 | WTT T&D losses - Electricity: Ireland | $CO_2e$ | kWh | -12% | Driven by a reduction in T&D losses and a ~ 13% reduction in WTT emissions | Section 10 |
| 90 | WTT T&D losses - Electricity: Israel | $CO_2e$ | kWh | -12% | Driven by a reduction in T&D losses and a ~ 6-7% reduction in WTT emissions | Section 10 |
| 91 | WTT T&D losses - Electricity: Japan | $CO_2e$ | kWh | -17% | Driven by a reduction in T&D losses and a ~ 6-7% reduction in WTT emissions | Section 10 |
| 92 | WTT T&D losses - Electricity: Malta | $CO_2e$ | kWh | -52% | Driven by a significant reduction in T&D losses and a ~ 6-7% reduction in WTT emissions | Section 10 |
| 93 | WTT T&D losses - Electricity: Netherlands | $CO_2e$ | kWh | -12% | Driven by a reduction in T&D losses and a ~ 12% reduction in WTT emissions | Section 10 |
| 94 | WTT T&D losses - Electricity: New Zealand | $CO_2e$ | kWh | -12% | Driven by a reduction in T&D losses and a ~ 6-7% reduction in WTT emissions | Section 10 |

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|---|---|---|---|---|---|---|
| 95 | WTT T&D losses - Electricity: Philippines | $CO_2e$ | kWh | -11% | Driven by a reduction in T&D losses and a ~ 6-7% reduction in WTT emissions | Section 10 |
| 96 | WTT T&D losses - Electricity: Romania | $CO_2e$ | kWh | -11% | Driven by a reduction in T&D losses and a ~ 6-7% reduction in WTT emissions | Section 10 |
| 97 | WTT T&D losses - Electricity: Russian Federation | $CO_2e$ | kWh | -10% | Driven by a reduction in T&D losses and a ~ 6-7% reduction in WTT emissions | Section 10 |
| 98 | WTT T&D losses - Electricity: Saudi Arabia | $CO_2e$ | kWh | 12% | T&D losses have increased compared to the previous year. | Section 10 |
| 99 | WTT T&D losses - Electricity: Singapore | $CO_2e$ | kWh | -39% | Driven by a significant reduction in T&D losses and a ~ 6-7% reduction in WTT emissions | Section 10 |
| 100 | WTT T&D losses - Electricity: Slovak Republic | $CO_2e$ | kWh | -14% | Driven by a reduction in T&D losses and a ~ 6-7% reduction in WTT emissions | Section 10 |
| 101 | WTT T&D losses - Electricity: Turkey | $CO_2e$ | kWh | -16% | Driven by a reduction in T&D losses and a ~ 6-7% reduction in WTT emissions | Section 10 |
| 102 | WTT T&D losses - Electricity: Latin America (average) | $CO_2e$ | kWh | -10% | Driven by a reduction in T&D losses and a ~ 6-7% reduction in WTT emissions | Section 10 |
| **WTT- heat and steam** | | | | | | |
| No changes | | | | | | Section 3 |
| **Water supply** | | | | | | |
| No changes | | | | | | Section 9 |
| **Water treatment** | | | | | | |
| No changes | | | | | | Section 9 |
| **Business travel- air** | | | | | | |
| No changes | | | | | | Section 8 |

| Ref. number | Emission factor | GHG | Unit (all units are $kgCO_2e$ per "unit" of GHG, unless stated) | Magnitude of change vs 2019 update | Reason for change | For more information see relevant section in methodology report: |
|---|---|---|---|---|---|---|
| **WTT- Business travel- air** | | | | | | |
| No changes | | | | | | Section 8 |
| **Business travel- sea** | | | | | | |
| No changes | | | | | | Section 7 |
| **WTT- Business travel- sea** | | | | | | |
| No changes | | | | | | Section 7 |
| **Business travel- land** | | | | | | |
| 103 | Motorbike - large | $CH_4$ | km and miles | -11% | Emissions are reducing as more recent Euro standards (with lower Efs) penetrate into the fleet and the higher polluting earlier Euro standards are now reducing (in terms of share of vkm). | Section 5 |
| 104 | Local bus (not London) | $CH_4$ | passenger.km | -33% | Mainly due to decreased emissions as recent Euro standard (with lower EFs) penetrate into the fleet; also affected by increase in bus occupancy according to DfT stats | Section 5 |
| 105 | Average local bus | $CH_4$ | passenger.km | -33% | As above | Section 5 |
| 106 | Coach | $CH_4$ | passenger.km | -50% | As above | Section 5 |
| 107 | Cars by segment: all, Diesel | $CH_4$ | km | -19% | Large change to a small value but downward trend is as expected, due to penetration of later Euro standards into the fleet with lower EFs. | Section 5 |
| 108 | Cars by segment: Executive/Luxury, Diesel | $CH_4$ | km and miles | -13% | As above | Section 5 |
| 109 | Cars (by segment): Dual purpose, Unknown fuel | $CH_4$ | km | 14% | Changed due to a greater proportion of petrol vehicles compared with last year. | Section 5 |
| 110 | Cars by size: all sizes, Diesel | $CH_4$ | km | -19% | Large change to a small number but downward trend is as expected, due to penetration of later Euro standards in the fleet with lower EFs. | Section 5 |

| Ref. number | Emission factor | GHG | Unit (all units are kg$CO_2e$ per "unit" of GHG, unless stated) | Magnitude of change vs 2019 update | Reason for change | For more information see relevant section in methodology report: |
|---|---|---|---|---|---|---|
| 111 | Cars (by size): large, Hybrid | $CH_4$ | km | -11% | As above | Section 5 |
| 112 | Cars (by size): large, Hybrid | $CO_2$ | km and miles | 10% | Trends in SMMT raw data values; g$CO_2$/km are lower and new registrations for large hybrid cars are higher vs last year | Section 5 |
| 113 | Cars (by size): large, Unknown | $CH_4$ | km | -11% | Large change to a small number but downward trend is as expected, due to penetration of later Euro standards into the fleet with lower EFs. | Section 5 |
| 114 | Regular taxi | $CH_4$ | passenger.km and km | 0% | Large change to a small number but downward trend is as expected, due to penetration of later Euro standards into the fleet with lower EFs. | Section 5 |
| 115 | Black cab | $CH_4$ | passenger.km and km | 0% | As above | Section 5 |
| 116 | National rail | $CH_4$ | passenger.km | -14% | This reduction is due to recent improvement work on the NAEI rail emission factors; its impact is reduced since this is combined with data for electric trains. | Section 5 |
| 117 | National rail | $CO_2e$ and $CO_2$ | passenger.km | -10% | The emission factor has reduced due to reductions in the underlying ORR data. | Section 5 |
| 118 | International rail | $CO_2e$ and $CO_2$ | passenger.km | -17% | This emission factor has decreased since last year due to decarbonisation in the grid electricity used for the different route sections. This varies from 1% to 45% depending on source and once combined with passenger numbers, km and kWh/km values this results in a range of 14% to 44%. The emission pulled in for use in this model is a weighted average. | Section 5 |
| 119 | Light rail and tram | $CO_2e$ and $CO_2$ | passenger.km | -15% | Driven by a reduction in electricity emissions and a change of raw data source for Tyne and Wear Metro | Section 5 |
| 120 | London underground | $CO_2e$ and $CO_2$ | passenger.km | -11% | Due to change in data provided by TfL. | Section 5 |

| Ref. number | Emission factor | GHG | Unit (all units are kg$CO_2e$ per "unit" of GHG, unless stated) | Magnitude of change vs 2019 update | Reason for change | For more information see relevant section in methodology report: |
|---|---|---|---|---|---|---|
| 121 | Cars (by segment and size) – All - Plug-in Hybrid Electric Vehicle (PHEV), Battery Electric Vehicle (BEV) | As seen in Passenger vehicles, UK electricity for EVs and UK electricity T&D for EVs | | | | Section 5 |
| **Freighting goods** | | | | | | |
| 122 | Short-haul flights | $CH_4$ | tonne.km | -11% | For combination flights, which carry both passengers and cargo, the passenger: cargo ratios are only available from a 2012 dataset. For aircraft types not present in this dataset a gap filling process is used whereby data are extrapolated from similar aircraft types. Improvements to this process account for a 7.2% reduction in the emission factor. For $CH_4$, a further 3.4% reduction is attributable to the modernisation of the fleet. | Section 8 |
| 123 | HGVs (all diesel)- All | $CH_4$ | tonne.km | -50% to -17% | Due to more recent Euro standards (with lower EF) penetrating into the fleet | Section 6 |
| 124 | HGVs (all diesel)- All | $CH_4$ | km and miles | -27% to 16% | As above | Section 6 |
| 125 | HGVs refrigerated (all diesel)- All | $CH_4$ | tonne.km | -50% to -17% | As above | Section 6 |
| 126 | HGVs refrigerated (all diesel)- All | $CH_4$ | km and miles | -27% to 16% | As above | Section 6 |
| 127 | HGVs (all diesel)- Rigid-All | $N_2O$ | tonne.km | -29% to 3% | 4% difference in the underlying NAEI database for $N_2O$ for rigids, due to more recent Euro standard (equipped with NOx aftertreatment, i.e. with higher $N_2O$ EFs) penetrating into the fleet. The 2019 factor has been revised since the initial publication, the % difference here presents the change from the original data. | Section 6 |
| 128 | HGVs (all diesel)- Rigid-All | $N_2O$ | km and miles | -21% to -18% | As above | Section 6 |

| Ref. number | Emission factor | GHG | Unit (all units are kg$CO_2e$ per "unit" of GHG, unless stated) | Magnitude of change vs 2019 update | Reason for change | For more information see relevant section in methodology report: |
|---|---|---|---|---|---|---|
| 129 | HGVs refrigerated (all diesel)- Rigid- All | $N_2O$ | tonne.km | -29% to 3% | As above | Section 6 |
| 130 | HGVs refrigerated (all diesel)- Rigid- All | $N_2O$ | km and miles | -21% to -18% | As above | Section 6 |
| 131 | HGVs (all diesel)- Artics- All | $N_2O$ | tonne.km | -27% to 14% | 2% difference in the underlying NAEI database for articulated HGVs. This is due to later Euro standard (equipped with NOx aftertreatment, i.e. with higher $N_2O$ EFs) penetrating into the fleet. An error in the 2019 factor set caused a larger % difference. | Section 6 |
| 132 | HGVs (all diesel)- Artics- All | $N_2O$ | km and miles | 14% to 16% | As above | Section 6 |
| 133 | HGVs refrigerated (all diesel)- Artics- All | $N_2O$ | tonne.km | -27% to 14% | As above | Section 6 |
| 134 | HGVs refrigerated (all diesel)- Artics- All | $N_2O$ | km and miles | 14% to 16% | As above | Section 6 |
| 135 | Petrol Vans- Class I and III | $CO_2$ and $CO_2e$ | km and miles | -13% to -11% | General decrease due to more recent Euro standards with lower EFs that penetrate into the fleet. | Section 6 |
| 136 | Petrol Vans- All classes | $N_2O$ | tonne.km, km and miles | -20% to -14% | as above | Section 6 |
| 137 | Diesel Vans- All classes | $CH_4$ | tonne.km and km | -100% to -33% | General decrease expected as more recent Euro standards with lower EFs penetrate into the fleet. The rounding (in 5 decimal places) of a very small number has caused the km figure to change to zero (causing a 100% difference) and changed the difference for miles to 0%. Actual reduction, before rounding, for all vans $CH_4$ is around 20-28%. | Section 6 |
| 138 | CNG Vans- Average class | $N_2O$ | tonne.km, km and miles | -21% to -19% | Expect a general decrease as more recent Euro standard (with low EFs) penetrate into the fleet. | Section 6 |
| 139 | LPG Vans- Average class | $N_2O$ | tonne.km, km and miles | -21% to -19% | as above | Section 6 |

| Ref. number | Emission factor | GHG | Unit (all units are kg$CO_2e$ per "unit" of GHG, unless stated) | Magnitude of change vs 2019 update | Reason for change | For more information see relevant section in methodology report: |
|---|---|---|---|---|---|---|
| 140 | Freight train | $CO_2$ | tonne.km | -23% | This is driven by retrospective revisions in the underlying ORR data. | Section 6 |
| 141 | Freight train | $CH_4$ | tonne.km | -33% | Mainly due to rounding of a very small number | Section 6 |
| 142 | Freight train | $N_2O$ | tonne.km | -26% | This is driven by retrospective revisions in the underlying ORR data. | Section 6 |
| 143 | Freight train | $CO_2e$ | tonne.km | -23% | Reasons provided above for each gas. | Section 6 |
| 144 | Vans – All – Battery Electric Vehicle (BEV) | As seen in Delivery vehicles, UK electricity for EVs and UK electricity T&D for EVs | | | | Section 6 |
| **WTT passenger vehicles & business travel- land** | | | | | | |
| 145 | WTT- Cars by size: Large car, Hybrid | $CO_2e$ | km and miles | 11% | Due to changes in the $CO_2$ factor for large hybrid cars; trends in SMMT raw data values; g$CO_2$/km are lower and new registrations for large hybrid cars are higher compared with last year | Section 5 |
| 146 | WTT – train- International rail | $CO_2e$ | passenger.km | -17% | This is a combination of reductions in the Eurostar emission factor and small changes in WTT share of the total UK grid electricity burden. | Section 5 |
| 147 | WTT – train- Light rail and tram | $CO_2e$ | passenger.km | -16% | Driven by a reduction in electricity emissions and a change of raw data source for Tyne and Wear Metro | Section 5 |
| 148 | WTT- train- London Underground | $CO_2e$ | passenger.km | -12% | This is driven by a combination of changes in raw data provided by TfL and trend in electricity EF. | Section 5 |
| 149 | WTT- Cars (by segment) - Supermini, Upper medium, Executive, Luxury, Sports - Plug-in Hybrid Electric Vehicle (PHEV) | WTT- $CO_2e$ | km and miles | -21% to -10% | The combined result of a reduction in UK electricity emissions and changes to the calculation methodology. | Section 5 |

| Ref. number | Emission factor | GHG | Unit (all units are kg$CO_2e$ per "unit" of GHG, unless stated) | Magnitude of change vs 2019 update | Reason for change | For more information see relevant section in methodology report: |
|---|---|---|---|---|---|---|
| 150 | WTT- Cars (by size) - Small and Large - Plug-in Hybrid Electric Vehicle (PHEV) | WTT-$CO_2e$ | km and miles | -21% to -11% | As above | Section 5 |
| 151 | WTT- Cars (by segment) - Dual purpose 4X4 - Battery Electric Vehicle (BEV) | WTT-$CO_2e$ | km and miles | -13% | Due to the reduction in UK electricity emissions compared to 2019. | Section 5 |
| **WTT delivery vehicles & freighting goods** | | | | | | |
| 152 | WTT- HGVs (all diesel)- Rigid (>7.5 tonnes-17 tonnes) | $CO_2e$ | tonne.km | -13% | See "Freighting goods" tab for reasons | Section 6 |
| 153 | WTT- HGVs refrigerated (all diesel)- Rigid (>7.5 tonnes-17 tonnes) | $CO_2e$ | tonne.km | -13% | As above | Section 6 |
| 154 | WTT - Petrol Vans- Class I and III | WTT-$CO_2e$ | km and miles | -13% to -10% | Combination of reasons, changes in the NAEI $CO_2$ factor due to more recent Euro standards with lower Efs that penetrate into the fleet and genuine trend in raw data (the 6-year weighted average of g $CO_2$/km for petrol Class I & III is lower than last year's average) | Section 6 |
| 155 | WTT- train- Freight train | $CO_2e$ | tonne.km | -23% | This is driven by retrospective revisions in the underlying ORR data. | Section 6 |
| 156 | WTT- vans | WTT-$CO_2e$ | tonne.km | -27% to -14% | Decrease reflects change in 2020 data for average load capacity. Also due to changes in the electricity emission factors. | Section 6 |

| Ref. number | Emission factor | GHG | Unit (all units are kg$CO_2e$ per "unit" of GHG, unless stated) | Magnitude of change vs 2019 update | Reason for change | For more information see relevant section in methodology report: |
|---|---|---|---|---|---|---|
| **Hotel Stay** | | | | | | |
| 157 | Hotel stay | $CO_2e$ | Room per night | '-28% to 60% | Changes in hotel stay factors are due to 1) changes in emission factors of purchased electricity in each country, as the majority of a typical hotel's footprint is from its electricity usage 2) changes in the data set used to generate the median value for each country, as the data set tends to increase in size each year and add more records and 3) changes in weather and occupancy that cause energy load changes in each hotel. Further info can be found here: https://scholarship.sha.cornell.edu/cgi/viewcontent.cgi?article=1270&context=chrpubs | Section 11 |
| **Managed assets- electricity** | | | | | | |
| 158 | See "UK electricity" for reasons for changes | | | | | Section 3 |
| **Managed assets- vehicles** | | | | | | |
| 159 | Motorbike - large | $CH_4$ | km and miles | -11% | Emissions are reducing as more recent Euro standards (with lower EFs) penetrate into the fleet and the higher polluting earlier Euro standards are now reducing (in terms of share of vkm). | Section 5 |
| 160 | Managed cars (by segment): all, Diesel | See equivalent conversion factors in "Passenger vehicles" for reasons for changes | | | | Section 5 |
| 161 | Managed cars (by segment): Executive/Luxury/Dual purpose, Unknown | | | | | Section 5 |
| 162 | Managed cars (by size): all, Diesel | | | | | Section 5 |
| 163 | Managed cars (by size): large, Hybrid | | | | | Section 5 |

| Ref. number | Emission factor | GHG | Unit (all units are kg$CO_2e$ per "unit" of GHG, unless stated) | Magnitude of change vs 2019 update | Reason for change | For more information see relevant section in methodology report: |
|---|---|---|---|---|---|---|
| 165 | Managed cars (by size): large, Unknown | | | | | Section 5 |
| 166 | Managed HGV (all diesel) | See "Delivery vehicles" for changes in km | | | | Section 6 |
| 167 | Managed HGV refrigerated (all diesel) | | | | | Section 6 |
| 168 | Managed cars (by segment and size)- All | As seen in "Business travel – land" | | | | Section 5 |
| 169 | Managed vans | | | | | Section 5 |
| **Outside of scopes** | | | | | | |
| 170 | Diesel (average biofuel blend) | $CO_2$ | All | 27% | The % of biodiesel within forecourt diesel increased | Section 9 |
| **Scope 3: Material use** | | | | | | |
| 171 | Construction, Average construction - Primary material production | $CO_2e$ | tonne | 14% | Improved methodology - soils and mixed waste removed from calculation as should only cover composition of procured materials, not waste. | Section 12 |
| 172 | Construction, Average construction -- Open loop source | $CO_2e$ | tonne | -100% | Removed; open loop covers only materials recovery facility (MRF) reprocessing to material input for a product. Does not correspond to anything for mixed C&D waste | Section 12 |
| 173 | Construction, Wood - Primary material production | $CO_2e$ | tonne | -25% | Improved methodology - now based on EcoInvent data for clarity and transparency | Section 12 |
| 174 | Construction, Wood - Closed-loop source | $CO_2e$ | tonne | 20% | Revised based on new values Wilson (2010) for production of fibreboard | Section 12 |
| 175 | Other, glass - Open-loop source | $CO_2e$ | tonne | -16% | Previous calculation contained an error | Section 12 |

| Ref. number | Emission factor | GHG | Unit (all units are kg$CO_2e$ per "unit" of GHG, unless stated) | Magnitude of change vs 2019 update | Reason for change | For more information see relevant section in methodology report: |
|---|---|---|---|---|---|---|
| 176 | Organic, Compost derived from garden waste - Primary material production | $CO_2e$ | tonne | 608% | Update using new data (Boldrin) - previous numbers did not take account of $CH_4$ or $N_2O$ emissions | Section 12 |
| 177 | Organic, Compost derived from food and garden waste - Primary material production | $CO_2e$ | tonne | 587% | Update using new data (Boldrin) - previous numbers did not take account of $CH_4$ or $N_2O$ emissions | Section 12 |
| 178 | Metal: aluminium cans and foil (excl. forming) - Primary material production | $CO_2e$ | tonne | -29% | Revised to remove forming emissions to bring in line with scope | Section 12 |
| 179 | Metal: aluminium cans and foil (excl. forming) - Closed-loop source | $CO_2e$ | tonne | -67% | As above | Section 12 |
| 180 | Metal: mixed cans - Primary material production | $CO_2e$ | tonne | -21% | Changed due to reduction in aluminium factor (above) | Section 12 |
| 181 | Metal: mixed cans - Closed-loop source | $CO_2e$ | tonne | -30% | As above | Section 12 |
| 182 | Plastics: average plastic rigid - '-Closed-loop source | $CO_2e$ | tonne | 10% | Previous calculation contained an error. | Section 12 |
| 183 | Plastics: PS (incl. forming) - Open-loop source | $CO_2e$ | tonne | -64% | Brought into line with other polymers as open loop covers only MRF sorting, cleaning etc. | Section 12 |
| 184 | Paper and board: board' - Closed-loop source | $CO_2e$ | tonne | -11% | Revised to include latest European Federation of Corrugated Board Manufacturers (FeFco) data | Section 12 |

| Ref. number | Emission factor | GHG | Unit (all units are kg$CO_2e$ per "unit" of GHG, unless stated) | Magnitude of change vs 2019 update | Reason for change | For more information see relevant section in methodology report: |
|---|---|---|---|---|---|---|
| **Waste: Waste disposal** | | | | | | |
| 185 | Construction, Aggregates- Re-use | $CO_2e$ | tonne | -100% | Factors for re-use have been removed. Reuse is not a waste management process and does not fall under the Scope 3 emissions factors for waste disposal. While preparation for re-use is a waste management route, no published data source enables a robust estimate of transport distances (and hence impact) to be made. | Section 12 |
| 186 | Construction, Average construction - Re-use | $CO_2e$ | tonne | -100% | As above | Section 12 |
| 187 | Construction, Average construction - Open-loop | $CO_2e$ | tonne | -26% | The previous figure included some process emissions, whilst it should only include transport related emissions. | Section 12 |
| 188 | Construction, Asbestos - Landfill | $CO_2e$ | tonne | 353% | Revised to account for need for hazardous landfill. | Section 12 |
| 189 | Construction, Asphalt - Re-use | $CO_2e$ | tonne | -100% | Factors for re-use have been removed. Reuse is not a waste management process and does not fall under the Scope 3 emissions factors for waste disposal. While preparation for re-use is a waste management route, no published data source enables a robust estimate of transport distances (and hence impact) to be made. | Section 12 |
| 190 | Construction, Asphalt - Open-loop | $CO_2e$ | tonne | -26% | The previous figure included some process emissions, whilst it should only include transport related emissions. | Section 12 |
| 191 | Construction, Tyres - Re-use | $CO_2e$ | tonne | -100% | Factors for re-use have been removed. Reuse is not a waste management process and does not fall under the Scope 3 emissions factors for waste disposal. While preparation for re-use is a waste management route, no published data source enables a robust estimate of transport distances (and hence impact) to be made. | Section 12 |
| 192 | Construction, Tyres- Open-loop | $CO_2e$ | tonne | -100% | The factor has been removed. Open-loop recycling for tyres is not a valid Scope 3 waste disposal method. | Section 12 |

| Ref. number | Emission factor | GHG | Unit (all units are kg$CO_2e$ per "unit" of GHG, unless stated) | Magnitude of change vs 2019 update | Reason for change | For more information see relevant section in methodology report: |
|---|---|---|---|---|---|---|
| 193 | Construction, Wood - Re-use | $CO_2e$ | tonne | | Factors for re-use have been removed. Reuse is not a waste management process and does not fall under the Scope 3 emissions factors for waste disposal. While preparation for re-use is a waste management route, no published data source enables a robust estimate of transport distances (and hence impact) to be made. | Section 12 |
| 194 | Construction, Wood - Open-loop | $CO_2e$ | tonne | -100% | The factor has been removed. Open-loop recycling for wood is not a valid Scope 3 waste disposal method. | Section 12 |
| 195 | Other, Clothing - Re-use | $CO_2e$ | tonne | -100% | Factors for re-use have been removed. Reuse is not a waste management process and does not fall under the Scope 3 emissions factors for waste disposal. While preparation for re-use is a waste management route, no published data source enables a robust estimate of transport distances (and hence impact) to be made. | Section 12 |
| 196 | Refuse, Municipal waste - Landfill | $CO_2e$ | tonne | -25% | Remodelling based on the most up to date 2017 compositional analysis. | Section 12 |
| 197 | Refuse, Commercial and industrial waste - Landfill | $CO_2e$ | tonne | 359% | Remodelling based on the most up to date 2017 compositional analysis. | Section 12 |
| 198 | Electrical items, Batteries - Open-loop | $CO_2e$ | tonne | -67% | Recycling - old figure based on unclear data and scope. Have reconciled with revised method. | Section 12 |
| 199 | Electrical items, Batteries - Landfill | $CO_2e$ | tonne | 13% | Corrected error; old figure excluded transport to site. | Section 12 |

# Glossary

| Abbreviation | Definition |
|---|---|
| ANPR | Automatic Number Plate Recognition |
| BEV | Battery electric vehicle |
| CAA | Civil Aviation Authority |
| CBS | National Bureau for Statistics in the Netherlands |
| CEF | Carbon emission factor |
| $CH_4$ | Methane |
| CHP | Combined Heat and Power |
| CHPQA | Combined Heat and Power Quality Assurance |
| CNG | Compressed natural gas |
| $CO_2$ | Carbon dioxide |
| DfT | Department for Transport |
| DUKES | Digest of UK Energy Statistics |
| EEA | European Environment Agency |
| EF | Emission factor |
| ETS | Emissions Trading System |
| FAME | Fatty Acid Methyl Ester |
| GCV | Gross calorific value |
| GHG | Greenhouse gas |
| GVW | Gross vehicle weight |
| GWP | Global Warming Potential |
| HGVs | Heavy goods vehicles |
| IPCC | Intergovernmental Panel on Climate Change |
| LCA | Life cycle assessment |
| LGVs | Light goods vehicles |
| LPG | Liquefied petroleum gas |
| MTBE | Methyl tert-butyl ether |
| NAEI | National Atmospheric Emissions Inventory |
| NCV | Net calorific value |
| NEDC | New European Driving Cycle |
| $N_2O$ | Nitrous oxide |
| ORR | Office of Rail and Road |

| | |
|---|---|
| PHEV | Plug-in hybrid electric vehicle |
| RoPax | Roll on/roll off a passenger |
| RTE | French transmission system operator |
| RTFO | Renewable Transport Fuel Obligation |
| RW | Real-world |
| SEAI | Sustainable Energy Authority of Ireland |
| SECR | Streamlined Energy and Carbon Reporting |
| SMMT | Society of Motor Manufacturers and Traders |
| T&D | Transmission & Distribution |
| TfL | Transport for London |
| TTW | Tank-To-Wheel (i.e. direct emissions at the point of use) |
| UK GHGI | UK's Greenhouse Gas Inventory |
| UNFCCC | United Nations Framework Convention on Climate Change |
| WLTP | Worldwide Harmonised Light Vehicle Test Procedure |
| WTT | Well-To-Tank (i.e. upstream emissions from the production of fuel or electricity) |
| WTW | Well-To-Wheel (= Well-To-Tank + Tank-To-Wheel) |
| xEV | Generic term for battery electric vehicles (BEV), plug-in hybrid electric vehicles (PHEV), range-extended electric vehicles (REEV) and fuel cell electric vehicles (FCEV) |

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