

This is a list of the emission conversion factors used on the Creative IG Tools for the purposes of calculating an organisation's carbon footprint.

Last updated: July 2016

The source for the emission conversion factors unless otherwise stated is:

2015 Guidelines for Defra/DECC's GHG Conversion Factors for Company Reporting. (Referred to as 'DEFRA')

Type	Name	2016 Factor	Units	Source:	Explanation
Energy (transport and operational)	Diesel (litres)	2.67620	kg CO2e per litre	DEFRA	100% mineral diesel
	Petrol (litres)	2.30250	kg CO2e per litre	DEFRA	100% mineral
	Biodiesel (litres)	0	kg CO2e per litre	2015 JB Factors	Julie's Bicycle zero rate all waste vegetable oil and UK grown biofuels, in recognition of the short timescale of the carbon cycle and that life cycle emissions are not included in fossil fuel conversion factors
	Renewable (kWh)	0	kg CO2e per kWh	2015 JB Factors	Julie's Bicycle zero rate all renewable electricity sources, in recognition of exclusion of life cycle emissions from fossil fuel conversion factors
	LPG (litres)	1.50502	kg CO2e per litre	DEFRA	
	Grid electricity (kWh)	0.44932	kg CO2e per kWh	DEFRA	Conversion factor inclusive of transmission and distribution (T&D) losses.
	Mains Gas (kWh)	0.18400	kg CO2e per kWh	DEFRA	Gross CV
	Oil (litres)	2.532318775	kg CO2e per litre	DEFRA	Burning oil (kerosene) is most common oil for domestic heating.

Waste	Landfill (tonnes)	421.000	net kg CO2e per tonne	DEFRA	Waste is assumed to be closest in character to mixed municipal waste. The 2015 landfill conversion factor has significantly increased due to changes in the methane (CH4) emission factor. This is the result of changes in the GHG inventory methodology and updated Global Warming Potential (GWP) factors.
	Recycling (tonnes)	21	net kg CO2e per tonne	DEFRA	Using DEFRA conversion factor from 2015 onwards.
	Compost (tonnes)	6	net kg CO2e per tonne	DEFRA	Using DEFRA conversion factor from 2015 onwards.
Water	Water supply (m3)	0.34400	kg CO2e per cubic metre	DEFRA	
	Water treatment (m3)	0.70800	kg CO2e per cubic metre	DEFRA	
Transport	Dedicated coach (veh km)	0.67440	kg CO2 per veh km	National Atmospheric Emissions. Inventory Vehicle Speed. Emission Factors Version 02/3	Assume bus, average speed 96km per hour, Euro II. More accurate than Defra conversion factors considering how full dedicated coaches are, compared to average occupancy of UK buses.
	Average petrol car (km)	0.19184	kg CO2e per km	DEFRA	Assume average petrol car as worst case (not diesel, not small, not motorbike)
	Average diesel car (km)	0.18307	kg CO2e per veh km	DEFRA	
	Average LPG car (km)	0.20077	kg CO2e per veh km	DEFRA	
	Average petrol hybrid car (km)	0.13226	kg CO2e per veh km	DEFRA	
	London bus (km)	0.07380	kg CO2e per passenger km	DEFRA	London bus to take account of bus being more full than national local average due to event

	Local bus (not London) (km)	0.11986	kg CO2e per passenger km	DEFRA	
	Average local bus	0.10172	kg CO2e per passenger km	DEFRA	
	National rail (pkm)	0.04885	kg CO2e per passenger km	DEFRA	
	Eurostar	0.01214	kg CO2e per passenger km	DEFRA	Referred to as 'International rail' in conversion factors
	Regular taxi	0.22800	kg CO2e per veh km	DEFRA	
	Black cab	0.32826	kg CO2e per veh km	DEFRA	
	Tube (km)	0.05789	kg CO2e per passenger km	DEFRA	
	Domestic flight	0.27867	kg CO2e per passenger km	DEFRA	
	Shorthaul average	0.16844	kg CO2e per passenger km	DEFRA	
	Shorthaul economy	0.16508	kg CO2e per passenger km	DEFRA	
	Shorthaul business	0.24761	kg CO2e per passenger km	DEFRA	
	Longhaul average	0.19162	kg CO2e per passenger km	DEFRA	
	Longhaul economy	0.14678	kg CO2e per passenger km	DEFRA	
	Longhaul premium economy	0.23484	kg CO2e per passenger km	DEFRA	
	Longhaul business	0.42565	kg CO2e per passenger km	DEFRA	
	Longhaul first class	0.58711	kg CO2e per passenger km	DEFRA	
	Ferry (pkm) (average all passengers)	0.11606	kg CO2e per passenger km	DEFRA	Average for all passengers (foot and car)
	Average motorbike	0.11978	kg CO2 per veh km	DEFRA	
	Buggies	0.14416	kg CO2 per km	DEFRA	Unknown Fuel, Minicar
	Hotel night	32.63	kg CO2 per room per night	WBCSD 2004 and CIBSE 2004	WBCSD 2004 and CIBSE 2004
	Diesel minibus (vkm)	0.26578	kg CO2e per veh km	DEFRA	Diesel van up to 3.5t
	Petrol van (vkm)	0.28302	kg CO2e per veh km	DEFRA	Van up to 3.5t
	LPG minibus (vkm)	0.27911	kg CO2e per veh km	DEFRA	Van up to 3.5t
	MPV petrol (vkm)	0.20761	kg CO2e per veh km	DEFRA	
	MPV diesel (vkm)	0.18965	kg CO2e per veh km	DEFRA	
	Light diesel rigid	0.55795	kg CO2e per veh km	DEFRA	3.5-7.5 t UK average load
	Medium diesel rigid	0.71926	kg CO2e per veh km	DEFRA	7.5-17t UK average load
	Heavy diesel rigid	0.97742	kg CO2e per veh km	DEFRA	>17t UK average load

	Light diesel articulated	0.84293	kg CO2e per veh km	DEFRA	3.5-33t UK average load
	Heavy diesel articulated	0.97261	kg CO2e per veh km	DEFRA	>33t UK average load
	Domestic air freight	4.98157	kg CO2e per tonne.km	DEFRA	Inclusive of Radiative Forcing (RF) i.e. non-CO ₂ climate change effects of aviation (water vapour, contrails, NOx etc)
	Shorthaul air freight	2.18966	kg CO2e per tonne.km	DEFRA	Inclusive of Radiative Forcing (RF) i.e. non-CO ₂ climate change effects of aviation (water vapour, contrails, NOx etc)
	Longhaul air freight	1.41112	kg CO2e per tonne.km	DEFRA	Inclusive of Radiative Forcing (RF) i.e. non-CO ₂ climate change effects of aviation (water vapour, contrails, NOx etc)
	Ferry freight (tkm)	0.38735	kg CO2e per tonne.km	DEFRA	Large RoPax Ferry
	Container average (tkm)	0.01604	kg CO2e per tonne.km	DEFRA	
	Rail freight (tkm)	0.02950	kg CO2e per tonne.km	DEFRA	
	Small jet (vkm)	2.85	kg CO2 per veh km	Personal correspondence , Dr. Graham Sinden, Carbon Trust	
	Large jet (vkm)	7.03	kg CO2 per veh km	Personal correspondence , Dr. Graham Sinden, Carbon Trust	

Assumptions	Units	Source	Explanation
50	people per coach		Assumed occupancy of dedicated coaches
2	people per car for venues		
2.6	people per car for outdoor events		
20.2	km average return distance	Census 2001	Average commute distance
463	domestic flight distance km	DEFRA	
1108	shorthaul flight distance km	DEFRA	

6482	longhaul flight distance km	DEFRA	
1.60934	miles into km		
166	km average UK train trip (London to Birmingham)	timeanddate.co m distance calculator	
929	km average shorthaul train trip (London to Berlin)	timeanddate.co m distance calculator	
CJ2	assume is small jet (6 passengers)		
Metro 3	assume is large jet (19 passengers)		