

Voluntary Greenhouse Gas Reporting

Emission Factors 2012

These greenhouse gas emission factors can be used by organisations who wish to voluntarily monitor and report greenhouse gas (GHG) emissions on an organisational basis for their New Zealand operations.

The emission factors are presented in carbon dioxide equivalents (CO₂-e) for the 2012 calendar year. Further data and information on guidance for organisations on voluntary greenhouse gas reporting can be found in the Ministry for the Environment's publication [Guidance for Voluntary Corporate Greenhouse Gas Reporting](#) for the 2012 calendar year.

Scope One

Scope 1 emissions are direct GHG emissions occurring from sources that are owned or controlled by the company and within the organisational boundary (eg, emissions from combustion of fuel in owned or controlled vehicles).

Liquid Fuels – Stationary Combustion

Emission source	Unit	Emission factor total CO ₂ -e (kg CO ₂ -e/unit)
Diesel	Litre	2.66
LPG	Kg	3.00
Heavy fuel oil	Litre	2.99
Light fuel oil	Litre	2.94

Natural Gas

Natural Gas	Emission factor total CO ₂ -e (kg CO ₂ -e/kWh)	Emission factor total CO ₂ -e (kg CO ₂ -e/GJ)
Commercial	0.192	53.4
Industry	0.190	52.8

Wood

Wood	Emission factor total CO ₂ -e (kg CO ₂ -e/kg)
Industry	0.0142
Fireplaces	0.0690

Note: The total CO₂-e emission factor for wood includes CH₄ and N₂O emissions. This is based on ISO 14064-1 and The GHG Protocol reporting requirements for combustion of biomass as Scope 1 emissions. CO₂ emissions, from the combustion of biologically sequestered carbon are reported separately.

Coal

Emission source	Emission factor total CO ₂ -e (kg CO ₂ -e/kg)
Residential – Bituminous	2.79
Residential – Sub-bituminous	2.06
Residential – Lignite	1.50
Residential – default*	1.92
Commercial – Bituminous	2.62
Commercial – Sub-bituminous	1.93
Commercial – Lignite	1.41
Commercial – default*	1.72
Industry – Bituminous	2.61
Industry – Sub-bituminous	1.93
Industry – Lignite	1.41
Industry – default*	2.08

*The default coal emission factor should be used if it is not possible to identify the specific type of coal. Note, the default for industrial use of coal does not include coal used by the dairy industry as it is expected this sector would know the type of coal it consumes.

Transport (liquid fuels)

Fuel	Emission factor total CO ₂ -e* (kg CO ₂ -e/litre)
Regular petrol	2.34
Premium petrol	2.36
Petrol – default*	2.34
Diesel	2.70
LPG	1.52
Heavy fuel oil	3.02
Light fuel oil	2.96

*The default petrol emission factor should be used if it is not possible to distinguish between regular and premium petrol use.

Transport (distance travelled)

Vehicle size class	Emission factor total CO ₂ -e (kg CO ₂ -e/km)
Car – small (<1600 cc)	0.177
Car – medium (1600–<2500 cc)	0.230
Car – large (≥ 2500 cc)	0.301
Car – default*	0.230

*The default emission factor should be used if vehicle size class cannot be determined.

Scope Two

Scope two emissions are indirect GHG emissions occurring from the generation of purchased electricity consumed by the company.

Purchased electricity

Emission source	Emission factor total CO ₂ -e (kg CO ₂ -e/kWh)
Purchased electricity	0.165

Scope Three

Scope 3 emissions are other indirect GHG emissions occurring as a consequence of the activities of the company, but generated from sources not owned or controlled by the company (eg, emissions from air travel).

Air Travel

Emission Source	Unit	Cabin Class	Emission factor total CO ₂ -e (kg CO ₂ -e/unit)
Domestic	pkm	Average	0.160
Short Haul International (<3700 km)	pkm	Average	0.0942
	pkm	Economy class	0.0898
	pkm	Business class	0.135
Long Haul International (>3700 km)	pkm	Average	0.111
	pkm	Economy class	0.0810
	pkm	Premium economy class	0.130
	pkm	Business class	0.235
	pkm	First class	0.324

Transmission and distribution line losses (purchased electricity)

Emission source	Emission factor total CO ₂ -e (kg CO ₂ -e/kWh)
Transmission and distribution line losses for purchased electricity	0.0153

Transmission and distribution losses (distributed natural gas)

Emission source	Unit	Emission factor total CO ₂ -e (kg CO ₂ -e/unit)
Transmission and distribution losses for distributed natural gas	kWh	0.0188
	GJ	5.23

Taxis and rental cars

Emission source	Unit	Emission factor total CO ₂ -e (kg CO ₂ -e/unit)
Rental car – small (<1600cc)	Km	0.177
Rental car – medium (1600 – <2500cc)	Km	0.230
Rental car – large (≥ 2500)	Km	0.301
Rental car – default*	Km	0.230
Taxi travel – distance travelled	Km	0.301
Taxi travel – dollars spent (GST inclusive)	\$	0.108

*The default emission factor should be used if the vehicle size class of rental cars cannot be determined.

Waste to landfill

Emission source	Emission factor total CO ₂ -e (kg CO ₂ -e/kg)
Landfilled waste of known composition (without landfill gas recovery)	
Paper and textiles	2.52
Garden and food	0.945
Wood	1.89
Landfilled waste of known composition (with landfill gas recovery)	
Paper and textiles	0.918
Garden and food	0.344
Wood	0.688
Landfilled waste – default values (without landfill gas recovery)	
Mixed waste (national average)	1.00
Office waste	1.55
Landfilled waste – default values (with landfill gas recovery)	
Mixed waste (national average)	0.364
Office waste	0.563