



Summary of emissions factors for the Guidance for Voluntary Greenhouse Gas Reporting - 2016

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) using data and methods from the 2014 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 Greenhouse Gas Reporting – 2016: Using Data and Methods from the 2014 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	2.68
LPG	Kg	3.02
Heavy fuel oil	Litre	3.01
Light fuel oil	Litre	2.95

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	0.194	53.9
Industry	0.194	53.86

Wood

Wood	Emission factor total CO ₂ -e (kg CO ₂ -e/kg)
Industry	0.0150
Fireplaces	0.0670

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	2.89
Residential – Sub-bituminous	2.15
Residential – Lignite	1.54
Residential – default*	1.91
Commercial – Bituminous	2.68
Commercial – Sub-bituminous	2.00
Commercial – Lignite	1.43
Commercial – default*	1.95
Industry – Bituminous	2.68
Industry – Sub-bituminous	2.00
Industry – Lignite	1.43
Industry – default*	2.30

*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	2.44
Premium petrol	2.43
Petrol – default*	2.43
Diesel	2.72
LPG	1.64
Heavy fuel oil	3.04
Light fuel oil	2.98

*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 - (<1350 cc)	0.198
Car - (1350 - <1600 cc)	0.190
Car - (1600 - <2000 cc)	0.209
Car - (2000 - <3000 cc)	0.237
Car - (3000 - <4000 cc)	0.278
Petrol hybrids (<2000 cc)	0.102
Petrol hybrids (2000 - <4000cc cc)	0.146
Car - Default **	0.209

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

Taxis and rental cars

Emission source	Unit	Emission factor total CO ₂ -e (kg CO ₂ -e/unit)
Rental car - (<1350 cc)	Km	0.198
Rental car - (1350 - <1600 cc)	Km	0.190
Rental car - (1600 - <2000 cc)	Km	0.209
Rental Car - (2000 - <3000 cc)	Km	0.237
Rental car - (3000 - <4000 cc)	Km	0.278
Rental car - Petrol hybrid (<2000cc)	Km	0.102
Rental car - Petrol hybrid (2000- <4000cc)	Km	0.146
Rental car - Default *	Km	0.209
Taxi travel - Distance travelled	Km	0.200
Taxi travel - Dollars spent (GST inclusive)	\$	0.067

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	0.119

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	0.147
Short Haul International (<3700 km)	pkm	Average	0.0891
	pkm	Economy class	0.0873
	pkm	Business class	0.131
Long Haul International (>3700 km)	pkm	Average	0.0946
	pkm	Economy class	0.0725
	pkm	Premium economy class	0.116
	pkm	Business class	0.210
	pkm	First class	0.289

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	0.0097

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	0.0229
	GJ	6.36

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	3.00
Garden and food	1.13
Wood	3.23
Landfilled waste of known composition (with landfill gas recovery)	
Paper and textiles	1.183
Garden and food	0.444
Wood	1.272
Landfilled waste – default values (without landfill gas recovery)	
Mixed waste (national average)	1.13
Office waste	1.84
Landfilled waste – default values (with landfill gas recovery)	
Mixed waste (national average)	0.444
Office waste	0.726