

Emissions Factors February 2023

Australia

Background

Eden Suite uses emission factors published by the Federal Department of Climate Change, Energy, the Environment and Water Efficiency (DCEEW) in their National Greenhouse Account (NGA) factors. These factors are used for Scope 1 and 2 emissions and some Scope 3 (e.g. Waste). In February 2023 DCEEW simplified and aligned reporting so that one table provided factors for both NGA and NGERs. NGA factors from the year before should be applied to the following year's emissions. For example, the NGA Factors released in July 2011 should be applied to 2011-12 reporting. Where no factors are provided by DCEEW other sources are used, primarily DEFRA (UK) for air travel and Victorian EPA for paper and water.

Links

- Department of Climate Change, Energy, Environment and Water, [National Greenhouse Account Factors, February 2023](#)
- Environment Protection Authority Victoria (EPA Victoria), [Greenhouse Gas Inventory Management Plan 2012-13](#)
- The UK Government, [2022 UK.gov Greenhouse gas reporting: conversion factors 2022](#)

Emissions factors

The table below provides the emission factors used by Eden Suite

(NOTE: In February 2023 DCEEW's update to the scope 2 emission factors discontinued the practice of applying a three-year average to calculate emission factors and used renewable generation data sourced from the Australian Energy Market Operator via the NEM-Review tool for the time period matching the latest available NGER generation data. This is consistent with the most recent update to the NGER Measurement Determination.)

Emissions source	Unit	Emissions conversion factor into kg (per unit)	Reference
Direct emissions (Scope 1)			
Petrol for vehicles	GJ	67.62	National Greenhouse Account Factors, February 2023, Table 8
LPG for vehicles	GJ	61	National Greenhouse Account Factors, February 2023, Table 8
Automotive diesel oil for vehicles (ADO)	GJ	70.41	National Greenhouse Account Factors, February 2023, Table 8
Ethanol for vehicles	GJ	0.40	National Greenhouse Account Factors, February 2023, Table 8
E10 (calculated as 90% gasoline and 10% ethanol)	GJ	60.898	Calculated from above
Avgas for aircraft	GJ	67.66	National Greenhouse Account Factors, February 2023, Table 8
Avtur for aircraft	GJ	70.21	National Greenhouse Account Factors, February 2023, Table 8
Natural gas	GJ	51.53	National Greenhouse Account Factors, February 2023 Table 4
LPG (stationery energy)	GJ	60.6	National Greenhouse Account Factors, February 2023, Table 7

Emissions source	Unit	Emissions conversion factor into kg (per unit)	Reference
Diesel oil (stationery energy)	GJ	70.2	National Greenhouse Account Factors, February 2023, Table 7
Indirect emissions (Scope 2)			
Purchased electricity (Victoria)	kWh	0.85	National Greenhouse Account Factors, February 2023, Table 1
Purchased electricity (NSW)	kWh	0.73	National Greenhouse Account Factors, February 2023, Table 1
Purchased electricity (QLD)	kWh	0.73	National Greenhouse Account Factors, February 2023, Table 1
Purchased electricity (SA)	kWh	0.25	National Greenhouse Account Factors, February 2023, Table 1
Purchased electricity (WA) – SWIS (NWIS 0.58)	kWh	0.51	National Greenhouse Account Factors, February 2023, Table 1
Purchased electricity (TAS)	kWh	0.17	National Greenhouse Account Factors, February 2023, Table 1
Purchased electricity (NT)	kWh	0.54	National Greenhouse Account Factors, February 2023, Table 1
Purchased electricity (National)	kWh	0.68	National Greenhouse Account Factors, February 2023, Table 1
Renewable Power Percentage (RPP)	%	18.80	Climate Active
Indirect emissions (Scope 3)			
Purchased electricity (Victoria)	kWh	0.07	National Greenhouse Account Factors, February 2023, Table 1
Purchased electricity (NSW)	kWh	0.06	National Greenhouse Account Factors, February 2023, Table 1
Purchased electricity (QLD)	kWh	0.15	National Greenhouse Account Factors, February 2023, Table 1
Purchased electricity (SA)	kWh	0.08	National Greenhouse Account Factors, February 2023, Table 1
Purchased electricity (WA) – SWIS (NWIS N/A)	kWh	0.04	National Greenhouse Account Factors, February 2023, Table 1
Purchased electricity (TAS)	kWh	0.01	National Greenhouse Account Factors, February 2023, Table 1
Purchased electricity (NT)	kWh	0.07	National Greenhouse Account Factors, February 2023, Table 1
Purchased electricity (National)	kWh	0.09	National Greenhouse Account Factors, February 2023, Table 1
Emissions from fuel extraction for natural gas (VIC)	GJ	4.0	National Greenhouse Account Factors, February 2023, Table 1, Table 5
Emissions from fuel extraction for natural gas (NSW)	GJ	13.1	National Greenhouse Account Factors, February 2023, Table 5

Emissions source	Unit	Emissions conversion factor into kg (per unit)	Reference
Emissions from fuel extraction for natural gas (QLD)	GJ	8.8	National Greenhouse Account Factors, February 2023, Table 1, Table 5
Emissions from fuel extraction for natural gas (SA)	GJ	10.7	National Greenhouse Account Factors, February 2023, Table 5
Emissions from fuel extraction for natural gas (WA)	GJ	4.1	National Greenhouse Account Factors, February 2023, Table 5
Emissions from fuel extraction for petrol	GJ	17.2	National Greenhouse Account Factors, February 2023, Table 8
Emissions from fuel extraction for LPG	GJ	20.2	National Greenhouse Account Factors, February 2023, Table 7
Emissions from fuel extraction for ADO	GJ	17.3	National Greenhouse Account Factors, February 2023, Table 8
Emissions from fuel extraction for E10	GJ	15.48	National Greenhouse Account Factors, February 2023, Table 8
Emissions from fuel extraction Avgas	GJ	18	National Greenhouse Account Factors, February 2023, Table 8
Emissions from fuel extraction for Avtur	GJ	18	National Greenhouse Account Factors, February 2023, Table 8

Emissions source	Unit	Emissions conversion factor into tonnes (per unit)		Reference
Municipal solid waste (generic)	tonnes	1.6		National Greenhouse Account Factors, February 2023, Table 15
Clinical Waste	tonnes	0.879		National Greenhouse Account Factors, February 2023, Table 15
Flights*	Passenger km	<463km	0.00024587	UK Government factors 2022 - Full set (for advanced users) – Business travel - air Note: these factors include radiative forcing and uplift factors The 463km limit for short-haul flights has been defined following the classification used by UK DEFRA (see table 32), based on the guidance from CORINAIR (originally referenced here). CORINAIR sets 250 nautical miles (463km) as the upper limit for 'short flights'
		463-3700km		
		Average	0.00015353	
		Economy	0.00015102	
		Business	0.00022652	
		>3700km		
		Average	0.00019309	
		Economy	0.00014787	
		Premium Economy	0.00023659	
		Business	0.00042882	
		First Class	0.00059147	
Emissions from fuel extraction for aircraft gasoline	Passenger km	<463km	0.00002691	UK Government Conversion factors 2022 - Full set (for advanced users) – WTT -
		463-3700km		
		Average	0.00001681	

Emissions source	Unit	Emissions conversion factor into tonnes (per unit)		Reference
		Economy	0.00001654	Business travel - air Note: these factors include radiative forcing and uplift factors
		Business	0.0000248	
		>3700km		
		Average	0.00002114	
		Economy	0.00001619	
		Premium Economy	0.00002591	
		Business	0.00004696	
		First Class	0.00006477	
Office copy paper**	kg	100% Recycled	0.00152	EPA Victoria, Greenhouse Gas Inventory Management Plan 2012-13
		Virgin	0.0013	
Adelaide	kl	0.001744898		National performance report 2020-21: urban water utilities
Canberra	kl	0.001113636		National performance report 2020-21: urban water utilities
Darwin	kl	0.000552778		National performance report 2020-21: urban water utilities
Melbourne	kl	0.001693878		National performance report 2020-21: urban water utilities
Perth	kl	0.003061674		National performance report 2020-21: urban water utilities
South East Queensland	kl	0.001289308		National performance report 2020-21: urban water utilities
Sydney	kl	0.000908602		National performance report 2020-21: urban water utilities
Tasmania	kl	0.001407821		National performance report 2020-21: urban water utilities
Optional indirect emissions (Scope 3)				
Staff commuting	km	See reference		EPA Victoria, Greenhouse Gas Inventory Management Plan 2012-13, page 28
Catering	\$ expenditure	See reference		EPA Victoria, Greenhouse Gas Inventory Management Plan 2012-13 page 27
Public transport	\$ expenditure	See reference		EPA Victoria, Greenhouse Gas Inventory Management Plan 2012-13, page 22
Taxi	\$ expenditure	See reference		EPA Victoria, Greenhouse Gas Inventory Management Plan 2012-13, page 22
Couriers	\$ expenditure	See reference		EPA Victoria, Greenhouse Gas Inventory Management Plan 2012-13, page 30
Colour publications	sheets	See reference		EPA Victoria, Greenhouse Gas Inventory Management Plan 2012-13, page 31

*Flights

Note: these factors include radiative forcing and uplift factors

****Office Paper**

It is assumed that 1 ream= 2.5kgs

For more detail, see EPA Victoria Greenhouse Gas Inventory Management Plan 2012-13 for how to apply these emissions factors.

*****Reticulated water**

Where 1 kL= 1m³

For more detail, see EPA Victoria Greenhouse Gas Inventory Management Plan 2012-13.