CARBON REDUCTION INSTITUTE

NoCO2 Audit Report

ARA PROPERTY SERVICES

FY2023 Annual Audit

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EXECUTIVE SUMMARY

The Carbon Reduction Institute (CRI), through its certification and logo system, aims to assist organisations reduce their Greenhouse Gas (GHG) emissions and provide those organisations and consumers with a simple way of identifying carbon neutral and low carbon products and services.

ARA Property Services offers a diverse range of industrial services through the ARA Group and guides and mentors all of ARA's divisions to meet engagement and employment objectives with the Aboriginal and Torres Strait Islanders Communities.. ARA Property Services commissioned a NoCO2 audit from CRI to measure their carbon footprint, through the determination of the GHG emissions that resulted from their operations over the 2023 financial year (FY2023).

This report provides the results of this audit, and delivers an understanding of the organisation's GHG inventory. ARA Property Services will then be able to use this knowledge to plan future reductions of its carbon footprint, as well as determine whether they have any reporting obligations under energy and emissions reporting legislation. This report is valid within the FY2023 period, subject to ARA Property Services' compliance with the terms and conditions outlined by CRI.

CRI's NoCO2 audit follows the standards outlined by the World Business Council for Sustainable Development's Greenhouse Gas Protocol Corporate Accounting and Reporting Standard (1), in addition to the international standard ISO 14064.1 (2).

The emissions from ARA Property Services' operations were calculated through the application of numerous published life cycle emission factors along with the use of multi-regional input-output tables (3) derived figures. Each emissions factor is scaled to a level of consumption for its impact area, for example a kilowatt-hour of electricity or a litre of fuel.

It has been determined that the total GHG emissions from ARA Property Services' relevant operations and activities, within the boundaries of the NoCO2 program, were **1,812.06 tonnes of CO2e** (tCO2e) over the FY2023 period.

A breakdown of ARA Property Services' emissions by source is summarised in the chart immediately below.

Figure 1: Breakdown of ARA Property Services' GHG Emissions, FY2023

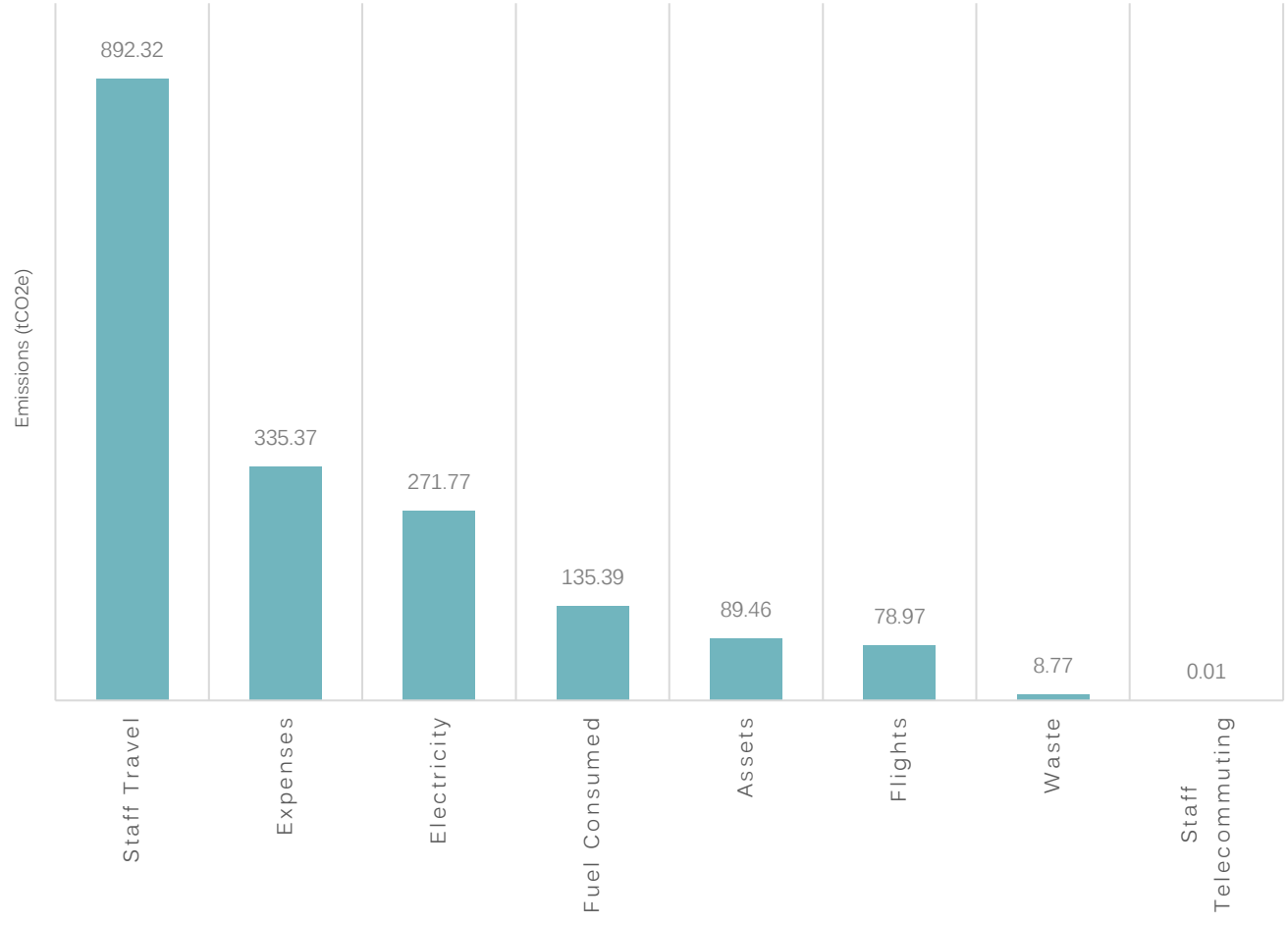
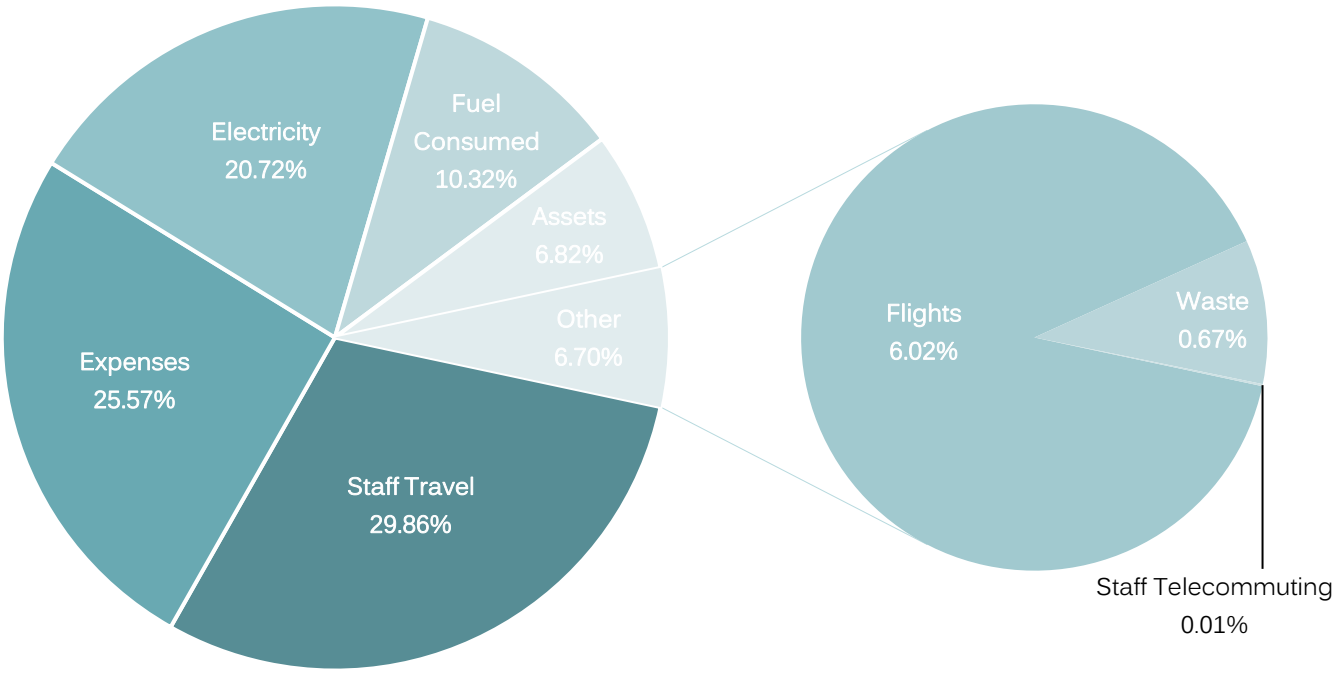


Table 1: Sources of ARA Property Services' emissions (NoCO2 Boundaries)

Scope	Emission Source	Emissions (tCO2e/year)
Scope 1	Fuel Consumed	108.53
	Gas Use	0.00
	Refrigerants	0.00
Scope 2	Electricity	242.78
Scope 3	Supply of Electricity	28.99
	Supply of Gas	0.00
	Staff Travel	892.32
	Supply of Fuel	26.86
	Assets	89.46
	Expenses	335.37
	Cost Of Sales	0.00
	Flights	78.97
	Waste	8.77
	Staff Telecommuting	0.13
	Total Footprint:	1,812.06

The table above encapsulates ARA Property Services' total carbon footprint as per Figure 1 on page 2 before accounting for Carbon Neutral Expenses and offsets purchased through third parties. These results are subsequently summarized in Figure 2 below where it should be highlighted that there are yet to be any Carbon Neutral Expenses.

Figure 2: Emission Sources for ARA Property Services, FY2023



ARA Property Services' FY2023 net carbon footprint for certification purposes under CRI's NoCO2 Program is **1,812.06 tCO2e**.

Full details of the terms and conditions of certification will be forwarded separate to this audit report.

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GLOSSARY

Term	Description
CO2-e	CO2 equivalent. This unit reflects the impact of the emission of all greenhouse gases, including CO2 (carbon dioxide), CH4 (Methane), N2O (Nitrous Oxide), Sulphur Hexafluoride (SF_6) as well as fluorocarbons PFCs and HCFCs and expresses their varying global warming impacts in terms of a weighted CO2 equivalent.
EF	Emissions Factor. The amount of CO2-e emitted (in kg or tonnes) per unit of according factor.
GHG	Greenhouse Gases (methane, CO2, N2O, etc.). Gases that contribute towards global warming.
p.km	Person kilometres. A value expressing the total distance travelled by multiple individuals (i.e. one individual travelling 50km plus one individual travelling 60km is 110 p.km).
RFI	Radiative Forcing Index. A factor that references the global warming multiplier effect of releasing GHGs in the upper atmosphere as opposed to ground level. This is relevant to commercial flights. Approximately equal to 1.9 (4).
FY2023	Financial year of 2023 commencing July 2022, ending June 2023.
Uplift Factor	Uplift Factor. This value is an inflating factor (1.09 or, in other words, an addition of 9%) (5) that accounts for uncertainties associated with air travel such as indirect paths, delays and varying weather conditions.

1. INTRODUCTION

The Carbon Reduction Institute (CRI), through its NoCO2/LowCO2 certification program, aims to help businesses reduce their greenhouse gas (GHG) emissions and demonstrate their pro-active approach toward the threats posed by climate change. This program allows businesses to position themselves within industry and community as leaders in the fight against climate change and become part of the growing 'low carbon economy'.

As part of ARA Property Services' commitment to increase the sustainability of its business practices, it is having its overall greenhouse gas impact assessed by CRI. This audit will enable ARA Property Services to identify areas where emissions are greatest and calculate the carbon offset requirement that ARA Property Services must fulfil in order to achieve NoCO2 certification.

1.1. OPERATIONAL EMISSIONS

In order for ARA Property Services to negate the impact of its greenhouse gas emissions, it must first quantify them. CRI does this by conducting an emissions assessment and then applying the methodologies outlined within the World Business Council for Sustainable Development's (WBCSD) Greenhouse Gas Accounting Protocol. (6)

1.1.1. GHG PROTOCOL

The protocol contains universally recognised accounting methods and boundaries that can be applied to different levels, sizes and types of organisations when creating their GHG inventory. This includes multinational organisations, energy intensive primary industry, as well as small to medium enterprises (SME). Boundaries are important when compiling a GHG inventory, as they give organisations consistency and scope when accounting for their emissions.

1.2. EMISSIONS BOUNDARIES

There are two 'types' of boundaries that need to be set when compiling a GHG inventory; an organisational boundary and an operational boundary. Organisational boundaries allow a business to distinguish between GHG emitting activities that are attributable to their organisation, and those that are not. Operational boundaries allow an organisation to define the emissions that they own or control and categorise them into different scopes (as either direct or indirect). Dividing emissions up into different scopes allows an organisation to determine opportunities for emissions reduction, as well as knowing where their emissions are occurring along the value chain.

1.2.1. ORGANISATIONAL BOUNDARIES

When setting organisational boundaries, CRI applies a financial control rationale, which states that businesses account for emissions generated from activities over which they have financial control, and derive the majority of financial benefits and/or risks as a result of these activities (6). CRI uses this rationale as we believe that the consumer (in this case ARA Property Services) is responsible for the products and services that they consume, and that the purchase is an endorsement of the conditions under, and methods used to produce the goods and services consumed. This rationale is both comprehensive and simple; if you bought it, then the emissions produced and embodied within it are your responsibility. This straightforward demarcation will ensure the best outcome for ARA Property Services, and other certified businesses as consumers will have confidence in the authenticity of organisations certified with CRI.

1.2.2. OPERATIONAL BOUNDARIES

The main function of operational boundaries is to create different scopes for organisations to separate and define the emissions produced from their operations. The three scopes are described in detail below.

- **Scope 1: Direct GHG emissions** - Emissions that occur from sources that are owned or controlled by the company, for example, emissions from combustion in owned or controlled boilers, furnaces and vehicles. (6)
- **Scope 2: Electricity indirect GHG emissions** - Emissions from the generation of purchased electricity consumed by the company. (6)
- **Scope 3: Other indirect GHG emissions –** Emissions that are a consequence of the activities of the company, but occur from sources not owned or controlled by the company. These include emissions from waste, the extraction and production of purchased materials; transportation of purchased fuels and transportation of employees to and from work. (6)

The GHG protocol describes scopes 1 and 2 as mandatory reporting categories, and scope 3 as a voluntary reporting category. Under CRI's NoCO2 certification program, it is mandatory for organisations to include scope 3 emissions. This is due to the large amount of embodied emissions associated with the sale, delivery and purchase of products and services of a company. "Embodied emissions" refer to the emissions generated in the manufacture and distribution of a product. All products require energy in production and distribution. This energy is most commonly provided through the use of fossil fuels, which have a greenhouse emissions impact. Embodied emissions are included due to the products and services that ARA Property Services has bought and used. See section 2.3 for an in-depth description of scope 3 emissions.

2. ARA PROPERTY SERVICES' GHG EMISSIONS INVENTORY

2.1. SCOPE 1 EMISSIONS

2.1.1. FUEL USE

Fuel purchased as a company expense, for combustion in vehicles and onsite is classed as a Scope 1 emission source. Fuel also incurs a Scope 3 emission impact from the fuel's extraction, processing and transportation prior to use.

The emissions generated due to fuel use were based on fuel purchase details supplied by ARA Property Services and calculated using emission factors outlined in the Department of Climate Change's National Greenhouse Account Factors (7) Equation 1 illustrates this method.

Equation 1: Fuel Combustion Emissions Formula

$$Fuel\ Emissions = Fuel\ Quantity\left(\frac{Litres}{Year}\right) \times EF\left(\frac{tCO_2e}{L}\right)$$

Table 2 shows a breakdown of the emissions incurred.

Table 2: Emissions from Fuel Combustion

Fuel Type	Purpose	Litres of fuel Per Year	CO2 EF (kgCO2e /Litre)	CH4 EF (kgCO2e /Litre)	N2O EF (kgCO2e /Litre)	Total Scope 1 Emissions (tCO2e)	Scope 3 EF (kgCO2e /Litre)	Total Scope 3 Emissions (tCO2e)	Total Emissions (tCO2e)
Diesel	Transportation	21,899.00	2.70	0.00	0.02	59.52	0.67	14.62	74.14
Petrol	Transportation	1,242.00	2.31	0.00	0.01	2.87	0.59	0.73	3.60
10% Ethanol	Transportation	260.00	2.01	0.00	0.01	0.52	0.58	0.15	0.67
Diesel	Transportation	10,637.00	2.70	0.00	0.02	28.91	0.67	7.10	36.01
Petrol	Transportation	7,224.00	2.31	0.00	0.01	16.71	0.59	4.25	20.96
Totals:		41,262.00				108.53		26.86	135.39

2.1.2. GAS USE

It was indicated to CRI that ARA Property Services did not consume any gas during this reporting period, thus no emissions are associated with this component.

2.1.3. REFRIGERANTS

Similarly, it was indicated to CRI that over the reporting period ARA Property Services did not operate any significant commercial or industrial refrigeration equipment, and thus no emissions have been attributed to this sub scope.

CRI strongly suggests that refrigeration units should be degassed before disposal, as this will avoid the release of GHGs and allow the refrigerant to be recycled and used in another refrigeration unit.

2.2. SCOPE 2 EMISSIONS

2.2.1. ELECTRICITY USE (SCOPE 2 & 3)

Frameworks and data sets exist both within Australia and internationally that enable calculations of emissions from electricity, which follow the formulae below.

Equation 2: Emissions from Electricity Use (Scope 2 & 3)

$$Electricity\ Emissions(Scope\ 2) = kWh\ consumed \times Scope\ 2\ EF\left(\frac{kgCO_2e}{kWh}\right)$$

$$Electricity\ Emissions(Scope\ 3) = kWh\ consumed \times Scope\ 3\ EF\left(\frac{kgCO_2e}{kWh}\right)$$

The Department of Climate Change's National Greenhouse Accounts Factors detail the emission factors for electricity used in each state (7). These values are shown in Table 18 (Appendix C. Electricity). The following table shows a summary of the accounting implemented by CRI and resulting emissions as calculated using the described method. A more comprehensive breakdown is available in Appendix C. Electricity

Table 3: Summary of Emissions from Electricity Use

Address	State	Electricity Usage (kWh)	Scope 2 kgCO2e/kWh	Scope 2 Emissions tCO2e	Scope 3 kgCO2e/ kWh	Scope 3 Emissions tCO2e	Total Emissions tCO2e
3/27 Yallourn St., Fyshwick	ACT	21,662.00	0.68	14.73	0.05	1.08	15.81
26 Railway St., Chinchilla	QLD	70,619.00	0.73	51.55	0.15	10.59	62.14
52 McDougall St., Milton	QLD	1,988.00	0.73	1.45	0.15	0.30	1.75
S10, 213 Greenhill Rd., Eastwood	SA	32,890.00	0.25	8.22	0.08	2.63	10.85
442-450 Auburn Road, Hawthorne	VIC	162,594.00	0.79	128.45	0.07	11.38	139.83
Unit 12 & 14, 80 Monash Dr., Dandenong	VIC	9,948.90	0.79	7.86	0.07	0.70	8.56
53 Burswood Rd., Perth	WA	57,582.00	0.53	30.52	0.04	2.30	32.82
	Total:	357,283.90		242.78		28.99	271.77

2.3. SCOPE 3 EMISSIONS

Scope 3 emissions are defined as indirect emissions that occur from sources offsite. Scope 3 emission sources are assessed through the application of life-cycle emissions coefficients in the case of cost of sales, expenses, assets, waste, flights and staff travel.

The emissions impact and calculations behind scope 3 sources are depicted in the following sections, with the exclusion of scope 3 impacts from fuel use and electricity, addressed in sections 2.1.1 and 2.2.1.

Scope 3 emissions from cost of sales, expenses and assests were calculated using Input-Output tables (8) which equate dollar values spent, within particular industries in Australia, to GHG emissions. More information on this particular method is available in Appendix D. Cost of Sales, Expenses & Assets

2.3.1. COST OF SALES

Due to the nature of ARA Property Services' business, no cost of sales were incurred over the reporting period, and thus no emissions are attributed to this sub scope.

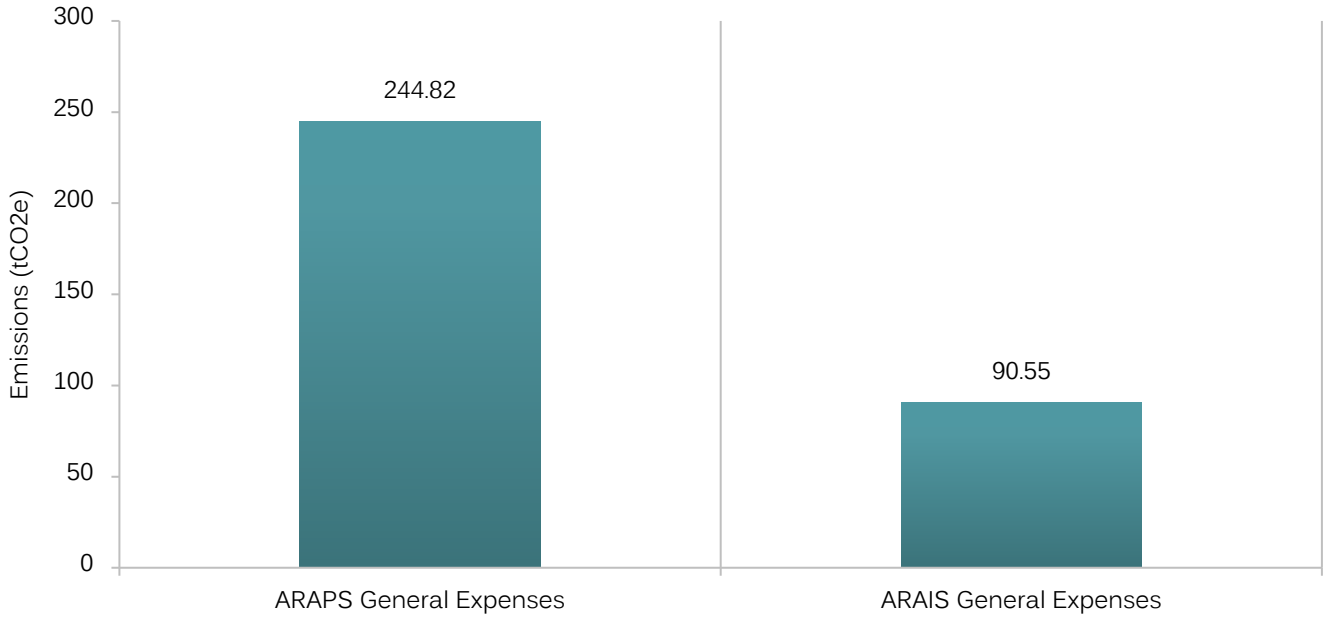
2.3.2. EXPENSES

Using the profit and loss statements supplied, the embodied emissions from ARA Property Services' expenses were calculated. The following tables and figures show a summary of the type of cost of sale items that generated the most emissions.

Table 4: Summary of Embodied Emissions from Expenses, (by General Type)[1]

Type of Expense	Amount Spent ($)	tCO2e/year
ARAPS General Expenses	$2,006,959.12	244.82
ARAIS General Expenses	$907,222.99	90.55
Totals:	$2,914,182.11	335.37

Figure 3: Summary of Embodied Emissions from Expenses (by General Type)

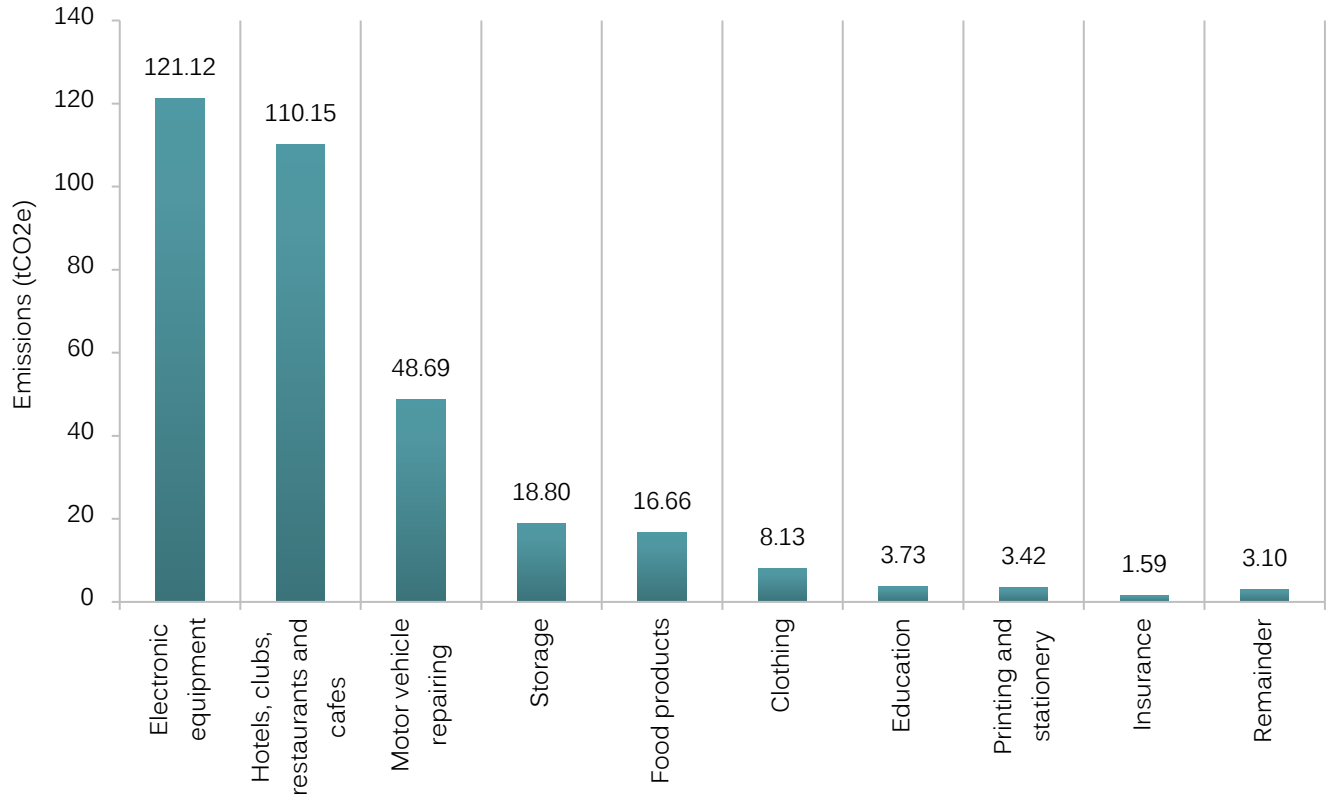


[1] The total monetary sum in Table 4 differs from that in Table 5 as categories with zero emissions are excluded.

Table 5: Summary of Embodied Emissions from Expenses (by MRIO Categories)

Category	Expense ($AUD)	Emissions (tCO2e)
Electronic equipment	$369,655.75	121.12
Hotels, clubs, restaurants and cafes	$719,071.84	110.15
Motor vehicle repairing	$171,104.86	48.69
Storage	$73,863.14	18.80
Food products	$41,326.88	16.66
Clothing	$68,205.69	8.13
Education	$36,237.81	3.73
Printing and stationery	$27,720.61	3.42
Insurance	$236,580.19	1.59
Remainder	$363,116.87	3.10
Totals:	$ 2,106,883.64	335.37

Figure 4: Summary of Embodied Emissions from Expenses (by MRIO Categories)



2.3.3. ASSETS

CRI used ARA Property Services' depreciation schedule to calculate the embodied emissions attributed to current assets. When accounting for embodied emissions of assets, CRI scales the impact of an asset over the period in which it is depreciated for tax purposes. An asset depreciating at 50% per year, with total embodied emissions of 10 tCO2e, will register as 5 tCO2e each year of its two-year depreciable lifetime. This method ensures ARA Property Services can update its emissions inventory with its tax reports. Written off assets are thus excluded from the assessment.

The tables below show a summary of the types of assets and their attributed emissions. The full breakdown of the calculations performed can be found in Appendix D. Cost of Sales, Expenses & Assets.

Table 6: Summary of Embodied Emissions from Assets (by General Type)

Type of Assets	Value Depreciated ($)	tCO2e/year
Cleaning Equipment - PS	99492.00	38.50
Cleaning Equipment - IS	79846.67	30.98
Kia Sportage CJ37RK Auto Wagon	6089.33	2.40
Cleaning Equipment & Buggies	5994.67	2.36
Volkswagon Transporter	4978.67	1.96
HP Startrack MCC Equipment Dec 2014	4600.00	1.78
Cargo Vehicle 2 Seater Buggie	3997.33	1.57
Property Improvement	4738.67	0.99
Cleaning Equipment - Kangan & Nicholson	2438.67	0.95
Remainder	123285.33	7.96
Totals:	$335,461.33	89.46

Figure 5: Summary of Embodied Emissions from Assets (by General Type)

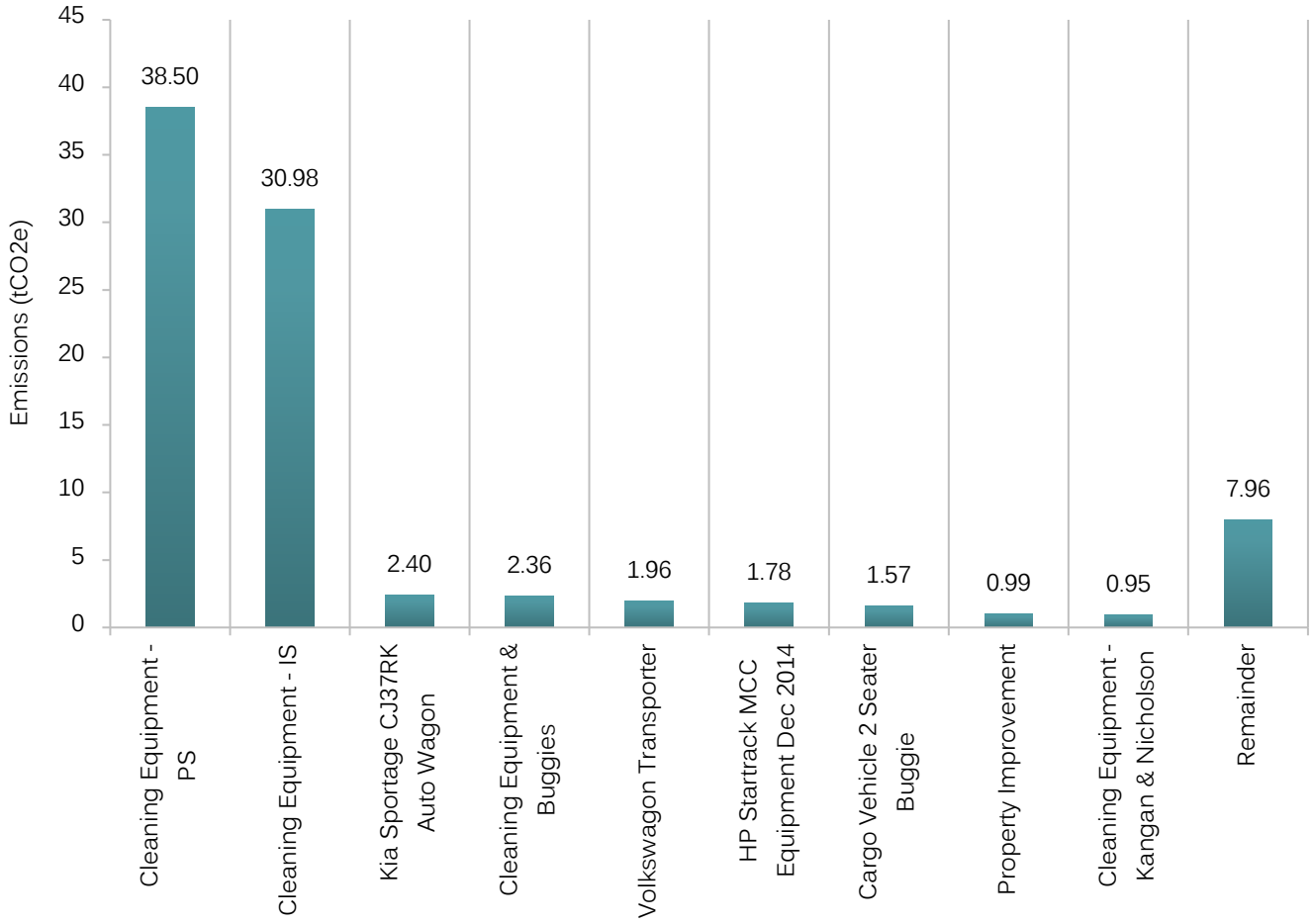
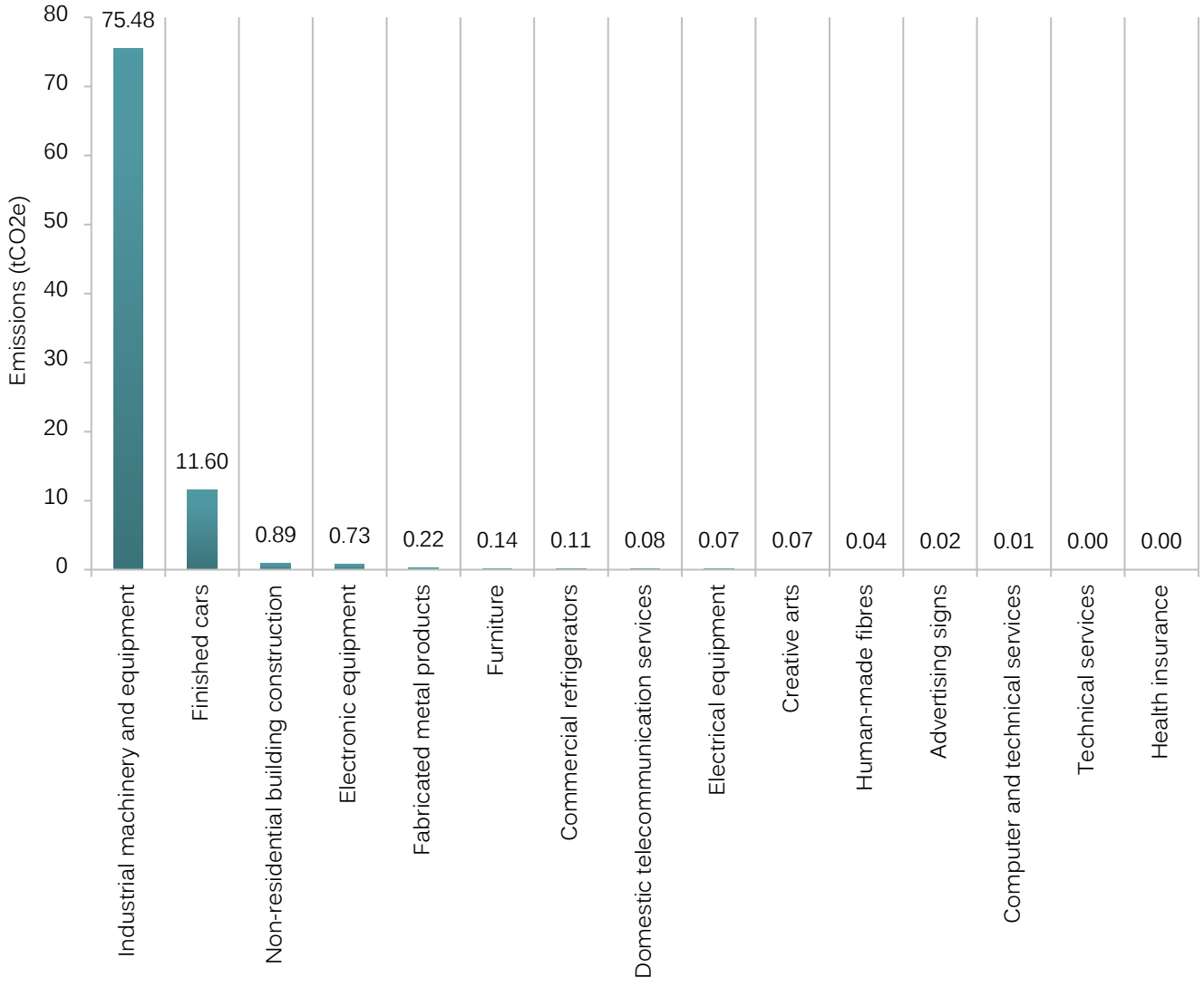


Table 7: Summary of Embodied Emissions from Assets (by MRIO Categories)

Category	Depreciated Value ($AUD)	Emissions (tCO2e)
Industrial machinery and equipment	$194,614.67	75.48
Finished cars	$29,484.00	11.60
Non-residential building construction	$4,197.33	0.89
Electronic equipment	$2,226.67	0.73
Fabricated metal products	$581.33	0.22
Furniture	$381.33	0.14
Commercial refrigerators	$1,266.67	0.11
Domestic telecommunication services	$449.33	0.08
Electrical equipment	$226.67	0.07
Creative arts	$366.67	0.07
Human-made fibres	$190.67	0.04
Advertising signs	$61.33	0.02
Computer and technical services	$2,248.00	0.01
Technical services	$124.00	0.00
Health insurance	$234.67	0.00
Totals:	$ 236,653.33	89.46

Figure 6: Summary of Embodied Emissions from Assets (by MRIO Categories)



2.3.4. WASTE

ARA Property Services were unable to provide direct information to CRI relating to their waste generation, thus this calculation was based upon the number of Full-Time Equivalent (FTE) staff. The Department of Sustainability, Environment, Water, Population and Communities' study into commercial and industrial waste generation (9) outline waste generation per FTE by industry. The Department of the Environment and Energy's National Greenhouse Accounts provide factors for emissions generated per tonne of various waste types, along with conversion factors between mass and volume for different waste streams (7). These factors can be used to account for the emissions embodied in ARA Property Services' waste generation using the method illustrated in Equation 3 and Table 9 below.

Equation 3: Emissions from Waste (per FTE)

$$Waste\ Emissions = \frac{Waste\ (tonnes)}{year} \times EF\left(\frac{kgCO_2e}{tonne}\right)$$

The following industry and sub division was used for the waste generated (kg) per FTE during this reporting period:

Table 8: Waste Industry and Sub-Division

Industry Type	Sub Division	Reference
Administrative and Support Services	General	Sustainable Resource Use Pty Ltd - A study into commercial & industrial (C&I) waste and recycling in Australia by industry division, Jan 2013, page 88

Table 9: Emissions from Waste (7)

Waste per FTE (kg/FTE.yr)	Recycled Portion (%)	Full Time Equivalent Employees (FTE)	Tonnes Recycled	Tonnes Landfilled	Waste Type	tCO2e /tonne waste	Total tCO2e
10.00	0%	49.000	0.00	0.49	Food	2.10	1.03
40.00	0%	49.000	0.00	1.96	Paper and Cardboard	3.30	6.47
10.00	0%	49.000	0.00	0.49	Concrete/Metal/Plastics/Glass	0	0.00
20.00	0%	49.000	0.00	0.98	Commercial & Industrial Waste	1.30	1.27
10.00	100%	49.000	0.49	0.00	Food	2.10	0.00
90.00	100%	49.000	4.41	0.00	Paper and Cardboard	3.30	0.00
			4.90	3.92			8.77

2.3.5. STAFF AIR TRAVEL (FLIGHTS)

The emissions from flights taken by ARA Property Services were calculated employing the distance between airports, the emissions factor associated with passenger flights, the RF Index factor and the Greater Circle Flight factor. This method is illustrated in Equation 4.

Equation 4: Emissions from Air Travel

$$Flight\ Emissions = Distance\ (km) \times RFI\ Factor \times GCF\ Factor \times EF\left(\frac{kgCO_2e}{km}\right)$$

Emission factors for air travel are sourced from the UK Department for Environment, Food and Rural Affairs' (10) data for air passenger emission factors per passenger kilometre, and are scaled for domestic flights, short haul flights and long haul flights. Such values are shown in Table 26 (Appendix F. Staff Air Travel).

Table 10 shows the recorded flights taken for work related affairs by individuals from ARA Property Services and the respective calculated emissions for each flight.

Table 10: Staff flights by ARA Property Services

Flight	Origin	Dest. 1	Return (Y/N)	# of Passengers	tCO2e from One-way Trip to Dest. 1	Total tCO2e	Total Flight Distance (pkm)
1	Darwin	Melbourne	N	1	0.58	0.58	3,133.36
2	Melbourne	Darwin	N	1	0.58	0.58	3,133.36
3	Adelaide	Alice Springs	N	1	0.24	0.24	1,316.74
4	Adelaide	Alice Springs	N	1	0.24	0.24	1,316.74
5	Adelaide	Alice Springs	N	1	0.24	0.24	1,316.74
6	Adelaide	Sydney	N	1	0.22	0.22	1,164.20
7	Adelaide	Sydney	N	1	0.22	0.22	1,164.20
8	Adelaide	Sydney	N	1	0.22	0.22	1,164.20
9	Adelaide	Sydney	N	1	0.22	0.22	1,164.20
10	Adelaide	Alice Springs	N	1	0.24	0.24	1,316.74
11	Adelaide	Darwin	N	1	0.49	0.49	2,622.10
12	Adelaide	Perth	N	1	0.39	0.39	2,118.71
13	Alice Springs	Adelaide	N	1	0.24	0.24	1,316.74
14	Alice Springs	Adelaide	N	1	0.24	0.24	1,316.74
15	Alice Springs	Darwin	N	1	0.24	0.24	1,307.08
16	Ayers Rock	Melbourne	N	1	0.35	0.35	1,908.50
17	Ayers Rock	Melbourne	N	1	0.35	0.35	1,908.50
18	Ayers Rock	Melbourne	N	1	0.35	0.35	1,908.50
19	Ayers Rock	Melbourne	N	1	0.35	0.35	1,908.50
20	Brisbane	Townsville	N	1	0.21	0.21	1,112.27
21	Burnie	Melbourne	N	1	0.10	0.10	377.58
22	Burnie	Melbourne	N	1	0.10	0.10	377.58
23	Cairns	Brisbane	N	1	0.26	0.26	1,391.13
24	Cairns	Townsville	N	1	0.08	0.08	283.99
25	Darwin	Adelaide	N	1	0.49	0.49	2,622.10
26	Darwin	Adelaide	N	1	0.49	0.49	2,622.10
27	Darwin	Adelaide	N	1	0.49	0.49	2,622.10
28	Darwin	Adelaide	N	1	0.49	0.49	2,622.10
29	Launceston	Melbourne	N	1	0.13	0.13	475.99
30	Mackay	Brisbane	N	1	0.15	0.15	797.65
31	Melbourne	Adelaide	N	1	0.17	0.17	641.66
32	Melbourne	Adelaide	N	1	0.17	0.17	641.66
33	Melbourne	Adelaide	N	1	0.17	0.17	641.66
34	Melbourne	Adelaide	N	1	0.17	0.17	641.66
35	Melbourne	Sydney	N	1	0.19	0.19	705.39
36	Melbourne	Burnie	N	1	0.10	0.10	377.58
37	Melbourne	Burnie	N	1	0.10	0.10	377.58
38	Melbourne	Burnie	N	1	0.10	0.10	377.58
39	Melbourne	Sydney	N	1	0.19	0.19	705.39
40	Perth	Adelaide	N	1	0.39	0.39	2,118.71
41	Sydney	Adelaide	N	1	0.22	0.22	1,164.20
42	Sydney	Ayers Rock	N	1	0.40	0.40	2,177.58
43	Sydney	Ayers Rock	N	1	0.40	0.40	2,177.58
44	Sydney	Ayers Rock	N	1	0.40	0.40	2,177.58
45	Sydney	Ayers Rock	N	1	0.40	0.40	2,177.58
46	Sydney	Ayers Rock	N	1	0.40	0.40	2,177.58
47	Sydney	Melbourne	N	1	0.19	0.19	705.39
48	Adelaide	Melbourne	N	1	0.17	0.17	641.66
49	Adelaide	Melbourne	N	1	0.17	0.17	641.66

Flight	Origin	Dest. 1	Return (Y/N)	# of Passengers	tCO2e from One-way Trip to Dest. 1	Total tCO2e	Total Flight Distance (pkm)
50	Adelaide	Sydney	N	1	0.22	0.22	1,164.20
51	Adelaide	Melbourne	N	1	0.17	0.17	641.66
52	Adelaide	Melbourne	N	1	0.17	0.17	641.66
53	Adelaide	Sydney	N	1	0.22	0.22	1,164.20
54	Adelaide	Melbourne	N	1	0.17	0.17	641.66
55	Adelaide	Melbourne	N	1	0.17	0.17	641.66
56	Adelaide	Melbourne	N	1	0.17	0.17	641.66
57	Adelaide	Melbourne	N	1	0.17	0.17	641.66
58	Adelaide	Sydney	N	1	0.22	0.22	1,164.20
59	Alice Springs	Adelaide	N	1	0.24	0.24	1,316.74
60	Alice Springs	Adelaide	N	1	0.24	0.24	1,316.74
61	Brisbane	Melbourne	N	1	0.26	0.26	1,380.87
62	Brisbane	Melbourne	N	1	0.26	0.26	1,380.87
63	Brisbane	Melbourne	N	1	0.26	0.26	1,380.87
64	Brisbane	Melbourne	N	1	0.26	0.26	1,380.87
65	Brisbane	Melbourne	N	1	0.26	0.26	1,380.87
66	Brisbane	Melbourne	N	1	0.26	0.26	1,380.87
67	Brisbane	Melbourne	N	1	0.26	0.26	1,380.87
68	Brisbane	Melbourne	N	1	0.26	0.26	1,380.87
69	Brisbane	Melbourne	N	1	0.26	0.26	1,380.87
70	Brisbane	Melbourne	N	1	0.26	0.26	1,380.87
71	Brisbane	Melbourne	N	1	0.26	0.26	1,380.87
72	Brisbane	Melbourne	N	1	0.26	0.26	1,380.87
73	Brisbane	Melbourne	N	1	0.26	0.26	1,380.87
74	Brisbane	Melbourne	N	1	0.26	0.26	1,380.87
75	Brisbane	Sydney	N	1	0.21	0.21	752.83
76	Brisbane	Sydney	N	1	0.21	0.21	752.83
77	Brisbane	Sydney	N	1	0.21	0.21	752.83
78	Brisbane	Sydney	N	1	0.21	0.21	752.83
79	Brisbane	Sydney	N	1	0.21	0.21	752.83
80	Brisbane	Sydney	N	1	0.21	0.21	752.83
81	Brisbane	Sydney	N	1	0.21	0.21	752.83
82	Brisbane	Sydney	N	1	0.21	0.21	752.83
83	Brisbane	Cairns	N	1	0.26	0.26	1,391.13
84	Brisbane	Canberra	N	1	0.18	0.18	956.24
85	Brisbane	Canberra	N	1	0.18	0.18	956.24
86	Brisbane	Darwin	N	1	0.53	0.53	2,851.59
87	Brisbane	Darwin	N	1	0.53	0.53	2,851.59
88	Brisbane	Darwin	N	1	0.53	0.53	2,851.59
89	Brisbane	Melbourne	N	1	0.26	0.26	1,380.87
90	Brisbane	Mackay	N	1	0.15	0.15	797.65
91	Brisbane	Mackay	N	1	0.15	0.15	797.65
92	Brisbane	Mackay	N	1	0.15	0.15	797.65
93	Brisbane	Melbourne	N	1	0.26	0.26	1,380.87
94	Brisbane	Melbourne	N	1	0.26	0.26	1,380.87
95	Brisbane	Sydney	N	1	0.21	0.21	752.83
96	Brisbane	Cairns	N	1	0.26	0.26	1,391.13
97	Brisbane	Townsville	N	1	0.21	0.21	1,112.27
98	Brisbane	Townsville	N	1	0.21	0.21	1,112.27
99	Cairns	Sydney	N	1	0.37	0.37	1,972.68

Flight	Origin	Dest. 1	Return (Y/N)	# of Passengers	tCO2e from One-way Trip to Dest. 1	Total tCO2e	Total Flight Distance (pkm)
100	Canberra	Brisbane	N	1	0.18	0.18	956.24
101	Canberra	Melbourne	N	1	0.13	0.13	469.57
102	Canberra	Brisbane	N	1	0.18	0.18	956.24
103	Canberra	Brisbane	N	1	0.18	0.18	956.24
104	Canberra	Melbourne	N	1	0.13	0.13	469.57
105	Canberra	Sydney	N	1	0.06	0.06	236.19
106	Canberra	Sydney	N	1	0.06	0.06	236.19
107	Canberra	Sydney	N	1	0.06	0.06	236.19
108	Canberra	Sydney	N	1	0.06	0.06	236.19
109	Darwin	Brisbane	N	1	0.53	0.53	2,851.59
110	Darwin	Brisbane	N	1	0.53	0.53	2,851.59
111	Darwin	Brisbane	N	1	0.53	0.53	2,851.59
112	Gold Coast	Melbourne	N	1	0.25	0.25	1,329.60
113	Gold Coast	Melbourne	N	1	0.25	0.25	1,329.60
114	Gold Coast	Melbourne	N	1	0.25	0.25	1,329.60
115	Gold Coast	Melbourne	N	1	0.25	0.25	1,329.60
116	Gold Coast	Melbourne	N	1	0.25	0.25	1,329.60
117	Gold Coast	Melbourne	N	1	0.25	0.25	1,329.60
118	Gold Coast	Melbourne	N	1	0.25	0.25	1,329.60
119	Gold Coast	Melbourne	N	1	0.25	0.25	1,329.60
120	Gold Coast	Melbourne	N	1	0.25	0.25	1,329.60
121	Gold Coast	Melbourne	N	1	0.25	0.25	1,329.60
122	Gold Coast	Melbourne	N	1	0.25	0.25	1,329.60
123	Gold Coast	Melbourne	N	1	0.25	0.25	1,329.60
124	Gold Coast	Melbourne	N	1	0.25	0.25	1,329.60
125	Gold Coast	Melbourne	N	1	0.25	0.25	1,329.60
126	Gold Coast	Melbourne	N	1	0.25	0.25	1,329.60
127	Gold Coast	Melbourne	N	1	0.25	0.25	1,329.60
128	Gold Coast	Melbourne	N	1	0.25	0.25	1,329.60
129	Gold Coast	Melbourne	N	1	0.25	0.25	1,329.60
130	Hobart (AUS)	Melbourne	N	1	0.17	0.17	616.98
131	Launceston	Melbourne	N	1	0.13	0.13	475.99
132	Mackay	Brisbane	N	1	0.15	0.15	797.65
133	Melbourne	Adelaide	N	1	0.17	0.17	641.66
134	Melbourne	Adelaide	N	1	0.17	0.17	641.66
135	Melbourne	Brisbane	N	1	0.26	0.26	1,380.87
136	Melbourne	Brisbane	N	1	0.26	0.26	1,380.87
137	Melbourne	Brisbane	N	1	0.26	0.26	1,380.87
138	Melbourne	Brisbane	N	1	0.26	0.26	1,380.87
139	Melbourne	Brisbane	N	1	0.26	0.26	1,380.87
140	Melbourne	Brisbane	N	1	0.26	0.26	1,380.87
141	Melbourne	Brisbane	N	1	0.26	0.26	1,380.87
142	Melbourne	Brisbane	N	1	0.26	0.26	1,380.87
143	Melbourne	Brisbane	N	1	0.26	0.26	1,380.87
144	Melbourne	Brisbane	N	1	0.26	0.26	1,380.87
145	Melbourne	Brisbane	N	1	0.26	0.26	1,380.87
146	Melbourne	Brisbane	N	1	0.26	0.26	1,380.87
147	Melbourne	Brisbane	N	1	0.26	0.26	1,380.87
148	Melbourne	Canberra	N	1	0.13	0.13	469.57
149	Melbourne	Canberra	N	1	0.13	0.13	469.57

Flight	Origin	Dest. 1	Return (Y/N)	# of Passengers	tCO2e from One-way Trip to Dest. 1	Total tCO2e	Total Flight Distance (pkm)
150	Melbourne	Sydney	N	1	0.19	0.19	705.39
151	Melbourne	Sydney	N	1	0.19	0.19	705.39
152	Melbourne	Darwin	N	1	0.58	0.58	3,133.36
153	Melbourne	Gold Coast	N	1	0.25	0.25	1,329.60
154	Melbourne	Gold Coast	N	1	0.25	0.25	1,329.60
155	Melbourne	Gold Coast	N	1	0.25	0.25	1,329.60
156	Melbourne	Gold Coast	N	1	0.25	0.25	1,329.60
157	Melbourne	Gold Coast	N	1	0.25	0.25	1,329.60
158	Melbourne	Gold Coast	N	1	0.25	0.25	1,329.60
159	Melbourne	Gold Coast	N	1	0.25	0.25	1,329.60
160	Melbourne	Gold Coast	N	1	0.25	0.25	1,329.60
161	Melbourne	Gold Coast	N	1	0.25	0.25	1,329.60
162	Melbourne	Gold Coast	N	1	0.25	0.25	1,329.60
163	Melbourne	Gold Coast	N	1	0.25	0.25	1,329.60
164	Melbourne	Gold Coast	N	1	0.25	0.25	1,329.60
165	Melbourne	Gold Coast	N	1	0.25	0.25	1,329.60
166	Melbourne	Gold Coast	N	1	0.25	0.25	1,329.60
167	Melbourne	Gold Coast	N	1	0.25	0.25	1,329.60
168	Melbourne	Gold Coast	N	1	0.25	0.25	1,329.60
169	Melbourne	Gold Coast	N	1	0.25	0.25	1,329.60
170	Melbourne	Gold Coast	N	1	0.25	0.25	1,329.60
171	Melbourne	Launceston	N	1	0.13	0.13	475.99
172	Melbourne	Launceston	N	1	0.13	0.13	475.99
173	Melbourne	Adelaide	N	1	0.17	0.17	641.66
174	Melbourne	Adelaide	N	1	0.17	0.17	641.66
175	Melbourne	Adelaide	N	1	0.17	0.17	641.66
176	Melbourne	Adelaide	N	1	0.17	0.17	641.66
177	Melbourne	Brisbane	N	1	0.26	0.26	1,380.87
178	Melbourne	Brisbane	N	1	0.26	0.26	1,380.87
179	Melbourne	Perth	N	1	0.50	0.50	2,701.90
180	Melbourne	Sydney	N	1	0.19	0.19	705.39
181	Melbourne	Sydney	N	1	0.19	0.19	705.39
182	Melbourne	Sydney	N	1	0.19	0.19	705.39
183	Melbourne	Sydney	N	1	0.19	0.19	705.39
184	Melbourne	Perth	N	1	0.50	0.50	2,701.90
185	Melbourne	Perth	N	1	0.50	0.50	2,701.90
186	Melbourne	Perth	N	1	0.50	0.50	2,701.90
187	Melbourne	Perth	N	1	0.50	0.50	2,701.90
188	Melbourne	Perth	N	1	0.50	0.50	2,701.90
189	Melbourne	Canberra	N	1	0.13	0.13	469.57
190	Melbourne	Canberra	N	1	0.13	0.13	469.57
191	Melbourne	Canberra	N	1	0.13	0.13	469.57
192	Melbourne	Canberra	N	1	0.13	0.13	469.57
193	Melbourne	Sydney	N	1	0.19	0.19	705.39
194	Melbourne	Sydney	N	1	0.19	0.19	705.39
195	Melbourne	Sydney	N	1	0.19	0.19	705.39
196	Melbourne	Sydney	N	1	0.19	0.19	705.39
197	Melbourne	Sydney	N	1	0.19	0.19	705.39
198	Melbourne	Sydney	N	1	0.19	0.19	705.39
199	Melbourne	Sydney	N	1	0.19	0.19	705.39

Flight	Origin	Dest. 1	Return (Y/N)	# of Passengers	tCO2e from One-way Trip to Dest. 1	Total tCO2e	Total Flight Distance (pkm)
200	Melbourne	Sydney	N	1	0.19	0.19	705.39
201	Melbourne	Sydney	N	1	0.19	0.19	705.39
202	Melbourne	Sydney	N	1	0.19	0.19	705.39
203	Melbourne	Sydney	N	1	0.19	0.19	705.39
204	Melbourne	Sydney	N	1	0.19	0.19	705.39
205	Melbourne	Sydney	N	1	0.19	0.19	705.39
206	Melbourne	Sydney	N	1	0.19	0.19	705.39
207	Melbourne	Sydney	N	1	0.19	0.19	705.39
208	Melbourne	Sydney	N	1	0.19	0.19	705.39
209	Melbourne	Sydney	N	1	0.19	0.19	705.39
210	Melbourne	Sydney	N	1	0.19	0.19	705.39
211	Melbourne	Sydney	N	1	0.19	0.19	705.39
212	Melbourne	Sydney	N	1	0.19	0.19	705.39
213	Melbourne	Sydney	N	1	0.19	0.19	705.39
214	Melbourne	Sydney	N	1	0.19	0.19	705.39
215	Melbourne	Sydney	N	1	0.19	0.19	705.39
216	Melbourne	Sydney	N	1	0.19	0.19	705.39
217	Melbourne	Sydney	N	1	0.19	0.19	705.39
218	Melbourne	Sydney	N	1	0.19	0.19	705.39
219	Melbourne	Sydney	N	1	0.19	0.19	705.39
220	Melbourne	Sydney	N	1	0.19	0.19	705.39
221	Melbourne	Sydney	N	1	0.19	0.19	705.39
222	Melbourne	Sydney	N	1	0.19	0.19	705.39
223	Melbourne	Sydney	N	1	0.19	0.19	705.39
224	Melbourne	Sydney	N	1	0.19	0.19	705.39
225	Melbourne	Sydney	N	1	0.19	0.19	705.39
226	Melbourne	Sydney	N	1	0.19	0.19	705.39
227	Melbourne	Sydney	N	1	0.19	0.19	705.39
228	Melbourne	Sydney	N	1	0.19	0.19	705.39
229	Melbourne	Sydney	N	1	0.19	0.19	705.39
230	Melbourne	Sydney	N	1	0.19	0.19	705.39
231	Melbourne	Sydney	N	1	0.19	0.19	705.39
232	Melbourne	Sydney	N	1	0.19	0.19	705.39
233	Melbourne	Sydney	N	1	0.19	0.19	705.39
234	Perth	Melbourne	N	1	0.50	0.50	2,701.90
235	Perth	Melbourne	N	1	0.50	0.50	2,701.90
236	Perth	Melbourne	N	1	0.50	0.50	2,701.90
237	Perth	Melbourne	N	1	0.50	0.50	2,701.90
238	Perth	Melbourne	N	1	0.50	0.50	2,701.90
239	Perth	Melbourne	N	1	0.50	0.50	2,701.90
240	Maroochydore	Sydney	N	1	0.16	0.16	836.85
241	Maroochydore	Sydney	N	1	0.16	0.16	836.85
242	Maroochydore	Sydney	N	1	0.16	0.16	836.85
243	Maroochydore	Sydney	N	1	0.16	0.16	836.85
244	Maroochydore	Sydney	N	1	0.16	0.16	836.85
245	Sydney	Brisbane	N	1	0.21	0.21	752.83
246	Sydney	Brisbane	N	1	0.21	0.21	752.83
247	Sydney	Brisbane	N	1	0.21	0.21	752.83
248	Sydney	Brisbane	N	1	0.21	0.21	752.83
249	Sydney	Brisbane	N	1	0.21	0.21	752.83

Flight	Origin	Dest. 1	Return (Y/N)	# of Passengers	tCO2e from One-way Trip to Dest. 1	Total tCO2e	Total Flight Distance (pkm)
250	Sydney	Brisbane	N	1	0.21	0.21	752.83
251	Sydney	Brisbane	N	1	0.21	0.21	752.83
252	Sydney	Brisbane	N	1	0.21	0.21	752.83
253	Sydney	Melbourne	N	1	0.19	0.19	705.39
254	Sydney	Adelaide	N	1	0.22	0.22	1,164.20
255	Sydney	Gold Coast	N	1	0.19	0.19	679.98
256	Sydney	Melbourne	N	1	0.19	0.19	705.39
257	Sydney	Melbourne	N	1	0.19	0.19	705.39
258	Sydney	Melbourne	N	1	0.19	0.19	705.39
259	Sydney	Melbourne	N	1	0.19	0.19	705.39
260	Sydney	Melbourne	N	1	0.19	0.19	705.39
261	Sydney	Melbourne	N	1	0.19	0.19	705.39
262	Sydney	Adelaide	N	1	0.22	0.22	1,164.20
263	Sydney	Brisbane	N	1	0.21	0.21	752.83
264	Sydney	Melbourne	N	1	0.19	0.19	705.39
265	Sydney	Melbourne	N	1	0.19	0.19	705.39
266	Sydney	Melbourne	N	1	0.19	0.19	705.39
267	Sydney	Melbourne	N	1	0.19	0.19	705.39
268	Sydney	Melbourne	N	1	0.19	0.19	705.39
269	Sydney	Melbourne	N	1	0.19	0.19	705.39
270	Sydney	Melbourne	N	1	0.19	0.19	705.39
271	Sydney	Melbourne	N	1	0.19	0.19	705.39
272	Sydney	Melbourne	N	1	0.19	0.19	705.39
273	Sydney	Melbourne	N	1	0.19	0.19	705.39
274	Sydney	Melbourne	N	1	0.19	0.19	705.39
275	Sydney	Melbourne	N	1	0.19	0.19	705.39
276	Sydney	Melbourne	N	1	0.19	0.19	705.39
277	Sydney	Melbourne	N	1	0.19	0.19	705.39
278	Sydney	Melbourne	N	1	0.19	0.19	705.39
279	Sydney	Melbourne	N	1	0.19	0.19	705.39
280	Sydney	Melbourne	N	1	0.19	0.19	705.39
281	Sydney	Melbourne	N	1	0.19	0.19	705.39
282	Sydney	Melbourne	N	1	0.19	0.19	705.39
283	Sydney	Melbourne	N	1	0.19	0.19	705.39
284	Sydney	Melbourne	N	1	0.19	0.19	705.39
285	Sydney	Melbourne	N	1	0.19	0.19	705.39
286	Sydney	Melbourne	N	1	0.19	0.19	705.39
287	Sydney	Melbourne	N	1	0.19	0.19	705.39
288	Sydney	Melbourne	N	1	0.19	0.19	705.39
289	Sydney	Melbourne	N	1	0.19	0.19	705.39
290	Sydney	Melbourne	N	1	0.19	0.19	705.39
291	Sydney	Melbourne	N	1	0.19	0.19	705.39
292	Sydney	Melbourne	N	1	0.19	0.19	705.39
293	Sydney	Melbourne	N	1	0.19	0.19	705.39
294	Sydney	Melbourne	N	1	0.19	0.19	705.39
295	Sydney	Melbourne	N	1	0.19	0.19	705.39
296	Sydney	Melbourne	N	1	0.19	0.19	705.39
297	Sydney	Melbourne	N	1	0.19	0.19	705.39
298	Sydney	Melbourne	N	1	0.19	0.19	705.39
299	Sydney	Melbourne	N	1	0.19	0.19	705.39

Flight	Origin	Dest. 1	Return (Y/N)	# of Passengers	tCO2e from One-way Trip to Dest. 1	Total tCO2e	Total Flight Distance (pkm)
300	Sydney	Melbourne	N	1	0.19	0.19	705.39
301	Sydney	Melbourne	N	1	0.19	0.19	705.39
302	Sydney	Melbourne	N	1	0.19	0.19	705.39
303	Sydney	Melbourne	N	1	0.19	0.19	705.39
304	Sydney	Melbourne	N	1	0.19	0.19	705.39
305	Sydney	Melbourne	N	1	0.19	0.19	705.39
306	Sydney	Melbourne	N	1	0.19	0.19	705.39
307	Sydney	Melbourne	N	1	0.19	0.19	705.39
308	Sydney	Melbourne	N	1	0.19	0.19	705.39
309	Sydney	Melbourne	N	1	0.19	0.19	705.39
310	Sydney	Melbourne	N	1	0.19	0.19	705.39
311	Sydney	Maroochydore	N	1	0.16	0.16	836.85
312	Sydney	Maroochydore	N	1	0.16	0.16	836.85
313	Sydney	Maroochydore	N	1	0.16	0.16	836.85
314	Townsville	Brisbane	N	1	0.21	0.21	1,112.27
315	Townsville	Brisbane	N	1	0.21	0.21	1,112.27
316	Townsville	Brisbane	N	1	0.21	0.21	1,112.27
317	Townsville	Brisbane	N	1	0.21	0.21	1,112.27
318	Darwin	Melbourne	N	1	0.58	0.58	3,133.36
319	Melbourne	Darwin	N	1	0.58	0.58	3,133.36
320	Brisbane	Melbourne	N	1	0.26	0.26	1,380.87
321	Melbourne	Brisbane	N	1	0.26	0.26	1,380.87
322	Melbourne	Perth	N	1	0.50	0.50	2,701.90
323	Melbourne	Sydney	N	1	0.19	0.19	705.39
324	Melbourne	Sydney	N	1	0.19	0.19	705.39
325	Melbourne	Sydney	N	1	0.19	0.19	705.39
326	Perth	Melbourne	N	1	0.50	0.50	2,701.90
327	Sydney	Melbourne	N	1	0.19	0.19	705.39
328	Sydney	Melbourne	N	1	0.19	0.19	705.39
329	Sydney	Melbourne	N	1	0.19	0.19	705.39
330	Brisbane	Melbourne	N	1	0.26	0.26	1,380.87
331	Melbourne	Brisbane	N	1	0.26	0.26	1,380.87
332	Maroochydore	Sydney	N	1	0.16	0.16	836.85
333	Sydney	Maroochydore	N	1	0.16	0.16	836.85
334	Sydney	Maroochydore	N	1	0.16	0.16	836.85
			# of Flights:	334	Total tCO2e:	78.97	372,207.67

2.3.6. STAFF GROUND TRAVEL

Staff travel includes emissions from private road travel that takes place due to ARA Property Services' operations, this includes commuting to work and any work-related travel. GHG emissions resulting from the use of public transport by ARA Property Services' staff are not attributed to ARA Property Services, as the emissions created from its utilisation of public transport cannot be affected by ARA Property Services' actions through policy, technology or through direct authority.

The formulae and methods used for calculating the emissions impact for small, medium and large cars are similar. Varying parameters are fuel type, fuel consumption, vehicle type and kilometres travelled. Calculations take into account any additional passengers in each carpool. Staff travel information from ARA Property Services is collected and figures for fuel use per kilometre (11) make calculations of emissions per kilometre possible. These figures were then increased by a factor of 15% to more accurately represent real world fuel uses (10) and are shown in Table 23 (Appendix F. Staff Ground Travel).

To obtain the final emission quantity for each employee's commuting, Scope 1 and Scope 3 emission factors for transport fuel combustion were used. Emission factors for the relevant fuel types used by ARA Property Services are available in Table 24 (Appendix F. Staff Ground Travel).

Emissions from ground travel are calculated using information provided by ARA Property Services' office staff and/or correspondents. A total of 161 staff answered a survey regarding their average number of kilometres travelled and their individual transport methods and ARA Property Services has indicated that a total of 327.4 Full-Time Equivalent (FTE) staff are employed. Where private vehicles were used, type of car and type of fuel used were also considered.

Summarized results for each relevant vehicle type are shown in Table 12 and the full log of received data and calculations available in Appendix E. Staff Ground Travel.

Table 11: Emissions from Administrative Staff Ground Travel by Vehicle Type (Summary)

Vehicle Type	Quantity	Total km /Week	Total tCO2e /Year
Large 4WD or V8 Sports	2	1,073.60	20.31
Medium Car	4	1,055.40	15.00
Small Car	5	903.60	9.56
Hybrid Car	3	830.00	4.32
		Subtotal:	49.19
		Total (Adjusted for FTE Staff):	194.37

Figure 7: Summary of Administrative Staff Ground Travel Types and Emissions

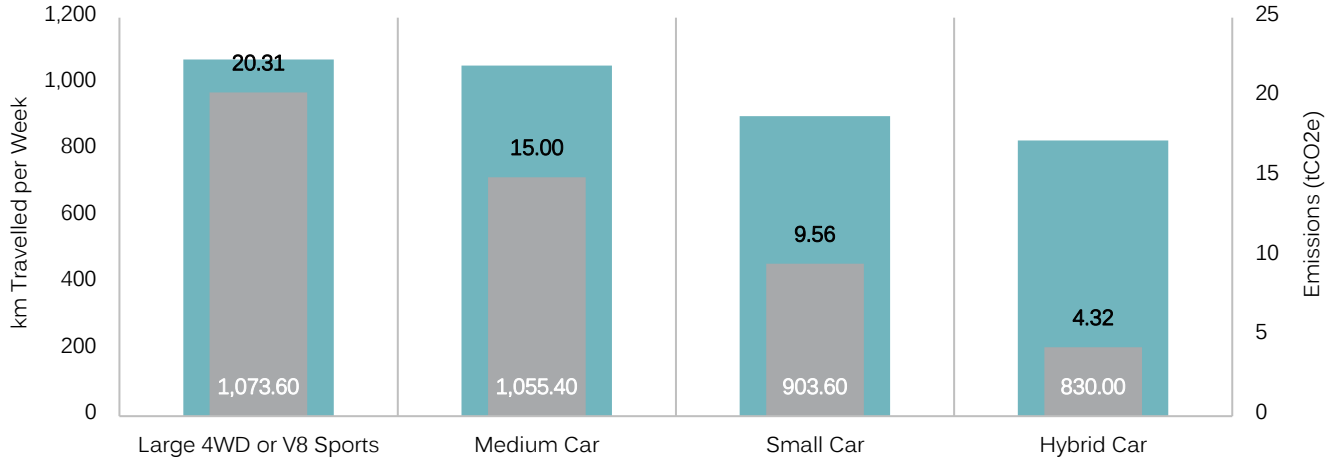
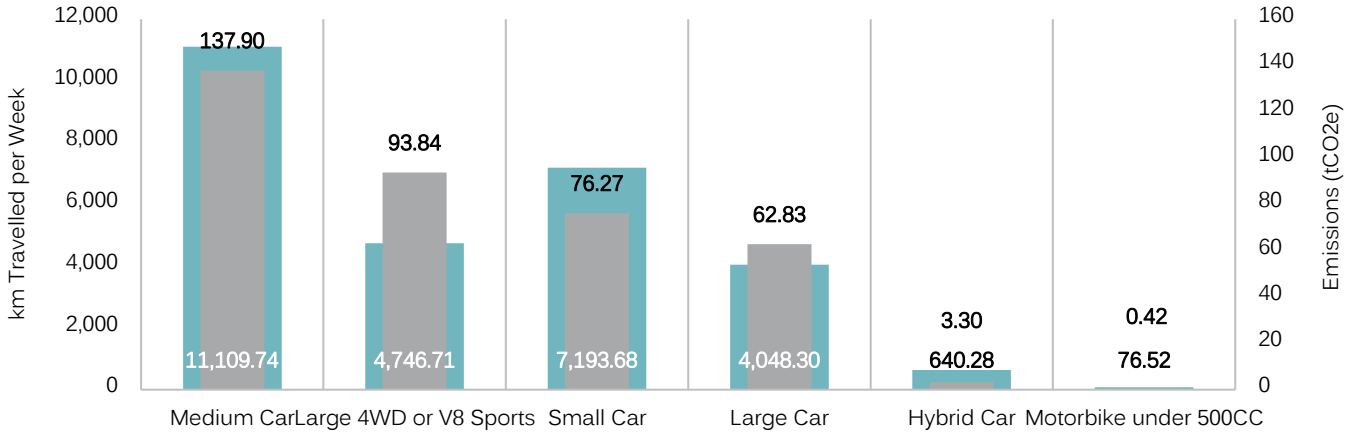


Table 12: Emissions from Contracted Staff Ground Travel by Vehicle Type (Summary)

Vehicle Type	Quantity	Total km /Week	Total tCO2e /Year
Medium Car	65	11,109.74	137.90
Large 4WD or V8 Sports	20	4,746.71	93.84
Small Car	41	7,177.68	76.10
Large Car	27	4,048.30	62.83
Hybrid Car	6	640.28	3.30
Motorbike under 500CC	2	76.52	0.42
		Subtotal:	374.56
		Total (Adjusted for FTE Staff):	797.95

Figure 8: Summary of Contracted Staff Ground Travel Types and Emissions



2.3.7. STAFF TELECOMMUTING

While working remotely ARA Property Services employees consume electricity via the operation of their personal electronic devices and use of lighting. Recent trends in staff telecommuting habits would lead to significant amounts of leakage in ARA Property Services' GHG inventory were these emissions not accounted for. This includes electricity use from contingent staff and employees. As such, CRI has estimated these emissions through the use of conservative assumptions on the types of electronic equipment that would be in use in conjunction with estimates of the total number of hours worked from home by ARA Property Services employees per state. Staff telecommuting emissions were calculated using the following equation.

Equation 5: Emissions from Telecommuting

$$Telecommuting\ Emissions = Annual\ Working\ Hours \times Power(W) \times \left(Scope\ 2\ EF\left(\frac{kgCO_2e}{kWh}\right) + Scope\ 3\ EF\left(\frac{kgCO_2e}{kWh}\right)\right)$$

As mentioned in section 2.2.1, the emission factors for electricity used in each state (7) are shown in Table 18 (Appendix C. Electricity). The following table shows a summary of the accounting implemented by CRI and resulting emissions as calculated using the described method. The appliances assumed to be used for staff telecommuting and the respective power outputs can be found in Appendix G. Staff Telecommuting.

Table 13: Emissions from Staff Telecommuting by State

State	Number of FTE Staff	# Weeks WFH	Annual Hours	Power (kW)	Electricity Use (kWh)	Scope 2 kgCO2e/ kWh	Scope 2 Emissions tCO2e	Scope 3 kgCO2e/ kWh	Scope 3 Emissions tCO2e	Total Emissions tCO2e
ACT	3.00	0.76	85.71	0.11	9.09	0.68	0.01	0.05	0.00	0.01
QLD	2.00	0.76	57.14	0.00	0.00	0.73	0.00	0.15	0.00	0.00
SA	2.00	0.76	57.14	0.00	0.00	0.25	0.00	0.08	0.00	0.00
VIC	40.00	0.76	1,142.86	0.00	0.00	0.79	0.00	0.07	0.00	0.00
WA	2.00	0.76	57.14	0.00	0.00	0.53	0.00	0.04	0.00	0.00
Totals:	49.00		85.71		9.09		0.01		0.00	0.01

3. EMISSIONS ANALYSIS

This audit found that ARA Property Services' total emissions footprint in FY2023 was **1,812.06 tCO2e** and that a significant portion of these emissions were the result of Staff Travel (49%), followed by Expenses (19%) and Electricity (15%).

The measure to which a company relies on a carbon-intensive economy can be deduced by looking at the average intensity of emissions per dollar spent and per full-time-equivalent employee. These two indicators have been calculated for ARA Property Services as shown below:

Table 14: Carbon Intensity Indicators for ARA Property Services, (FY2023)

Indicator	Value
Emissions per dollar spent (kgCO2e /$AUD) [2]	0.14
Emissions per FTE employee (tCO2e /FTE)	5.53

3.1. Emissions from **fuel use** (135.39 tonnes of CO2e) were a moderate source of GHG emissions in the context of ARA Property Services' total emissions. The majority of fuel-based emissions, resulted from the combustion of Diesel with a combined (scope 1 & 3) emissions intensity of 3.39 kgCO2e/L.

3.2. **Electricity use** produced 271.77 tCO2-e over FY2023. These emissions were resultant from a total electricity consumption of 357,283.90 kWh which compares to 29,574.78 kWh in FY2021.

3.3. Emissions from **expenses** were attributed 335.37 tCO2-e in FY2023. The most emissions-intensive expense item recorded for the given audit period was I.T Expenses, with an expense of $363,113.73 being attributed 118.97 tCO2-e.

3.4. Emissions from the depreciation of **assets** were attributed 89.46 tCO2-e in FY2023. The most emissions-intensive asset item recorded for FY2023 was 289 1 X Heavy Duty Wal, with a depreciated value of $3,834.67 being attributed 1.49 tCO2-e.

3.5. Emissions attributed to **waste** contributed 8.77 tCO2-e to FY2023's carbon footprint (a negligible source) stemming from the 3.92 tonnes of waste that were sent to landfill (4.90 tonnes were recycled). CRI recommends referring to services like those offered in www.cleanup.org.au for the disposal and recycling of waste types.

3.6. **Staff travel**: Ultimately, emissions from staff travel increased significantly from 238.14 tCO_2-e in FY2021 to 896.70 tCO2-e in FY2023, a considerable contribution towards ARA Property Services' entire carbon footprint.

3.7. Work related **flights** generated 78.97 tCO2-e in FY2023, from the 334 flights that were recorded to have been taken by ARA Property Services' staff. These covered a total of 372,207.67 individual person kilometres and generated emissions equivalent to the combustion of 170 barrels of oil.

3.8. **Staff Telecommuting** produced 0.01 tCO2-e over FY2023. These emissions were resultant from a total electricity consumption of 85.71 kWh which compares to 29,574.78 kWh in FY2021.

[2] Emissions per dollar spent were calculated by dividing the total carbon footprint from expenses (335.37 tCO2e) by the monetary sum of all valid expense entries (i.e. excluding entries marked as 'N/A').

3.9. COMPARISON WITH PREVIOUS YEARS

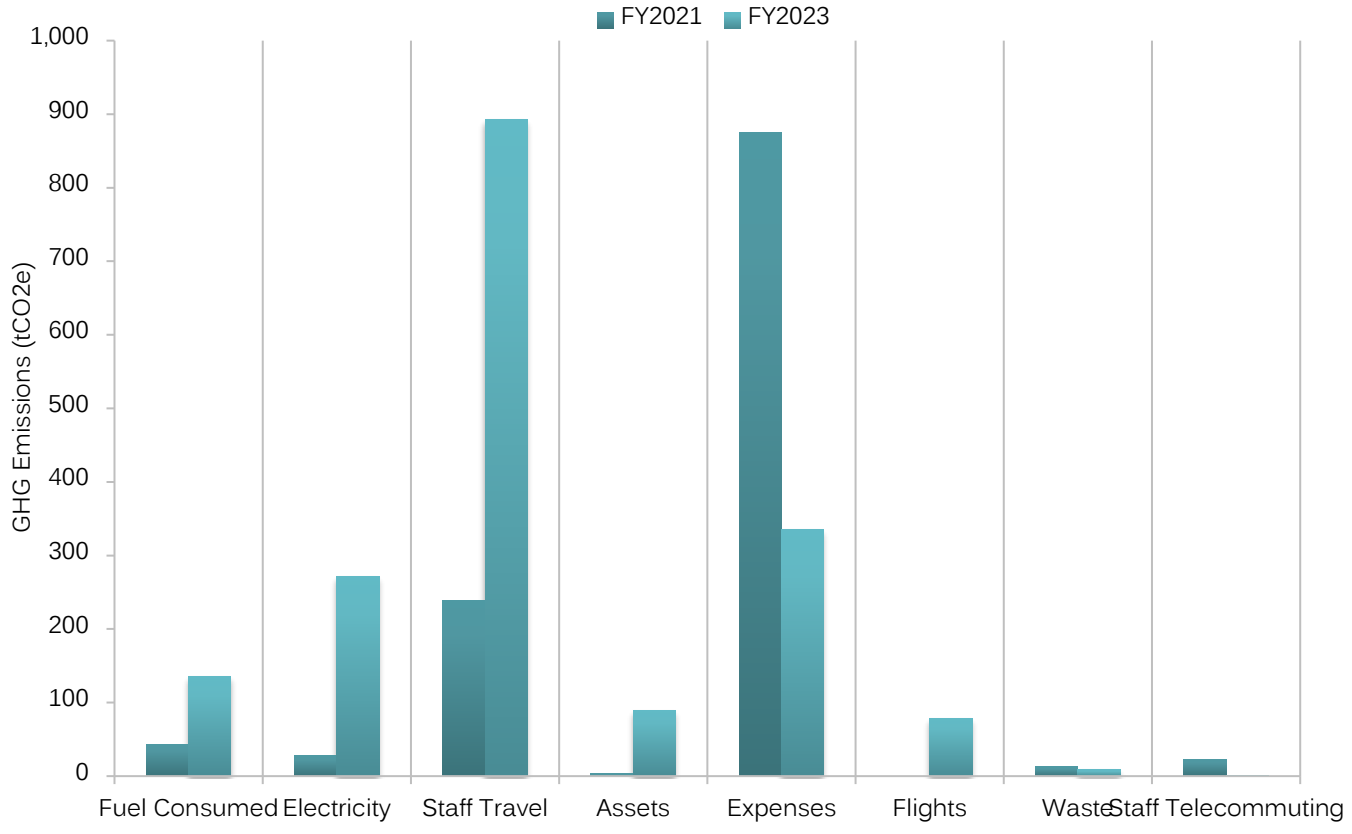
This audit found that ARA Property Services' total emissions footprint has increased from 1,222.35 tCO2-e in FY2021, to 1,812.06 tCO2-e in FY2023.

The most significant change that has occurred during FY2023 is the increase of emissions attributed to Staff Travel, as these changed from 238.14 tCO2-e in FY2021 to 892.32 tCO2-e in FY2023. The second largest change in emissions was a decrease in those attributed to Expenses.

Table 15: Sources of ARA Property Services' emissions for Audited Periods (NoCO2 Boundaries)

Scope	Emission Source	FY2021	FY2023	% Difference From Initial Audit	% Difference From Previous Audit
Scope 1 & 3	Fuel Consumed	43.08	135.39	214%	214%
	Gas Usage	0.00	0.00	-	-
	Refrigerants	0.00	0.00	-	-
Scope 2 & 3	Electricity	27.43	271.77	891%	891%
Scope 3	Staff Travel	238.14	892.32	277%	277%
	Assets	3.59	89.46	2390%	2390%
	Expenses	874.64	335.37	-62%	-62%
	Cost of Sales	0.00	0.00	-	-
	Flights	0.00	78.97	-	-
	Waste	12.56	8.77	-30%	-30%
	Staff Telecommuting	22.91	0.01	-99%	-%
	Gross Total	1,222.35	1,812.06	49%	49%

Figure 9: Comparison of Emissions for Current and Previous Audit Periods



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APPENDIX A. UNCERTAINTY OF SCOPE 1 COMPONENTS

CRI has itemised and assessed the uncertainty margins of all scope 1 emissions.

Uncertainty margins were derived by calculating emissions using values at each extreme end of their own uncertainty margins and then inspecting how much the results (upper bound and lower bound values) deviated from the actual value. Sometimes uncertainty margins can be asymmetric, meaning it is more likely to deviate one way than the other (this is common for values which have lower or upper limits).

Uncertainty margins were assigned from published figures or using CRI's own judgment on the expected variability of a value, for example:

- Emission factors from the IPCC or NGA have uncertainty margins published (at a 95% level of confidence). CRI uses these error margins where available.
- For values for other quantities (e.g. quantity of fuel prices, etc) CRI uses specialised judgement and assigns a reasonable uncertainty margin on a case-by-case basis.

The following summary tables show similar calculations to those shown in their respective parts of this report. However, each variable shows the specific uncertainty range that is inherent to its value.

Table 16: Summary Emissions from Fuel Consumed (with Uncertainties)

Type of Fuel	Litres of Fuel per Year	CO2 EF (kgCO2 /Litre)	CH4 EF (kgCO2 /Litre)	N2O EF (kgCO2 /Litre)	CO2 Emissions (tCO2e)	CH4 Emissions (tCO2e)	N2O Emissions (tCO2e)	Scope 1 Emissions (tCO2e)
Diesel	21,899.00	2.7 ±4%	0 ±52%	0.02 ±52%	59.09 ±4%	0.01 ±52%	0.42 ±52%	59.52 ±4%
Petrol	1,242.00	2.31 ±7%	0 ±53%	0.01 ±53%	2.86 ±7%	0 ±53%	0.01 ±53%	2.87 ±7%
10% Ethanol	260.00	2.01 ±11%	0 ±58%	0.01 ±58%	0.52 ±11%	0 ±58%	0 ±58%	0.52 ±11%
Diesel	10,637.00	2.7 ±4%	0 ±52%	0.02 ±52%	28.7 ±4%	0 ±52%	0.21 ±52%	28.91 ±4%
Petrol	7,224.00	2.31 ±7%	0 ±53%	0.01 ±53%	16.65 ±7%	0 ±53%	0.05 ±53%	16.71 ±7%
Totals:	41262.00			0	107.82 ±5%	0.02 ±52%	0.69 ±52%	108.53 ±5%

APPENDIX B. BREAKDOWN OF SCOPE 1 CONSTITUENTS

The IPCC stresses that quantification of GHGs should be expressed separating each of the principal GHGs: Carbon dioxide (CO2), nitrous oxide (N2O), & methane (CH4). CRI has completed calculations to meet these requirements by including the breakdown scope 1 emissions from fuel use, gas use and refrigerant leakage. This is instanced in the following table.

Table 17: Scope 1 Breakdown of Emission Totals, with Uncertainties

Emissions Source	CO2	CH4	N2O
Liquid Fuels	107.82 ±5%	0.02 ±52%	0.69 ±52%
Totals (tCO2e):	107.82 ±5%	0.02 ±52%	0.69 ±52%
Totals (tCO2e) (All):	108.53 ±5%		

APPENDIX C. ELECTRICITY

Table 18: Emission Factors for Electricity Consumption in Australian States (7)

State	Scope 2 kgCO2e/ kWh	Scope 3 kgCO2e/ kWh	Reference
ACT	0.68	0.05	National Greenhouse Accounts (NGA) Factors by the Australian Government: Department of Environment and Energy. July 2023, Table 1
QLD	0.73	0.15	
SA	0.25	0.08	
VIC	0.79	0.07	
WA	0.53	0.04	

Table 19: Site(s)' Full Electricity Emission Calculations

Address	State	Period Start Date	Period Finish Date	No. of Days	Electricity Use (kWh)	Scope 2 kgCO2e/ kWh	Scope 2 Emissions tCO2e	Scope 3 kgCO2e/ kWh	Scope 3 Emissions tCO2e	Total Emissions tCO2e
3/27 Yallourn St., Fyshwick	ACT	1/07/2022	30/06/2023	365	21,662.00	0.68	14.73	0.05	1.08	15.81
Total for Period:				365	21,662.00		14.73		1.08	15.81
Total for Year:				365	21,662.00		14.73		1.08	15.81

Address	State	Period Start Date	Period Finish Date	No. of Days	Electricity Use (kWh)	Scope 2 kgCO2e/ kWh	Scope 2 Emissions tCO2e	Scope 3 kgCO2e/ kWh	Scope 3 Emissions tCO2e	Total Emissions tCO2e
26 Railway St., Chinchilla	QLD	1/07/2022	30/06/2023	365	70,619.00	0.73	51.55	0.15	10.59	62.14
Total for Period:				365	70,619.00		51.55		10.59	62.14
Total for Year:				365	70,619.00		51.55		10.59	62.14

Address	State	Period Start Date	Period Finish Date	No. of Days	Electricity Use (kWh)	Scope 2 kgCO2e/ kWh	Scope 2 Emissions tCO2e	Scope 3 kgCO2e/ kWh	Scope 3 Emissions tCO2e	Total Emissions tCO2e
52 McDougall St., Milton	QLD	1/07/2022	30/06/2023	365	1,988.00	0.73	1.45	0.15	0.30	1.75
Total for Period:				365	1,988.00		1.45		0.30	1.75
Total for Year:				365	1,988.00		1.45		0.30	1.75

Address	State	Period Start Date	Period Finish Date	No. of Days	Electricity Use (kWh)	Scope 2 kgCO2e/ kWh	Scope 2 Emissions tCO2e	Scope 3 kgCO2e/ kWh	Scope 3 Emissions tCO2e	Total Emissions tCO2e
S10, 213 Greenhill Rd., Eastwood	SA	1/07/2022	30/06/2023	365	32,890.00	0.25	8.22	0.08	2.63	10.85
Total for Period:				365	32,890.00		8.22		2.63	10.85
Total for Year:				365	32,890.00		8.22		2.63	10.85

Address	State	Period Start Date	Period Finish Date	No. of Days	Electricity Use (kWh)	Scope 2 kgCO2e/ kWh	Scope 2 Emissions tCO2e	Scope 3 kgCO2e/ kWh	Scope 3 Emissions tCO2e	Total Emissions tCO2e
442-450 Auburn Road, Hawthorne	VIC	1/07/2022	30/06/2023	365	162,594.00	0.79	128.45	0.07	11.38	139.83
Total for Period:				365	162,594.00		128.45		11.38	139.83
Total for Year:				365	162,594.00		128.45		11.38	139.83

Address	State	Period Start Date	Period Finish Date	No. of Days	Electricity Use (kWh)	Scope 2 kgCO2e/ kWh	Scope 2 Emissions tCO2e	Scope 3 kgCO2e/ kWh	Scope 3 Emissions tCO2e	Total Emissions tCO2e
unit 12 & 14, 80 Monash Dr., Dandenong	VIC	1/07/2022	30/06/2023	365	9,948.90	0.79	7.86	0.07	0.70	8.56
Total for Period:				365	9,948.90		7.86		0.70	8.56
Total for Year:				365	9,948.90		7.86		0.70	8.56

Address	State	Period Start Date	Period Finish Date	No. of Days	Electricity Use (kWh)	Scope 2 kgCO2e/ kWh	Scope 2 Emissions tCO2e	Scope 3 kgCO2e/ kWh	Scope 3 Emissions tCO2e	Total Emissions tCO2e
53 Burswood Rd., Perth	WA	1/07/2022	30/06/2023	365	57,582.00	0.53	30.52	0.04	2.30	32.82
Total for Period:				365	57,582.00		30.52		2.30	32.82
Total for Year:				365	57,582.00		30.52		2.30	32.82