CARBON REDUCTION INSTITUTE

NoCO2 Audit Report

KENNEDY NOLAN

FY2020

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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.

Kennedy Nolan is an architectural practice which focuses on innovative approaches to public and residential projects that delivers a highly responsive design, sensitive to its context in conjunction with sustainable design initiatives.. Kennedy Nolan 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 2020 financial year (FY2020).

This report provides the results of this audit, and delivers an understanding of the organisation's GHG inventory. Kennedy Nolan 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 FY2020 period, subject to Kennedy Nolan's 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 Kennedy Nolan's 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 Kennedy Nolan's relevant operations and activities, within the boundaries of the NoCO2 program, were **109.57 tonnes of CO2e** (tCO2e) over the FY2020 period.

A breakdown of Kennedy Nolan's emissions by source is summarised in the chart immediately below.

Figure 1: Breakdown of Kennedy Nolan's GHG Emissions, FY2020

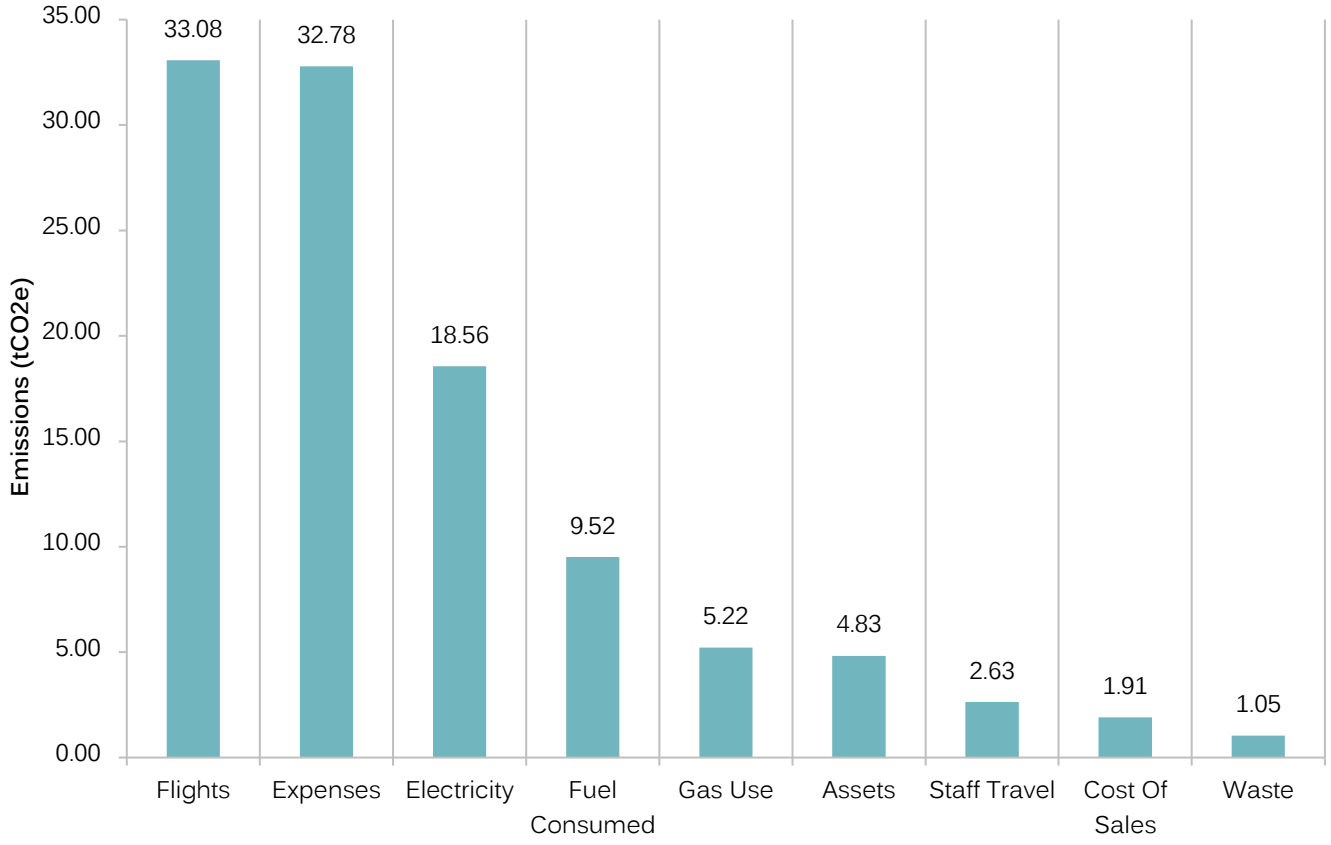
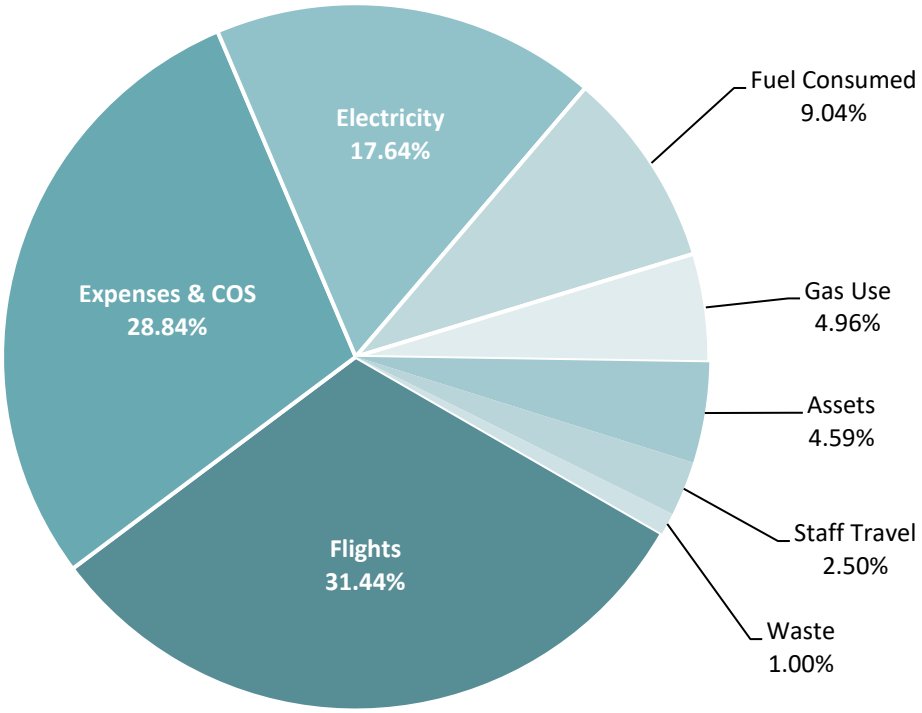


Table 1: Sources of Kennedy Nolan's emissions (NoCO2 Boundaries)

Scope	Emission Source	Emissions (tCO2e/year)
Scope 1	Fuel Consumed	9.05
	Gas Use	4.85
	Refrigerants	0.00
Scope 2	Electricity	16.90
Scope 3	Supply of Electricity	1.66
	Supply of Gas	0.37
	Staff Travel	2.63
	Supply of Fuel	0.46
	Assets	4.83
	Expenses	32.78
	Cost Of Sales	1.91
	Flights	33.08
	Waste	1.05
	Total Footprint:	109.57
	Flight Offset	4.35
	Carbon Neutral Electricity	18.56
	Total FY2020 Offset Requirement:	86.66

The table above encapsulates Kennedy Nolan's 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 Carbon Neutral Expenses account for a total of 22.91 tCO2e and 20.91% of Kennedy Nolan's footprint.

Figure 2: Emission Sources for Kennedy Nolan, FY2020



Kennedy Nolan's FY2020 net carbon footprint for certification purposes under CRI's NoCO2 Program is **86.66 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).
FY2020	Financial year of 2020 commencing July 2019, ending June 2020.
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 Kennedy Nolan's commitment to increase the sustainability of its business practices, it is having its overall greenhouse gas impact assessed by CRI. This audit will enable Kennedy Nolan to identify areas where emissions are greatest and calculate the carbon offset requirement that Kennedy Nolan must fulfil in order to achieve NoCO2 certification.

1.1. OPERATIONAL EMISSIONS

In order for Kennedy Nolan 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 Kennedy Nolan) 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 Kennedy Nolan, 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 Kennedy Nolan has bought and used. See section 2.3 for an in-depth description of scope 3 emissions.

2. KENNEDY NOLAN'S 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 Kennedy Nolan 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	968.52	2.70	0.00	0.02	2.64	0.14	0.13	2.77
Diesel	Transportation	977.60	2.70	0.00	0.02	2.66	0.14	0.14	2.80
Petrol	Transportation	261.53	2.31	0.02	0.06	0.62	0.12	0.03	0.66
Petrol	Transportation	1,313.60	2.31	0.02	0.06	3.13	0.12	0.16	3.29
Totals:		3,521.25				9.05		0.46	9.52

2.1.2. GAS USE

Data regarding the amount of gas used was converted into an equivalent number of litres and appropriate emissions factors were applied. This method allowed resultant scope 1 and scope 3 emissions from gas use to be calculated, as shown in Table 3.

Table 3: Summary of Emissions from Gas Use

Address	State	Gas Use (GJ)	Scope 1 EF (kgCO2e/GJ)	Total Scope 1 Emissions (tCO2e)	Scope 3 EF (kgCO2 /GJ)	Total Scope 3 Emissions (tCO2e)	Total Emissions (tCO2e)
61 Victoria Street	VIC	94.08	51.53	4.85	3.90	0.367	5.22
Totals		94.08		4.85		0.37	5.22

2.1.3. REFRIGERANTS

It was indicated to CRI that over the reporting period Kennedy Nolan 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). The following table shows a summary of the accounting implemented by CRI and resulting emissions as calculated using the described method.

Table 4: 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
61 Victoria Street, Fitzroy 3065	VIC	16,567.39	1.02	16.90	0.10	1.66	18.56
	Total:	16,567.39		16.90		1.66	18.56

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 E. Cost of Sales, Expenses & Assets.

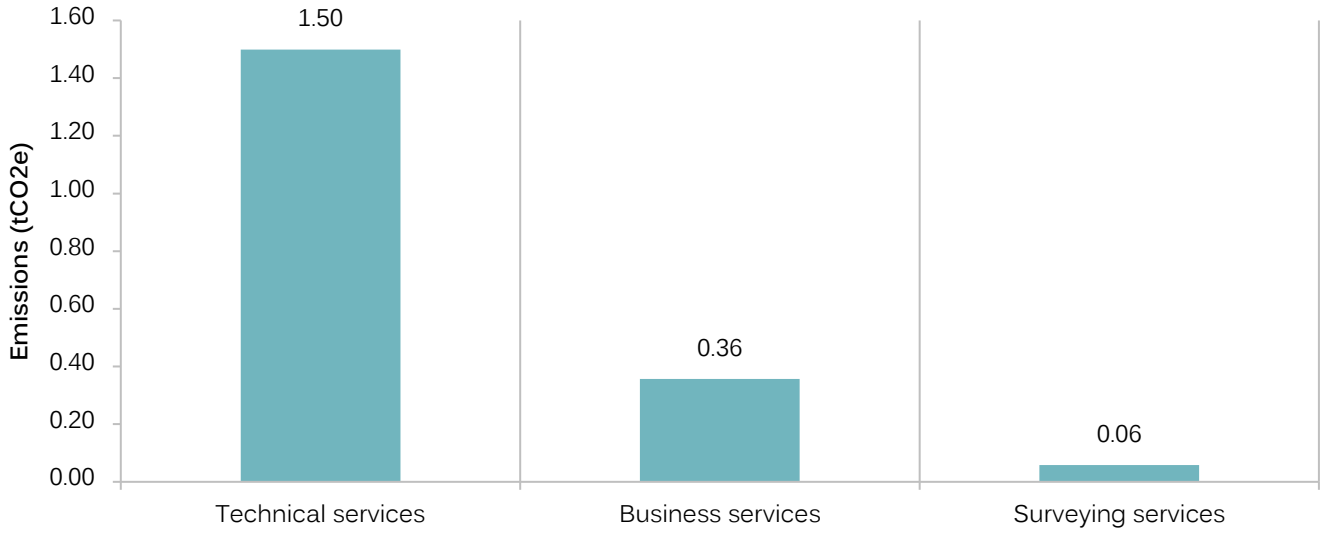
2.3.1. COST OF SALES

Using the profit and loss statements supplied, the embodied emissions from Kennedy Nolan's cost of sales were calculated. The following tables and figures show a summary of the type of cost of sale items that generated the most emissions.

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

Category	Expense %	Emissions (tCO2e)
Technical services	74.04	1.50
Business services	16.89	0.36
Surveying services	9.07	0.06
Totals:	100.00	1.91

Figure 3: Summary of Embodied Emissions from Cost of Sales (by MRIO Categories)



2.3.2. EXPENSES

Similarly, the embodied emissions from Kennedy Nolan's expenses were calculated.

Table 6: Summary of Embodied Emissions from Expenses, (by General Type) [1]

Type of Expense	Amount Spent %	tCO2e/year
Operating Expenses	98.59	27.05
Motor Vehicle Expenses	0.42	0.30
Travel Expenses	0.98	5.43
Totals:	100.00	32.78

1 The total monetary sum in Table 6 differs from that in Table 7 as categories with zero emissions are excluded.

Figure 4: Summary of Embodied Emissions from Expenses (by General Type)

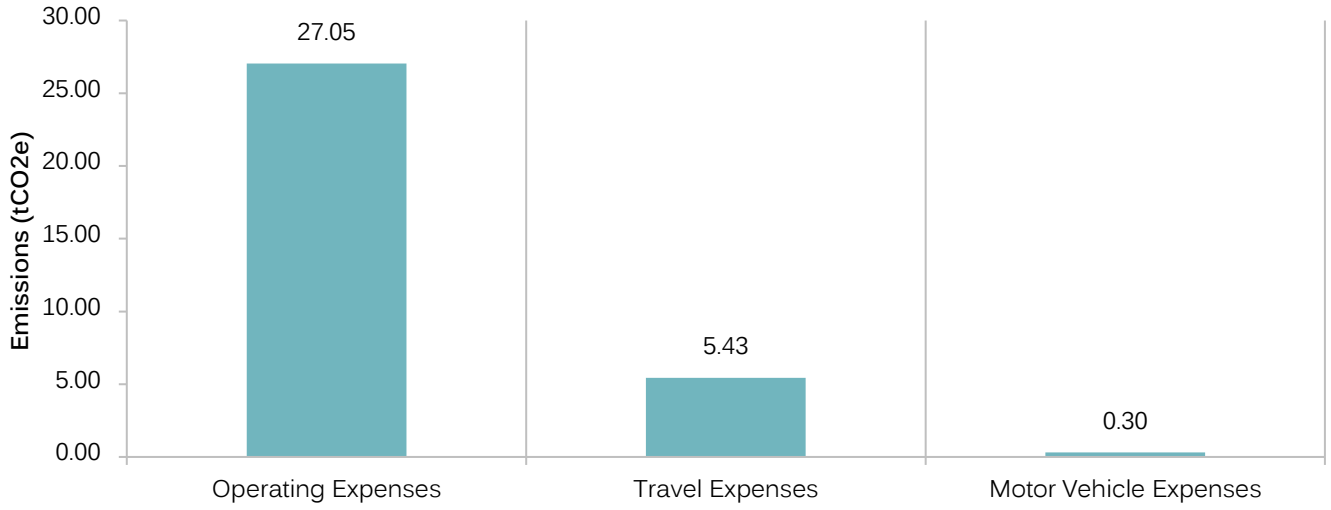
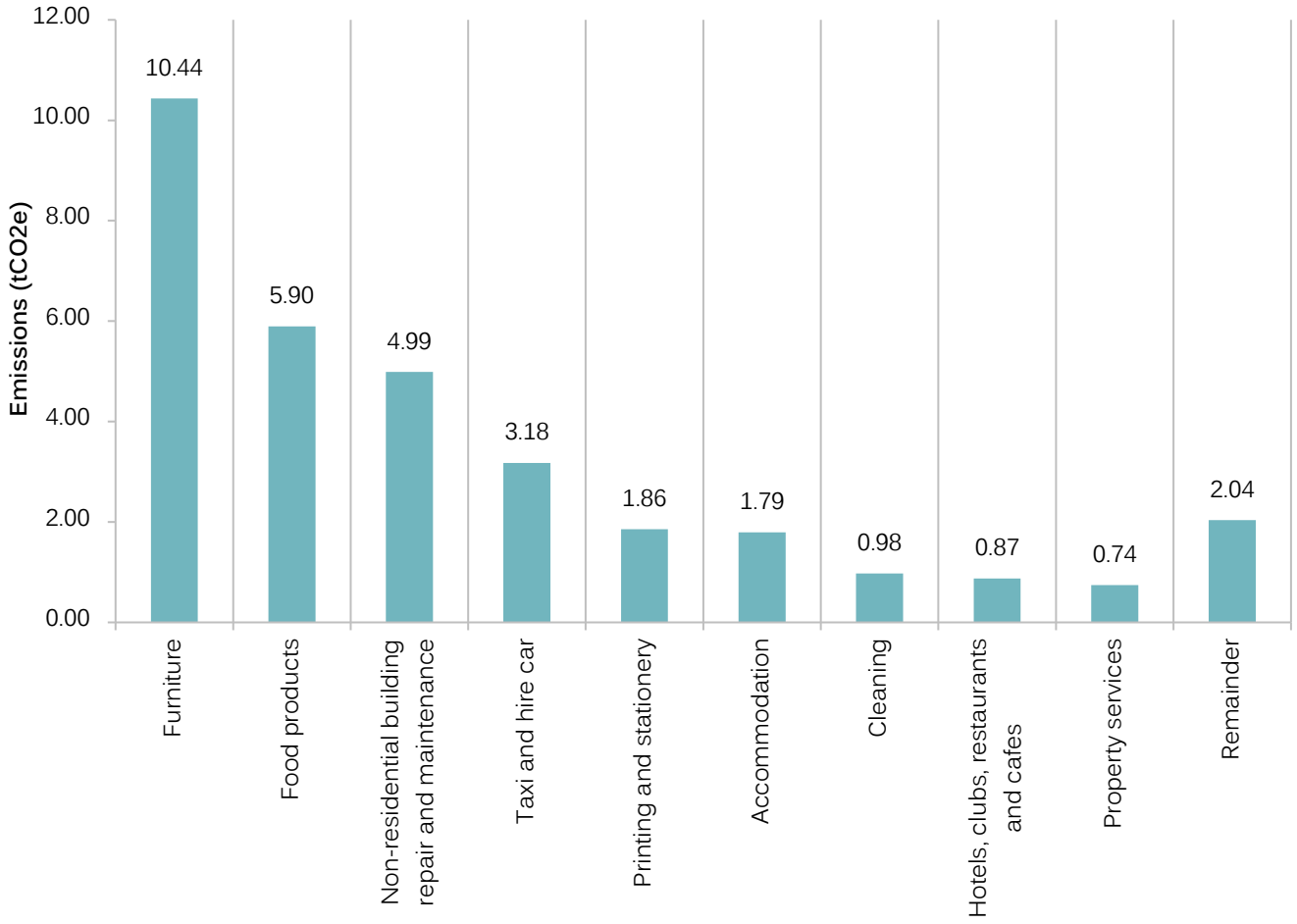


Table 7: Summary of Embodied Emissions from Expenses (by MRIO Categories)

Category	Expense %	Emissions (tCO2e)
Furniture	5.73	10.44
Food products	2.86	5.90
Non-residential building repair and maintenance	2.76	4.99
Taxi and hire car	0.74	3.18
Printing and stationery	2.95	1.86
Accommodation	2.82	1.79
Cleaning	1.97	0.98
Hotels, clubs, restaurants and cafes	1.12	0.87
Property services	31.91	0.74
Accounting services	14.77	0.51
Business services	8.58	0.36
Motor vehicle repairing	0.18	0.27
Technical services	5.55	0.22
Insurance	6.06	0.21
Domestic telecommunication services	4.23	0.15
Bus and tramway	0.02	0.08
Advertising services	1.82	0.07
Books, maps, magazines	0.09	0.06
Banking	2.00	0.03
Computer and technical services	0.87	0.03
Education	1.88	0.03
Legal services	0.30	0.01
State government	0.32	0.01
Federal government	0.24	0.01
Water supply; sewerage and drainage services	0.11	0.00
Postal services	0.10	0.00
Parking services	0.04	0.00
Totals:	100.00	32.78

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



2.3.3. ASSETS

CRI used Kennedy Nolan's 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 Kennedy Nolan 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.

Table 8: Summary of Embodied Emissions from Assets (by General Type)

Type of Assets	Value Depreciated %	tCO2e/year
Leasehold Improvements	14.54	0.71
Office Furniture & Equipment	67.66	3.29
Furniture & Fittings	9.99	0.49
Website/Software	1.74	0.00
Motor Vehicles	6.07	0.34
Totals:	100.00	4.83

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

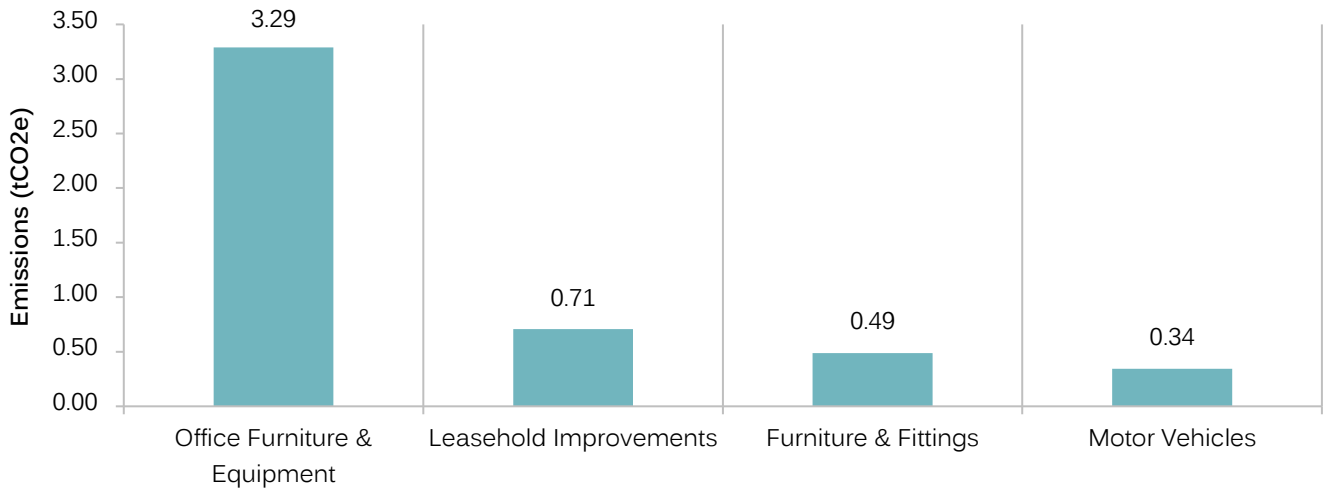
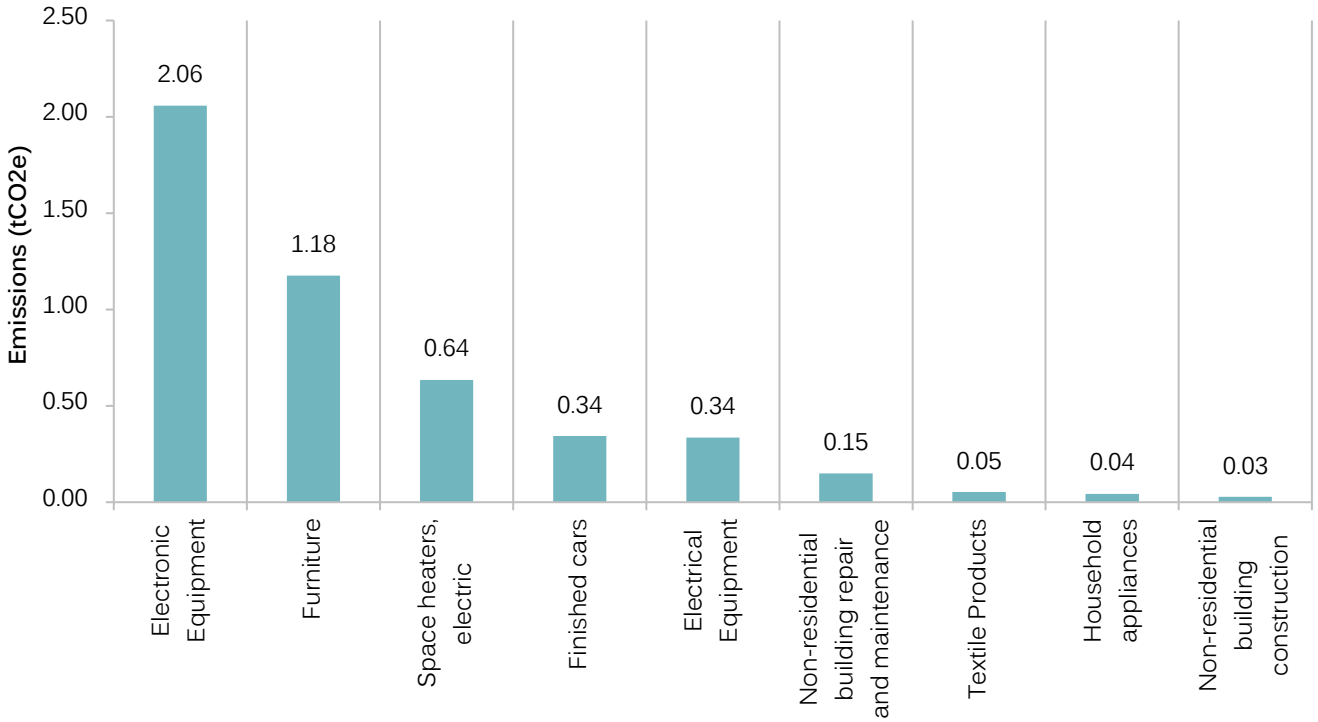


Table 9: Summary of Embodied Emissions from Assets (by MRIO Categories)

Category	Depreciated Value %	Emissions (tCO2e)
Electronic Equipment	44.47	2.06
Furniture	23.34	1.18
Space heaters, electric	13.24	0.64
Finished cars	6.17	0.34
Electrical Equipment	7.43	0.34
Non-residential building repair and maintenance	2.99	0.15
Textile Products	0.68	0.05
Household appliances	0.53	0.04
Non-residential building construction	0.92	0.03
Manufactured Wood	0.22	0.00
Totals:	100.00	4.83

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



2.3.4. WASTE

Kennedy Nolan provided information to CRI estimating its waste generated. 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 Kennedy Nolan's waste generation using the method illustrated in Equation 3 and Table 11 below.

Equation 3: Emissions from Waste

$$Waste\ Emissions = \frac{Waste\ Volume}{year} \times Waste\ Conversion\ Factor(m^3 \rightarrow tonnes) \times EF\left(\frac{kgCO_2e}{tonne}\right)$$

The following waste conversion factors were used to convert data provided in volume (m3) to weight (tonnes):

Table 10: Waste Conversion Factors (Volume To Weight)

Waste Type	Volume to Weight (t/m3)	Reference
Co-Mingled	0.12	NGER (2018), Page 579

Table 11: Emissions from Waste (7)

Volume of Waste /Yr (m3)	Waste Type	Recycled Portion (%)	Conversion Factor (m3 to tonnes)	Tonnes Recycled	Tonnes Landfilled	Waste Type	tCO2e /tonne waste	tCO2e
6.24	Co-Mingled	0%	0.120	0.00	0.75	Commercial & Industrial Waste	1.20	0.90
6.24	Co-Mingled	100%	0.120	0.75	0.00		1.20	0.00
1.04	Co-Mingled	0%	0.120	0.00	0.12		1.20	0.15
0.15	Co-Mingled	100%	0.120	0.02	0.00		1.20	0.00
13.67				0.77	0.87			1.05

2.3.5. STAFF AIR TRAVEL (FLIGHTS)

The emissions from flights taken by Kennedy Nolan 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' (9) data for air passenger emission factors per passenger kilometre, and are scaled for domestic flights, short haul flights and long haul flights.

Table 12 shows the recorded flights taken for work related affairs by individuals from Kennedy Nolan and the respective calculated emissions for each flight.

Any flight offsets purchased with supporting evidence are deducted from the overall carbon footprint as shown in Table 1. Nonetheless, flights offset through airlines may not take into account the Radiative Forcing Index (RFI) factor or the additional uplift factor inherent in travelling on a plane (GCF). For this reason, CRI has calculated and accounted for any additional emissions from these flights as well.

Table 12: Staff flights by Kennedy Nolan

Flight	Origin	Dest. 1	Dest. 2	Dest. 3	Dest. 4	Dest. 5	Return (Y/N)	# of Passengers	tCO2e from One-way Trip to Dest. 1	tCO2e from One-way Trip to Dest. 2	tCO2e from One-way Trip to Dest. 3	tCO2e from One-way Trip to Dest. 4	tCO2e from One-way Trip to Dest. 5	Total tCO2e	Total Flight Distance (pkm)	Third Party Offset (tCO2e)
1	MEL	SYD					Y	1	0.18					0.36	1,410.79	**0.36**
2	MEL	SYD					Y	1	0.18					0.36	1,410.79	**0.36**
3	MEL	LAX	JFK				N	3	2.50	0.63				9.37	50,196.20	
4	MEL	ORD	DEN	LAX	MEL		N	3	3.04	0.23	0.22	2.50		17.95	93,376.36	
5	MEL	SYD					Y	2	0.18					0.72	2,821.58	**0.72**
6	MEL	SYD					Y	1	0.18					0.36	1,410.79	**0.36**
7	MEL	NTL					Y	2	0.13					0.53	3,341.91	
8	MEL	BNE					Y	2	0.22					0.87	5,523.47	
9	MEL	AKL	CHC	ZQN	AKL	MEL	N	2	0.42	0.19	0.09	0.16	0.42	2.55	14,783.73	**2.55**
						# of Flights:		17					Total tCO2e:	33.08	174,275.62	4.35

2.3.6. STAFF GROUND TRAVEL

Staff travel includes emissions from private road travel that takes place due to Kennedy Nolan's operations, this includes commuting to work and any work-related travel. GHG emissions resulting from the use of public transport by Kennedy Nolan's staff are not attributed to Kennedy Nolan, as the emissions created from its utilisation of public transport cannot be affected by Kennedy Nolan's 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 Kennedy Nolan is collected and figures for fuel use per kilometre (10) 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 (9) and are shown in Table 26 (Appendix F. Staff Ground Travel).

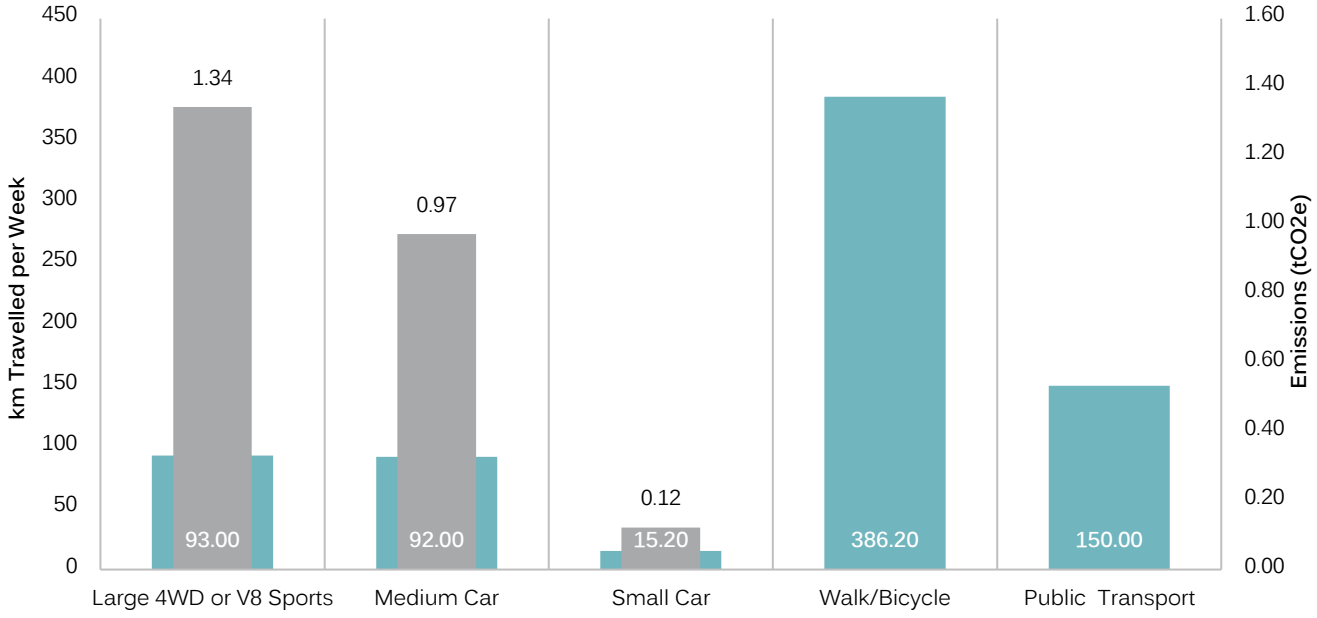
To obtain the final emission quantity for each employee's commuting, Scope 1 and Scope 3 emission factors for transport fuel combustion were used. Emission factors for the relevant fuel types used by Kennedy Nolan are available in Table 27 (Appendix F. Staff Ground Travel).

Emissions from ground travel are calculated using information provided by Kennedy Nolan's office staff and/or correspondents. A total of 19 staff answered a survey regarding their average number of kilometres travelled and their individual transport methods and Kennedy Nolan has indicated that a total of 20.3 Full-Time Equivalent (FTE) staff are employed. Where private vehicles were used, type of car and type of fuel used were also considered.

Table 13: Emissions from Staff Ground Travel by Vehicle Type (Summary)

Vehicle Type	Quantity	Total km /Week	Total tCO2e /Year
Large 4WD or V8 Sports	2	93.00	1.34
Medium Car	4	92.00	0.97
Small Car	2	15.20	0.12
Walk/Bicycle	17	386.20	0.00
Public Transport	1	150.00	0.00
		Subtotal:	2.44
		Total (Adjusted for FTE Staff)	2.63

Figure 8: Summary of Staff Ground Travel Types and Emissions



3. EMISSIONS ANALYSIS

This audit found that Kennedy Nolan's total emissions footprint in FY2020 was **109.57 tCO2e** and that a significant portion of these emissions were the result of Flights (30%), followed by Expenses (30%) and Electricity (17%).

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 Kennedy Nolan as shown below:

Table 14: Carbon Intensity Indicators for Kennedy Nolan, (FY2020)

Indicator	Value
Emissions per dollar spent (kgCO2e /$AUD) [2]	-
Emissions per FTE employee (tCO2e /FTE)	5.40

3.1. Emissions from **fuel use** (9.52 tonnes of CO2e) were a small source of GHG emissions in the context of Kennedy Nolan's total emissions. The majority of fuel-based emissions, resulted from the combustion of Diesel with a combined (scope 1 & 3) emissions intensity of 2.86 kgCO2e/L.

3.2. The **combustion of gas** generated 5.22 tCO2-e (a small emissions source), resulting from a total gas consumption of 94,084.35 MJ.

3.3. **Electricity use** produced 18.56 tCO2-e over FY2020. These emissions were resultant from a total electricity consumption of 16,567.39 kWh.

3.4. Emissions from **cost of sales** were attributed 1.91 tCO2-e in FY2020. The most emissions–intensive cost of sales item was Services Engineers being attributed 0.66 tCO2-e.

3.5. Emissions from **expenses** were attributed 32.78 tCO2-e in FY2020. The most emissions-intensive expense item recorded for the given audit period was Equip/Furniture Under $5000, being attributed 10.44 tCO2-e.

3.6. Emissions from the depreciation of **assets** were attributed 4.83 tCO2-e in FY2020. The most emissions-intensive asset item recorded for FY2020 was Mitsubishi Heater, being attributed 0.49 tCO2-e.

3.7. Emissions attributed to **waste** contributed 1.05 tCO2-e to FY2020's carbon footprint (a negligible source) stemming from the 0.87 tonnes of waste that were sent to landfill (0.77 tonnes were recycled). CRI recommends referring to services like those offered in www.cleanup.org.au for the disposal and recycling of waste types.

3.8. **Staff travel**: A new staff travel survey was conducted for FY2020, the results of which have been presented in **Table 26**. An effective 19 full-time equivalent staff were surveyed from a total of 20.3 full-time-equivalent employed. Ultimately, emissions from staff travel amounted to 2.63 tCO2-e in FY2020, a very small contribution towards Kennedy Nolan's entire carbon footprint.

3.9. Work related **flights** generated 33.08 tCO2-e in FY2020, from the 17 flights that were recorded to have been taken by Kennedy Nolan's staff. These covered a total of 174,275.62 individual person kilometres and generated emissions equivalent to the combustion of 71 barrels of oil.

2 Emissions per dollar spent were calculated by dividing the total carbon footprint from expenses (32.78 tCO2e) by the monetary sum of all valid expense entries (i.e. excluding entries marked as 'N/A').

REFERENCES

1. **World Business Council for Sustainable Development, World Resources Institute.** *The Greenhouse Gas Protocol.* 2004.

2. **International Standards Organisation.** *ISO 14064-1: Specification with guidance at the organization level for quantification and reporting of greenhouse gas emissions and removals.* Geneva, Switzerland : International Standards Organisation, 2018.

3. **Lenzen, M., Moran, D., Kanemoto, K., Geschke, A.** Building Eora: A Global Multi-regional Input-Output Database at High Country and Sector Resolution. *Economic Systems Research.* 2013, Vol. 25, 1.

4. **Rober Sausen, Ivar Iseksen, et al.** *Aviation Radiative Forcing in 2000: An Update on IPCC (1999).* 2005.

5. **Intergovernmental Panel on Climate Change.** Aviation and the Global Atmosphere. [Online] http://www.ipcc.ch/ipccreports/sres/aviation/121.htm#8223.

6. **World Resources Institute and World Business Council for Sustainable Development.** *The Greenhouse Protocol.* Conchese-Geneva, Switzerland : s.n., 2004.

7. **Australian Department of the Environment and Energy.** *National Greenhouse Accounts Factors.* 2019.

8. **Lenzen, Manfred, Foran, Barney and Dey, Christopher.** *Balancing Act; A Triple Bottom Line Analysis of The Australian Economy.* s.l. : CSIRO, 2005.

9. **Department of Environment, Food and Rural Affairs (DEFRA).** *2019 Guidelines to DEFRA's GHG Conversion Factors for Company Reporting.* 2019.

10. **Australian Department of Infrastructure and Transport.** Green Vehicle Guide. [Online] 2010. www.greenvehicleguide.gov.au.

11. **Lenzen, Manfred, et al.** *Shared producer and consumer responsibility - Theory and Practice.* 2006.

12. **Lenzen, M., Kanemoto, K., Moran, D., Geschke, A.** Mapping the Structure of the World Economy. *Environmental Science & Technology.* 2012, Vol. 46, 15.

13. **Reserve Bank of Australia.** Measures of Consumer Price Inflation. *Reserve Bank of Australia.* [Online] 25 July 2018. http://www.rba.gov.au/inflation/measures-cpi.html.