



Carbon Footprint Report for:
Chia Sisters
Period: 2019 Financial Year



17th July 2019

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1. Summary

This report is a carbon footprint measurement report of greenhouse gas emissions and offsetting prepared for Chia Sisters with the following boundaries:

Organisation details Name: Chia Sisters
Contact person: Chloe Van Dyke
Email: chloe@chia.co.nz
Area of Business: Beverage Manufacturing
FTEs: 3.5

Report period 1st April 2018 – 31st March 2019

Organisational Boundary This measurement covers the following sites:
93 Pascoe Street
89 Pascoe Street (Nov- Mar electricity & waste only)

Operational Boundary Business Operations Scope 1, 2 and 3 emissions resulting from:

- Fuels
- Air-conditioning
- Purchased energy
- Line losses
- Driving
- Flying
- Waste to Landfill
- Freight

Omissions None

Emissions Total emissions = 22.55 tCO₂e (including radiative forcing)

Offsets Total offsets = 27.07 tCO₂e (120% offset)



Chia Sisters has elected to offset 120% of these emissions with New Zealand Carbon Units (NZU's) provided by Ekos. Through this measurement and offsetting Chia Sisters has qualified for Climate Positive Business Operations certification.

2. Methodology

This report was prepared with activity data provided by Chia Sisters and compiled and calculated by Ekos.

The International Standards Organisation (ISO) 14064-1 sets out two methods for measuring greenhouse gas emissions:

- I. Direct measurement
- II. Use of an emission factor multiplied by activity data.

This report is based on method II.

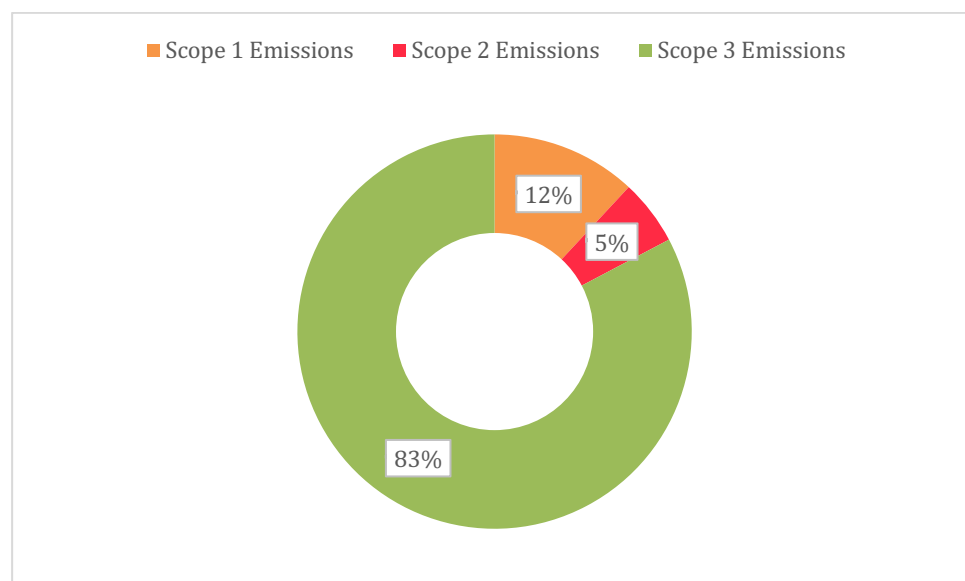
Emission factors have been sourced from the New Zealand Ministry for the Environment 2016 Guidance for Voluntary Greenhouse Gas Reporting and the UK's Department of Environment, Food and Rural Affairs (DEFRA 2018).

3. Emissions by Scope

Table 1. Emissions by Scope (including radiative forcing)

Scope 1 Emissions	2.32
Scope 2 Emissions	1.04
Scope 3 Emissions	19.19

Figure 1. Emissions by Scope



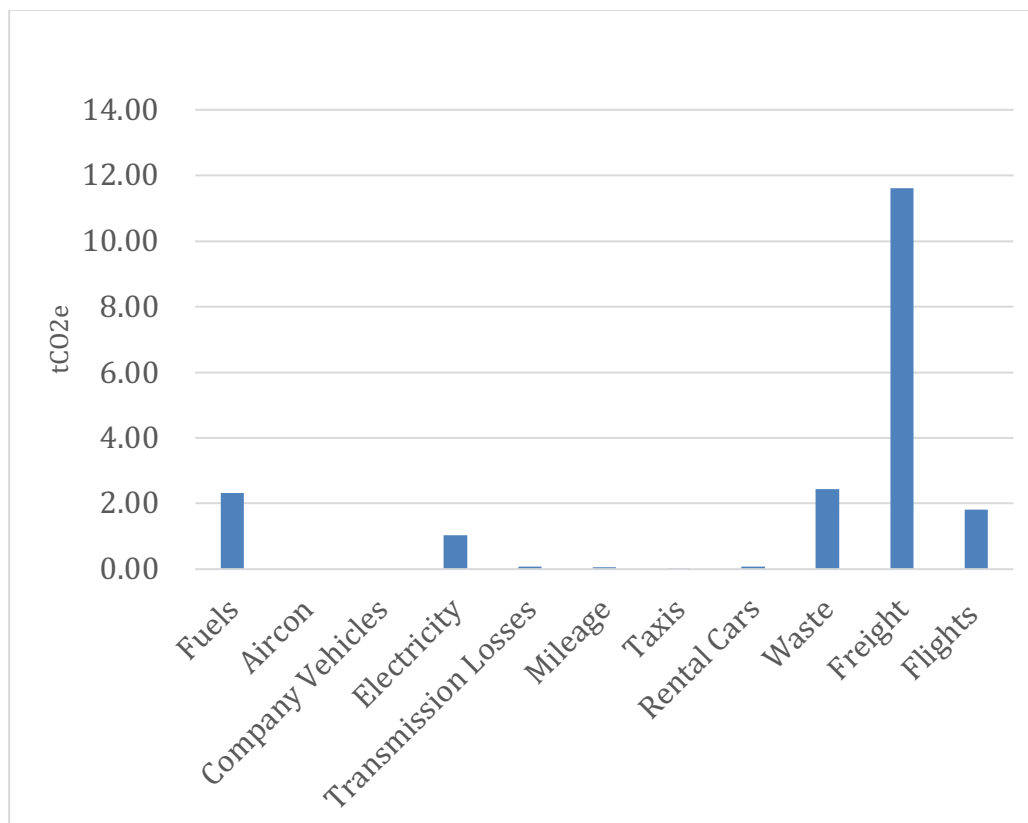


4. Emissions by Activity

Table 2. Emissions by Activity (including radiative forcing)

	Activity	tCO2e
Scope 1	Fuels	2.32
	Aircon	0.00
	Company Vehicles	0.00
Scope 2	Electricity	1.04
Scope 3	Transmission Losses	0.09
	Mileage	0.05
	Taxis	0.02
	Rental Cars	0.07
	Waste	2.44
	Freight	13.11
	Flights	3.43
Total		22.55
FTEs		3.5
Footprint per FTE		6.44418581

Figure 2. Emissions by Activity (Including radiative forcing)





5. Omissions

There were no organisational or activity omissions.

6. Uncertainty

The Ekos *de minimis* rule was not applied to any activities in this measurement.

The Ekos *De minimis* rule is to apply a conservative 2% of the client's total footprint to activities relevant to the client, but where there is insufficient data to make a calculation or an evidence-based estimate. The *De minimis* rule is only applied to those activities that Ekos is able to determine will be less than 1% of the client's total footprint.

Freight outwards

Due to the lack of precise data, Chia Sisters made a conservative evidence-based calculation of their freight distances.

Manufacturing emissions

Chia contracted minor production runs at Bays Brewery 89 Pascoe street within the 2019 financial year. The emissions associated with these contracted services are deemed out of scope for this measurement.

Chia moved into the manufacturing company at 89 Pascoe street April 2019. Chia will need to measure all associated emissions relating to manufacturing in future measurements.

Future recommendations

We recommend that Chia Sisters puts systems in place to enhance its measurement for the following activities: Freight Outwards (weight, origin, destination)

7. Offsets and Certification

To qualify for Climate Positive Certification with Ekos an organisation must measure and offset 120% of Scope 1 (fuels, air conditioning) Scope 2, (purchased energy), and Scope 3 (line losses, driving, flying, freight and waste to landfill) activity emissions.

Chia Sisters has measured all required activity emissions, totalling 22.55 tCO₂e including radiative forcing

Chia Sisters has offset 27.07 tCO₂e (120%)



Chia Sisters qualifies for Climate Positive Business Operations, 2019 Financial Year certification.

Offsets are sourced from New Zealand Carbon Units produced in the Rameka Carbon Forest Project in Golden Bay, New Zealand, and these offsets are retired on the New Zealand Carbon Registry.

8. Emission Reduction Recommendations

The emissions profile hotspot for Chia Sisters 2019 FY is its outward freight emissions.

To reduce freight emissions Ekos recommends:

- Use a freight company that is calculating and offsetting its emissions. Kiwi Express is a Carbon Zero certified freight company: <http://www.kiwiexpress.co.nz/>
- Prioritise using ship freight over air freight whenever possible. Air freight dramatically increases the emission per kg of product despatched.



9. Glossary

Greenhouse gas (GHG)

Gaseous constituent of the atmosphere, both natural and anthropogenic, that absorbs and emits radiation at specific wavelengths within the spectrum of infrared radiation emitted by the Earth's surface, the atmosphere, and clouds. These include: carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs) and sulphur hexafluoride (SF₆).

The GHG scopes referred to are:

- Scope 1 - direct emissions from sources owned or controlled by you (e.g. diesel generator, coal heating, own vehicle fleet, agriculture)
- Scope 2 - indirect emissions generated by purchased energy (e.g. electricity, gas)
- Scope 3 - indirect emissions that are a consequence of the operations of an organisation or individual, but are not directly owned or controlled by the organisation or individual (e.g. flights, freight, non-company vehicles, waste, accommodation, electricity line losses).

Radiative forcing (RF) - Radiative forcing helps organisations account for the wider climate effects of aviation, including water vapour and indirect GHGs. This is an area of active research, aiming to express the relationship between emissions and the climate warming effects of aviation, which is yet to be agreed. For this reason, Ekos makes accounting for RF optional for our clients.

A multiplier of 1.9 is used to account for Radiative forcing in accordance with the Ministry for Environment *Measuring Emissions: A Guide for Organisations 2019*.



Appendix 1: Emission Factors

Ekos uses emission factors provided by following the New Zealand Ministry for the Environment (MfE) Guidance for Voluntary Greenhouse Gas Reporting 2016

Where emission sources are not covered by the MfE emission factors, Department for Environment and Rural Affairs (DEFRA) UK Government conversion Factors for Greenhouse Gas Reporting 2018.

Emission source	Emission Factor	Notes
Electricity		
Electricity	0.000119 tCO ₂ e/kWh	MfE
Electricity Line Losses	0.0000097 tCO ₂ e/kWh	MfE
Fuels		
LPG Commercial	0.00303 tCO ₂ e/kg	Commercial
Non-Company Vehicles		
Medium Diesel	0.00017/km	
Small Petrol	0.00019/km	
Taxis Expenditure	0.000067/dollar	
Rental Car	0.00021	
Waste to Landfill		
Mixed waste (with gas recovery)	0.00044 tCO ₂ e/kg	Conversion from kgs to L divides by 7.6923
Flights		
NZ Domestic	0.000147 tCO ₂ e/km	MfE
NZ International <3,700km Economy	0.0000873 tCO ₂ e/km	Uplift and conservative ness factor of 9% is applied. If Radiative Forcing is included the ATTICA radiative forcing factor of 1.89 is applied.
Business	0.000131 tCO ₂ e/km	
NZ International >3,700km Economy	0.0000725 tCO ₂ e/km 0.000116 tCO ₂ e/km	
Freight		
Air Freight	0.00077 tCO ₂ e/tonne. Km	If Radiative Forcing is included a multiplier of 1.9 is applied, as recommended by MfE.
Road Freight Van	0.0006 tCO ₂ e/ tonne. km	Assumption:90% of journey is by truck, 10% by Van Defra
Truck	0.0001 tCO ₂ e/ tonne. km	
Ferry	0.0004 tCO ₂ e / tonne. km	
Container ship	0.00000161 tCO ₂ e/ tonne. Km	Defra

