

Carbon Inventory Report:



Sharesies Group Ltd

Period: 2021 Calendar Year

Unverified Inventory



Date: 13.07.2022

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1 Summary

This carbon inventory was prepared for Sharesies Group Ltd for the 2021 Calendar Year. It is the second annual greenhouse gas (GHG) emissions inventory, prepared for Sharesies Group Ltd. It was prepared in accordance with the requirements of ISO 14064-1 (2018) and covers the period between 01.01.2021 – 31.12.2021.

This inventory is for the 2021 Calendar Year. The base year period is the 2020 calendar year for Sharesies Group Ltd. In subsequent inventories, comparisons will be made to this base year.

1.1 Organisational Information

Sharesies is an investment platform, whose purpose is to create the most financially empowered generation.

2 Background

2.2.1 Statement of intent

Sharesies Group Ltd has provided the following statement of intent:

"To inform our reduction targets, identify areas for improvement, to input to our BCorp assessment and to offset where necessary."

2.1 Communication and dissemination

This inventory was prepared as a management tool for Sharesies Group Ltd to:

- Assist it in managing its response to climate change and its reduction of GHG emissions.
- Be a communication tool that demonstrates to stakeholders that Sharesies Group Ltd has identified its emissions profile, is aware of the significant issues related to climate change and is taking action to mitigate these issues, including offsetting unavoidable emissions.

The users of this report will include, but are not limited to, the staff, manager and Board of Sharesies Group Ltd, its shareholders and members. The summary of this inventory will be made available to all stakeholders on request.

2.2 Verification and Compliance with Standard

This inventory is consistent with the International Standards Organisation's process for calculating and reporting GHG emissions 14064-1 (2018). This measurement was externally reviewed by McHugh & Shaw Ltd as being consistent with the ISO 14064-1 standard for measurement. Whilst this is the case, it should be noted that this measurement is an unverified inventory and that no verification audit has been conducted of the findings.

3 Reporting methodology and compliance standards

3.1 Methodology

This GHG inventory was prepared to be consistent with the international Standards for calculating GHG emissions. These Standards are the World Resource Institute's "Greenhouse gas protocol, a corporate accounting and reporting standard (GHG protocol) and "ISO 14064-1 (2018) Specification with guidance at the organisation level for quantification and reporting of GHG emissions and removals" (ISO 145064-1 (2018)). In measuring this inventory, the five principles of ISO 14064-1 (2018) were strictly applied.

The methodology used in measuring Sharesies Group Ltd 's organisational GHG inventory is illustrated in the following diagram:



Figure 1: ISO 14064-1 (2018) Methodology for Measuring a GHG Inventory

3.2 Data Collection

Data was collected by Sharesies Group Ltd staff with guidance where required from Ekos. The table below provides an overview of the data collected for each emission source. All emissions were calculated using an Ekos-developed calculator. The calculation method used to quantify emissions was the activity data multiplied by the appropriate emission factor:

Tonnes CO₂e = Total GHG activity x appropriate emission factor

GHG emission factors were generally sourced from New Zealand's Ministry for the Environment. Where appropriate emission factors were not available, other reliable sources such as international government agencies or published research were used, as provided in Appendix 1.

3.3 Consolidation approach

The organisational boundary identifies which facilities or subsidiaries of Sharesies Group Ltd are included or excluded from the carbon inventory. Emissions from all aspects of the organisation are consolidated to determine the total volume. Consolidation is done using one of these methods:

- Control, whereby all emissions over which the organisation has either *financial* or *operational* control are included in the inventory
- Equity share, whereby the organisation only includes emissions for the portion of the facilities and business that the organisation owns.

For Sharesies Group Ltd's inventory, the operational control method has been used to consolidate emissions. This means that all emissions over which Sharesies Group Ltd has operational control have been included in the inventory.

Included within Sharesies Group Ltd's organisational boundary are therefore all emission sources that occur within Sharesies Group Ltd's Operations within the Wellington Office, Auckland based co-working office and Sydney based co-working office.

3.4 Base year recalculation policy

Base year data may need to be revised when material changes occur and have an impact on calculated emissions. When the changes are estimated to represent more than 5% of Scope 1, 2 or 3 emissions, or when there are significant changes to the organisational or reporting boundaries or calculation methodology, Ekos' policy is to recalculate base year data with explanation.

3.5 GHG information management and monitoring policy

Sharesies Group Ltd is responsible for appropriate document retention, archiving and record keeping for each emissions source. Ekos' annual review requirement is in place to ensure any errors and omissions in the GHG inventory report is addressed.

4 Organisational boundary

The diagram in Figure 2 below describes the organisational boundary and Table 1 outlines the business units that are included and excluded from this inventory.



Figure 2: Sharesies Group Ltds Organisational Boundary

Table 1: Business units included and excluded from the organisational boundary

Legal entities (include any subsidiaries)	Business unit / Location	Included/ excluded	Reason for exclusion
Sharesies Group Ltd	Wellington Office	Included	
	Auckland co- working office	Included	
	Sydney co- working office	Included	

5 Reporting boundary

The reporting boundary identifies which emission sources are included in the carbon inventory and which are excluded. ISO 14064-1(2018) categorises emissions as follows:

- Scope 1 (category 1) Direct GHG emissions and removals
- Scope 2 (category 2) Indirect GHG emissions from imported energy, heat or steam generated elsewhere
- Scope 3 (category 3) Indirect GHG emissions from transportation
- Scope 3 (category 4) Indirect GHG emissions from products used by the organisation
- Scope 3 (category 5) Indirect GHG emissions associated with the use of products from the organisation
- Scope 3 (category 6) indirect GHG emissions from other sources

In compliance with the ISO Standard, Sharesies Group Ltd has measured all relevant direct and indirect emissions shown below in this GHG inventory.

As per ISO 14064-1 clause 5.2.3, Ekos shall define its own pre-determined criteria for significance. The following qualitative criteria for non-mandatory status have been considered.

- 1. Source data likely to be difficult or expensive to obtain
- 2. The accuracy of the quantified emissions is likely to be poor due to the nature of the emissions factor
- 3. The large amount of assumptions likely to result in unreliable emissions totals

Emissions sources included and excluded from this inventory are shown in below:

Table 2: Sharesies Group Ltds Included and Excluded Emissions Categories

Emissions category & sources	Ekos rule	Include/ Exclude/Not relevant	Source data difficult/ expensive to obtain	Limited level of influence	Insignificant/ de minimis		
Category 1) Direct GHG emissions and removals; (GHG Protocol scope 1)							
Stationary combustion	Mandatory	Include					
Mobile combustion	Mandatory	NA					

Emissions category & sources	Ekos rule	Include/ Exclude/Not relevant	Source data difficult/ expensive to obtain	Limited level of influence	Insignificant/ de minimis	
Chemical and Industrial Processes	Mandatory	NA				
Fugitive emissions	Mandatory	NA				
Land Use and Land Use changes	Mandatory	Include				
Category 2) Indirect G	GHG emissions from	m imported ener	gy; (GHG Proto	col scope 2)		
Purchased Electricity	Mandatory	Include				
Category 3) indirect G	HG emissions from	n transportation	(GHG Protocol s	cope 3)		
Upstream Transport and Distribution of Goods	Mandatory	Include				
Business Travel	Mandatory	Include				
Employee Commuting	Mandatory	Include				
Downstream Transport and Distribution of Goods	Non- mandatory	NA				
Category 4) Indirect GHG emissions from products used by organization; (GHG Protocol scope 3)						

Waste Generated in Mandatory Include Operations **Fuel and Energy** Mandatory Include **Related Activities (T** & D Losses) **Fuel and Energy** Mandatory Include **Related Activities** (WTT emissions for fuel) **Emissions From** Non-Include **Purchased Goods** mandatory **Emissions from the** Include Non-**Use of Services** mandatory **Capital Goods** Include Nonmandatory Upstream Leased Non-Include Assets mandatory Category 5) Indirect GHG emissions associated with the use of products from the organization; (GHG Protocol Scope 3) **Downstream Leased** Mandatory NA Assets Processing of the Non-NA Sold Product mandatory Use Stage of the Excluded Non-Yes Product mandatory End of Life Stage of NA Nonthe Product mandatory

NA

Nonmandatory

Franchises

Emissions category & sources	Ekos rule	Include/ Exclude/Not relevant	Source data difficult/ expensive to obtain	Limited level of influence	Insignificant/ de minimis
Investments	Non- mandatory	NA			
Category 6) Indirect G	HG emissions from	n other sources	(GHG Protocol S	cope 3)	
List any other relevant sources		NA			

Greenhouse Gas (GHG) Inventory 6

Sharesies Group Ltd GHG Summary 6.1

Sharesies Group Ltd total emissions for the 2021 Calendar Year were 249.49 tonnes of CO₂e. Table 3 below shows Sharesies Group Ltds emissions by scope and ISO category and Figure 3 shows Sharesies Group Ltds emissions by scope. The majority of emissions being generated by Scope 3 at 71%, followed by Scope 1 at 23% and Scope 2 at 6%.

Table 3: Sharesies Group Ltds Emissions summary by scope and ISO category

Scope	Scope Emissions Category		
1	(1) Direct GHG Emissions	56.75	
2	(2) Indirect GHG Emissions from Imported Energy	15.61	
3	(3) Indirect GHG emissions from Transportation & Distribution	79.44	
	(4) Indirect GHG Emissions from Products & Services used by the organisation	97.68	
	(5) Indirect GHG Emissions from the use of the Organisations Products	0.00	
	(6) Indirect Emissions from Other Sources	0.00	
Total Gross GHG Emiss	sions	249.49	
GHG Removals/ sinks	0.00		
Purchased credits/ Pre	0.00		
Total Net GHG Emissio	249.49		



Figure 3: Sharesies Group Ltds emissions by scope

Table 4 below shows Sharesies Group Ltds emissions by its chosen intensity level indicators.

Table 4: Sharesies Group Ltds emissions by intensity level indicators

Emissions intensity Indicator	Company Measure	tCO2e
Tonnes of CO ₂ e/Number of FTE	205	1.22
Tonnes of CO ₂ e/Gross Revenue (\$Mil)	17	14.68

6.2 Emissions by activity

Figure 4 and Table 5 below show Sharesies Group Ltd emissions by activity.



Figure 4: Sharesies Group Ltd 2021 Calendar Year Emissions By Activity

Table 5: Sharesies Group Ltd 2021 Calendar Year Emissions by Activity (largest to smallest)

Activities	GHG I CO2e	% of inventory
Natural Gas	56.75	22.7%
Staff Commuting (emissions from all sources)	35.00	14.0%
Capital Expenditure Emissions	30.16	12.1%
Domestic Air Travel - confirmed destination	21.41	8.6%
Total WTT emissions	18.47	7.4%
IT Services & Data Storage	18.30	7.3%
Domestic Air Travel - assumed destination	17.69	7.1%
Electricity (purchased)	15.61	6.3%
Staff Working from Home (electricity)	11.09	4.4%
hub Australia (Co-working space)	7.00	2.8%
Auckland co-working space	3.90	1.6%
Natural Gas T&D Loss	3.37	1.4%
Waste to Landfill (with gas recovery)	2.96	1.2%
Accommodation (New Zealand)	2.76	1.1%
Couriers - van (packages greater than 2kg and less than 25kg)	1.69	0.7%
Electricity T&D loss	1.34	0.5%
Тахі	0.81	0.3%
Purchased G & S - Electricity	0.50	0.2%

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Activities	GHG tCO2e	% of inventory
Wastewater	0.31	0.1%
Waste - composting	0.15	0.1%
Air Freight (Long haul >3700km))	0.08	0.0%
Paper	0.07	0.0%
Purchased G & S - Electricity T&D losses	0.04	0.0%
Water Supply	0.02	0.0%
Grand Total	249.49	100.0%

6.3 Scope one emissions by gas type

ISO 14064-1 (2018) requires that scope 1 emissions are reported separately by gas type. Table 7 below shows these separated emissions for each scope 1 emissions source. The vast majority of this is carbon dioxide.

Table 6: Sharesies Group Ltd's 2021 Calendar Year Scope 1 Emissions by Gas Type

Gas Type	tCO2e	tCO2	tCH4	tN2O
Natural gas	56.75	56.60	0.12	0.03
Grand Total	56.75	56.60	0.12	0.03

6.4 Other Emissions

6.4.1 Fugitive Emissions (refrigerants)

Fugitive Emissions were not applicable to this emissions inventory.

6.4.2 Combustion of Biomass

Combustion of Biomass emissions were not applicable to this emissions inventory.

6.4.3 Land Use and Land Use Change

Land Use and Land Use Change emissions were not applicable to this emissions inventory.

6.4.4 Pre-verified data

Pre verified data was applicable to this emissions inventory. Hub Austalia, the Sydney based co-working service provider supplied previously completed carbon emissions measurement data. This data had been verified by Climate Active.

7 Uncertainty and Data Quality

Where accurate data is not available, it is appropriate in some situations to estimate activity data to ensure that a comprehensive inventory measurement is completed. Estimates must be carried out on a scientifically-derived basis.

Activity data was obtained from a range of sources, which are outlined in the table below.

Table 7: Activity data collection – quality and source

Emissions source	Scope	Unit	Data source	Data quality	Any assumptions made
Staff commuting (emissions from all sources)	3	tCO2e	Hitch analysis	Medium	The emissions total was calculated by Hitch. See Hitch Report for assumptions included. Hitch currently does not include Well to Tank Emissions within the Staff Commuting emissions calculations. The emissions calculation provided by Hitch is unverified.
Domestic air travel - confirmed destination	3	РКМ	Credit card records, employee expense claim	Good	Flights where Sharesies have confirmed the destination of travel.
Domestic air travel - assumed destination	3	РКМ	Credit card records, employee expense claim	Poor	These are flights where Sharesies have made an assumption of destination based on internal knowldge of various team members movements. Sharesies have adopted a new travel management system which should vastly improve the quality of this data in 2022 onward.
Electricity (purchased)	2	КШН	Building Manager	Medium	Proportional allocation of building consumption based on m2 occupation. Assumption that information provided by the property manager is accurate.
IT Services & Data Storage	3	tCO2e	AWS Carbon Calculator	Medium	The emissions total provided by AWS is unverified. Assumption that the emissions calculation work and reporting is true and accurate.
Staff working from home (electricity)	3	Employee per day	Hitch analysis	Medium	Hitch calculated the total number of days worked from home. They used the number of days spent in the office variable to extrapolate average WFH days per person (i.e. 3 days spent in office = 2 days WFH). They then adjusted for lockdown periods where everyone was working from home. This gave us the estimate total number of days WFH in a year per person. We scaled this (using the same method as for the total emissions numbers) to reflect the total organisation size to reach the total Sharesies WFH days above. Limitation of this approach is the assumption that every respondent represents 1FTE.

Emissions source	Scope	Unit	Data source	Data quality	Any assumptions made
					Also consistent assumptions with general calculations (i.e. estimated sick days, annual leave days etc.). Whilst this data was completed externally it is unverified data.
hub Australia (Co-working space)	3	tCO2e	Supplier data	Medium	Floor space allocation (M2) of sites total operational carbon footprint. These emissions totals have been verified previously.
Auckland co- working space	3	tCO2e	Estimation	Poor	Ekos used hub Australia's emissions/m2 total. Ekos applied the m2 emissions total to the total m2 area occuplied by Sharesies in the Auckland co-working space.
Natural gas T&D loss	3	kWh	Landlord	Medium	Assume national default rate
Waste to landfill (with gas recovery)	3	KG	Landlord	Poor	Volume estimation based on the volume of the communial skip and the number of times it is emptied weekly. Sharesies contribution was then determined based on the proportional floor space occupied by their organisation. This methodology assumed that the bin is at capcity each time it is emptied. The total L result was then converted to Kas.
Accommodation <new zealand=""></new>	3	Person nights	Credit card records, invoices, employee expense claim	Medium	Some assumptions made for a small number of expense lines where the number of people/nights were not provided but the spend amount allowed for an educated estimation.
Couriers - van (packages greater than 2kg and less than 25kg)	3	ТКМ	Ekos developed assumption.	Poor	Cost/tkm was determined in order to include freight as significance testing indicated it could be a significant emissions source.
Electricity T&D loss	3	KWH	building manager	Medium	Assume national default rate
Taxi	3	\$	Credit card records, employee expense claim	Good	The data provided includes taxis, uber and Zoomy
Purchased G & S - Electricity	3	КШН	Supplier	Poor	% of suppliers total consumption based on % of suppliers total business that is servicing Sharesies. Assumption that the information provided by the supplier is accurate.
Wastewater	3	M3	Building manager	Poor	Applied Watercare's proxy that 95% of potable water becomes Wastewater.

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Emissions source	Scope	Unit	Data source	Data quality	Any assumptions made
Air freight (Long haul >3700km))	3	ТКМ	Ekos developed assumption.	Poor	Cost/tkm was determined in order to include freight as significance testing indicated it could be a significant emissions source.
Paper	3	Ream	Fujifilm invoices	Please select	A sample of approx 50% of the invoices were reviewed in detail. The spend and ratio of black/white and colour printing were then extrapolated across the rest of the spend to determine number of sheets printed across the organisation.
Purchased G & S - Electricity T&D losses	3	КШН	Supplier	Poor	% of total consumption based on assumed % of business.
Water supply	3	МЗ	Landlord	Medium	Proportional consumption of building consumption based on m2 occupation. Assumption that the information provided by the Property Manager is correct.

It is recommended that Sharesies Group Ltd works to improve the data collections processes for any items listed above as having poor data quality or significant reliance on assumptions. This will increase the quality of the carbon inventory report in the future. These improvements should start as soon as possible/or as appropriate.

8 Emissions Performance against previous years

Figure 6 and Table 4 show the change in emissions between the base year measurement. Overall, Sharesies Group Ltd's carbon footprint increased by 99% when the 2021 calendar year emissions measurement is compared with the 2020 calendar year (base year measurement). Whilst this is the case, there was a 14% reduction in emissions/Full Time Equivalent (FTE).

Over the base year there was an increase of 3982% in Natural Gas emissions, a reduction of 41% in Capital Expenditure emissions, an increase of 98% in domestic air travel emissions, an increase of 1006% in Well to Tank (WTT) emissions, and increase of 48% in IT Services & Data Storage emissions, an increase of 870% in Scope 2 Electrcity emissions, an increase of 136% in Staff Working from Home emissions, an increase of 3994% in Natural Gas Transmission & Distribution Line Losses, 102% in Waste to Landfill emissions, an increase of 143% in Accomodation emissions, an increase of 867% in Electricity Transmission & Distribution Line Losses of 98% in Taxi emissions, an increase of 67% in Purchased Goods & Services Electricity emissions, a decrease of 50% in Wastewater emissions an increase of 43% in Purchased Goods. & Services Electricity Transmission & Distribution Line Losses and a 55% reduction in water consumption emissions.

Table 8: Sharesies Group Ltd Emissions by Activity Year on Year Comparison

Activities	Base year tCO2e	Current year tCO2e	% Change against base year
Natural Gas	1.39	56.75	+3982%
Staff Commuting (emissions from all sources)	NA	35.00	NA
Capital Expenditure Emissions	51.14	30.16	-41%
Domestic Air Travel	20.31	39.1	+98%
Total WTT Emissions	1.67	18.47	+1006%
IT Services & Data Storage	12.4	18.30	+48%
Electricity (purchased)	1.61	15.61	+870%
Staff Working from Home (electricity)	4.71	11.09	+136%
hub Australia (Co-working space)	NA	7.00	NA
AUCKIANA CO-WORKING space	NA	3.90	NA
Natural Gas T&D loss	0.0823	3.37	+3994%
Waste to landfill (with gas recovery)	1.46	2.96	+102%
Accommodation (New Zealand)	1.14	2.76	+143%
Couriers - van (packages greater than 2kg and less than 25kg)	Excluded	1.69	NA
Electricity T&D loss	0.1384	1.34	+867%
Taxi	0.41	0.81	+98%
Purchased G & S - Electricity	0.3	0.50	+67%
Wastewater	0.63	0.31	-50%
Waste - composting	NA	0.15	NA
>3700km))	Excluded	0.08	NA
Paper	NA	0.07	NA
Purchased G & S - Electricity T&D losses	0.03	0.04	+43%
Water Supply	0.05	0.02	-55%
Shorthaul International Air Travel	5.19	NA	NA
Purchased Goods & Services - Food & Drink	22.68	NA	NA



Figure 5: Emissions by Activity Year on Year

9 Emissions Reduction Recommendations

Ekos require participants of its programmes to undertake actions to reduce their operational carbon emissions. These actions should be based on Sharesies Group Ltd's emission hotspots. These will usually be the highest emission sources. However there may be other relevant opportunities to reduce emissions directly, or to influence the supply chain to do the same.

Sharesies Group Ltd prepared a reduction plan with targets for short, medium and long term. This plan detailed the specific reduction activities required, and demonstrated a top level management commitment. Based on the results from the 2021 calendar year measurement, Sharesies Group Ltd have proposed 6 emission-reducing initiatives.

In the short term, these initiatives include actions related to:

- Electricity emissions
- Domestic Air Travel emissions

In the medium term, these initiatives include actions related to:

- Capital Expenditure emissions
- IT Services and Data Storage emissions

In the long term, these initiatives include actions related to:

- Well to Tank emissions
- Staff commuting emissions

Sharesies Group Ltd emissions reduction will be calculated as both absolute and intensity metrics and will be compared to the base year in future inventories.

If more detailed information on this reduction plan please request further details from Sharesies Group Ltd as a seperate detailed reduction plan has been completed and is available.

10 Double Counting and Pre-offsets

Double counting can sometimes occur when emissions have been included and potentially offset in the GHG emissions inventories of two different organisations, e.g. a company and one of its suppliers/contractors. This is particularly relevant to indirect (Scope 2 and 3) emissions sources.

There may also be instances where an organisation uses the product or service of another company who has already measured and offset their product/service.

The programme recognises organisation, product or services which has been identified by the programme as having completed measurement and offset their emissions and in this case, the double counted emissions will be reported but does not require offset.

There were instances of double counting within this inventory, and these are described below:

Some of the product carbon footprint measurements included in the Capital Expenditure Emissions category include 'emissions from use'. The emissions from use of this equipment will also being captured in the Scope 2 emissions calculation.

11 Offsets and Certification

Sharesies Group Ltd wishes to achieve Zero Carbon Business Operations.

To qualify for Zero Carbon Business Operations certification with Ekos, an organisation must measure its business operations (carbon footprint), have a carbon reduction plan in place and have offset 100% of direct and indirect emissions.

Sharesies Group Ltd has measured all required activity emissions, totalling 249.49 tonnes of $\rm CO_2 e.$

Sharesies Group Ltd has offset 100% of these emissions, totalling 250 tonnes of CO_2e and has a carbon reduction plan in place.

Sharesies Group Ltd has qualified for Zero Carbon Business Operations Certification for the 2021 Calendar Year.

The carbon offsets purchased are as follows;

Verified Emission Reduction Units (VERs) produced in the Rarakau Rainforest Conservation Project in Southland, New Zealand. These offsets are retired in the Markit Environmental registry.

New Zealand Carbon Units (NZUs) produced in the Hōpai Bay Native Regeneration Project in Marlborough, New Zealand. These offsets are retired in the New Zealand Carbon Register.

Verified Emission Reduction units (VERs) from Ekos' Pacific Island carbon credit supply chain. These offsets are retired on the Markit Environmental Registry.

Verified Carbon Units (VCUs) produced in the NIHT Topaiyo REDD+Project in New Ireland Papua New Guinea. These offsets are retired on the Verra Registry.

12 Glossary

De minimis

Certain activities contribute less than 1 percent of the total of CO_2e emissions. These may be excluded from the GHG inventory, provided that the total of excluded emissions does not exceed a materiality threshold of 5 percent. That is, the total of all excluded emission sources should not exceed 5 percent of the total inventory.

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' surface, the atmosphere and clouds. These include:

- Carbon dioxide (CO₂)
- Methane (MH₄)
- Nitrous oxide (N₂O)
- Hydrofluorocarbons (HFCs)
- Perfluorocarbons (PFCs)
- Sulphur hexafluoride (SF₆)

GHG Scopes:

- Scope 1: Direct emissions from sources owned or controlled by reporting entity. For example diesel generator, coal heating, own vehicle fleet, agriculture
- Scope 2: Indirect emissions generated by purchased energy. For example, electricity, gas.
- Scope 3: Indirect emissions that are a consequence of activities undertaken by the reporting organisation or related individual, but not directly controlled by the organisation. For example, flights, freight, non-company vehicles, waste, electricity line distribution and transmission losses.

Appendix 1: Emission Factors

Ekos uses emission factors provided by the New Zealand Ministry for the Environment (MfE) publication *Measuring Emissions: A Guide for Organisations 2019*. Ekos emission factors for air travel include Radiative Forcing, which helps organisations account for the wider climate effects of aviation, including water vapour and indirect GHGs. This is an area of active research, which seeks to express the relationship between emissions and climate warming effects of aviation.

Ekos uses a multiplier of 1.9 to account for radiative forcing effects in line with the Ministry for the Environment publication *Measuring Emissions: A Guide for Organisations* 2019.

Where emission sources are not covered by the MfE publication, Ekos identifies suitable factors for use have been sourced from the Department for Environment and Rural Affairs (DEFRA), UK Government document *Factors for Greenhouse Gas Reporting 2018*, the Motu institute and Aslan, J. Mayers, K. Koomey, J. France, C. 2017. *Electricity Intensity of Internet Data Transmissions, Untangling the Estimates.* Journal of Industrial Ecology, Volume 22, number 4.