



Carbon Inventory Report: **New Zealand Forest Research Institute Ltd**

Trading As SCION Research

Period:	1 Jul 2023 - 30 Jun 2024
Base year:	1 Jul 2022 - 30 Jun 2023
Status:	Verified Inventory
Assurance type:	Reasonable Scope 1 & 2 (Category 1 & 2) Limited Scope 3 (Category 3-6)
Certification type:	Carbon Conscious
Last updated date:	2024-11-18



ekos.co.nz | ekos@ekos.co.nz

Prepared By: Gui Berringer

Reviewed By: Josh Leenhouders

Organisation contact details

Business sector	Environment/Conservation, Forestry, Government
Contact person	Kim McGrouther
Contact number	Not Provided
Contact email	kim.mcgrouter@scionresearch.com
Company website	https://www.scionresearch.com

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1 Summary

This carbon inventory was prepared for New Zealand Forest Research Institute Ltd, trading as SCION Research.

Thereafter in the report, the organisation will be referred to as SCION Research.

Report period 1 Jul 2023 - 30 Jun 2024

Base year 1 Jul 2022 - 30 Jun 2023

First period with a complete set of data available and it also represents well the business operations. For completeness purpose a screening process was performed against the general ledger report.

1.1 Organisation Information

Scion is a Crown research institute that specialises in research, science and technology development for the forestry, wood product, wood-derived materials, and other biomaterial sectors.

2 Background

2.1 Statement of Intent

We have been measuring Scope1 & 2 for a while but have not had the data verified. We have set our first verified baseline year as 2022-23 and gain Carbon Conscious Certification.

2.2 Communication and Dissemination

This inventory was prepared as a management tool for New Zealand Forest Research Institute 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 the organisation 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 New Zealand Forest Research Institute Ltd, its shareholders and members. The summary of this inventory will be made available to all stakeholders on request.

3 Reporting Methodology and Compliance Standards

3.1 Methods & Emissions Factor Sources

This report is the 2nd annual greenhouse gas (GHG) emissions inventory that has been prepared by SCION Research.

It was prepared in accordance with;

- The International Standards Organisation's process for calculating and reporting GHG emissions: ISO 14064-1 (2018).
- World Resource Institute's "Greenhouse gas protocol".

The calculation method used to quantify the GHG emissions was the activity data multiplied by the appropriate emission factor:

Tonnes CO₂e = Total GHG activity x appropriate emission factor.

Ekos' GHG calculation tool (Online based) was used for the calculation of emissions for this inventory.

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. Full reference sources are listed in the Reference section of this report.

The methodology used is illustrated in figure 1 below:

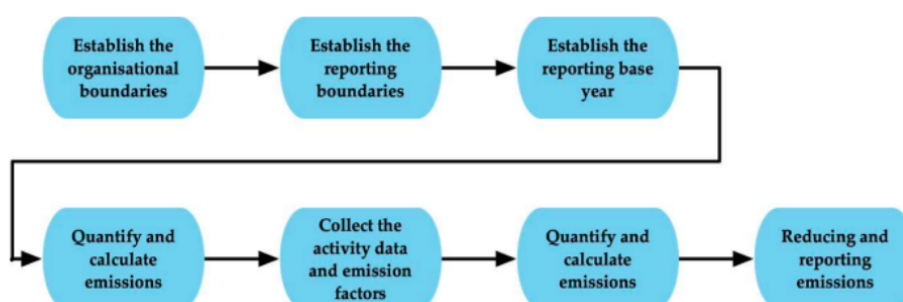


Figure 1: ISO 14064-1 (2018) methodology for measuring a GHG inventory

3.2 Consolidation Approach

The organisational boundary identifies which facilities or subsidiaries 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.

The consolidation method used in this inventory to determine SCION Research's emissions is Control - Operational.

3.3 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 reporting boundaries or calculation methodology, Ekos' policy is to recalculate base year data with explanation.

3.4 GHG Information Management and Monitoring Procedures

The organisation 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.

3.5 Changes to Methodology

Last year, freight emissions were calculated manually. This year, the data was sourced directly from the emission report provided, reflecting a shift in methodology. Additionally, the P-card report for taxis, Uber, hotels, and other expenses was compiled by the finance department this year, rather than manually by the sustainability department. This change has resulted in more comprehensive data capture.

4 Reporting Boundary

The below diagram describes the organisational boundary and outlines the business units that are included and excluded in this inventory.

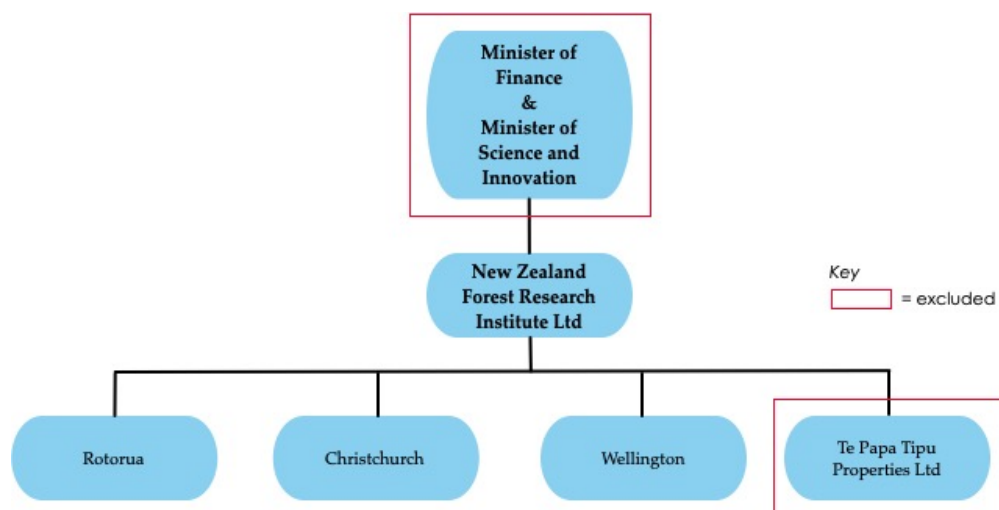


Figure 2: SCION Research's Organisational Boundary.

Sala Street holdings is excluded from this inventory as well as any activities related to Biopolymer Network and Bioresource Processing Alliance. Activities related to those entities are minimal for the measurement period and are closing down.

Table 1: Business units included/excluded

Legal entities (Include any subsidiaries)	Business unit / Location	Activities / Purpose	Included / Excluded	Reason for exclusion
New Zealand Forest Research Institute Ltd	Titokorangi Drive Formerly, Longmile Road, Whakarewarewa, Rotorua 3010	Research, science and technology development for the forestry, wood product, wood-derived materials, and other biomaterial sectors.	Included	
New Zealand Forest Research Institute Ltd	10 Kyle Street, Riccarton, Christchurch 8011	Research, science and technology development for the forestry, wood product, wood-derived materials, and other biomaterial sectors.	Included	
New Zealand Forest Research Institute Ltd	17-21 Whitmore Street, Wellington Central, 6011	Research, science and technology development for the forestry, wood product, wood-derived materials, and other biomaterial sectors.	Included	
Sala Street Holdings Ltd	Scion, 49 Sala Street, Rotorua, 3010, New Zealand	Holding company	Excluded	Holding company - no operations

5 Reporting Scopes

5.1 Include/ Excluded Categories

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 organization.
- Scope 3 - (Category 5) Indirect GHG emissions associated with the use of products from the organization.
- Scope 3 - (Category 6) Indirect GHG emissions from other sources.

In compliance with the ISO Standard, the organisation has included all relevant direct and indirect emissions in this GHG inventory.

*As per ISO14064-1 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/expensive to obtain and
2. The accuracy of the quantified emissions likely to be poor due to nature of the emissions factor or
3. The large amount of assumptions likely to result in unreliable emissions total.

The included/excluded emissions sources are shown in the following table:

Table 2: emissions categories included and justification if excluded

ISO & GHG Protocol Categories	Example of Emissions Sources	Ekos' Position	Include/ Exclude	Exclusion Criteria	Notes
Category 1) Direct GHG emissions and removals: (GHG Protocol scope 1)					
Stationary Combustion	Coal, diesel and gas use for heating, generation of energy etc	Mandatory	Include	None	Includes Natural gas usage for Rotorua site.
Mobile Combustion	Fuel use for company owned vehicles, forklift/mowers or if you lease vehicles but have operational control.	Mandatory	Include	None	
Chemical & Industrial Processes	Use of CO2 or nitrous oxide in bottling, packaging, beer taps etc	Mandatory	Include	None	
Fugitive Emissions	Top up of refrigerant gases when maintaining any fridges, freezers or Air-conditioning units	Mandatory	Include	None	
Land Use & Land Use Changes	Fertiliser use and animals (ruminants) on land.	Mandatory	Include	None	
Category 2) Indirect GHG emissions from imported energy: (GHG Protocol scope 2)					
Purchased Electricity	Electricity use in all facilities	Mandatory	Include	None	
Category 3) Indirect GHG emissions from transportation: (GHG Protocol scope 3)					
Inward/Outward Freight	Upstream transport and distribution of goods	Mandatory	Include	None	
Business Travel	Business travel (flights, accommodation etc)	Mandatory	Include	None	Excluded Bus and train travel as de minimis.
Staff Commuting	Employee commuting, including emissions related to the transportation of employees from their homes to their workplaces.	Non-mandatory	Include	None	Excluded ferry, bus and motorbike as de minimis.
Downstream Transport & Distribution of Goods	Downstream transport and distribution for goods, freight services that happen throughout the supply chain but not paid for by the organization	Non-mandatory	Exclude	Limited level of influence	
Work From Home	Staff working from home	Non-mandatory	Exclude	Insignificant/ de minimis	

Table 2: emissions categories included and justification if excluded continued.

ISO & GHG Protocol Categories	Example of Emissions Sources	Ekos' Position	Include/ Exclude	Exclusion Criteria	Notes
Category 4) Indirect GHG emissions from products used by organization: (GHG Protocol scope 3)					
Waste Generated in Operations	Waste generated in operations (solid waste to landfill and wastewater to water treatment plants)	Mandatory	Include	None	
Fuel and Energy related Activities (T&D Losses)	Fuel and energy related activities (T&D losses for electricity & natural gas)	Mandatory	Include	None	
Fuel and Energy related Activities (WTT Emissions for Fuel)	Coal, diesel and gas use for heating, generation of energy etc	Mandatory	Include	None	
Emissions From Purchased Goods	Emissions from purchased goods, i.e. contract growers or processing to your key production	Non-mandatory	Include	None	
Emissions from the Use of Services	Emissions from the use of services (i.e. IT servers, consulting, cleaning, maintenance, bank)	Non-mandatory	Exclude	Limited level of influence	
Capital Goods	Capital goods	Non-mandatory	Exclude	Limited level of influence	
Upstream Leased Assets	Upstream leased assets (leased vehicles - fuel use should be reported under scope 1, leased office space - the electricity use is passed on by the landlord to the company, therefore should be included in scope 2.)	Non-mandatory	Include	None	
Category 5) Indirect GHG emissions associated with the use of products from the organization: (GHG Protocol Scope 3)					
Downstream Leased Assets	Downstream leased assets (If you own a rental car or camper van company, you should include the customer's fuel use of the vehicles. If you own warehouses and office buildings, you should include all scope 1 & 2 emissions of lease's use of the asset)	Mandatory	Include	None	
Processing of the Sold Product	Emissions from the Processing of the sold product	Non-mandatory	Not Applicable	None	
Use Stage of the Product	Emissions from the use stage of the product	Non-mandatory	Not Applicable	None	
End of Life Stage of the Product	Emissions from end of life stage of the product	Non-mandatory	Not Applicable	None	
Franchises	Franchises (To be considered only if already included under the consolidation approach. Scope 1 and 2 of each franchisee requires collection)	Non-mandatory	Not Applicable	None	
Investments	Investments (Mandatory for financial industries such as Banks and Investment Fund organisations., Non-mandatory for other sectors)	Non-mandatory	Exclude	Limited level of influence	
Category 6) Indirect GHG emissions from other sources:					
Any other relevant emissions	Any relevant emissions which do not fall within the other categories	Non-mandatory	Not Applicable	None	

6 Greenhouse Gas (GHG) Emissions Profile

Data was collected by SCION Research's 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 Ekos-developed calculator.

6.1 Emissions Summary

Table 3: Emissions Summary by GHG Scopes and ISO Categories.

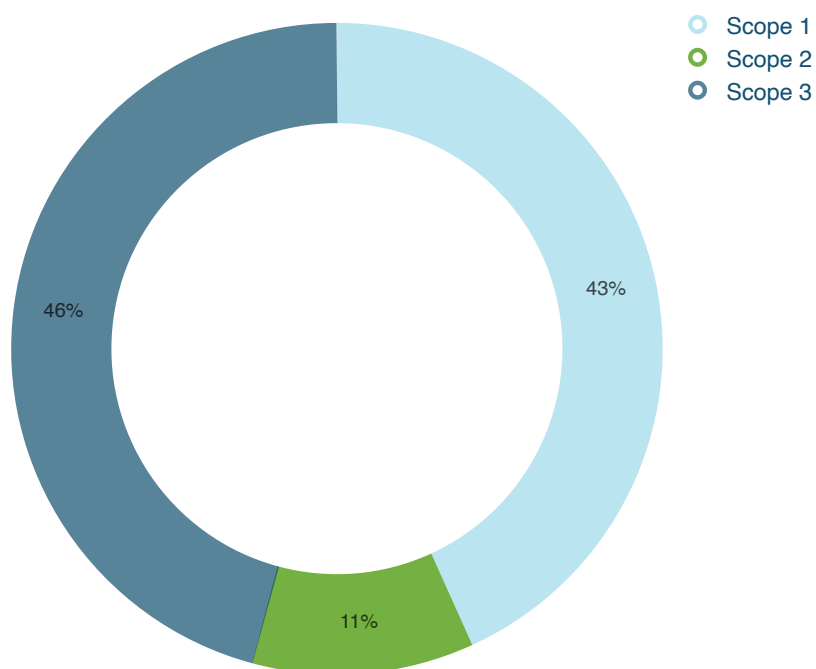
Scope	Emissions Category	tCO ₂ e (location-based)
1	(1) Direct GHG Emissions	1,126.64
2	(2) Indirect GHG Emissions From Imported Energy	286.73
3	(3) Indirect GHG Emissions From Transportation & Distribution	792.33
3	(4) Indirect GHG Emissions From Products & Services Used By The Organisation	348.97
3	(5) Indirect GHG Emissions From The Use Of The Organisation's Products	52.33
3	(6) Indirect GHG Emissions From Other Sources	0.00
Total Gross GHG Emissions		2,607.00
GHG Removals/ Sinks		NR

Electricity emissions are usually calculated and reported using the location-based methodology, which is the average generation emissions for the region or the national grid. The standard requires the electricity to be also reported using the market-based methodology where this is relevant or available, this is commonly known as "dual reporting". In this report, if market-based factor is available and used in the inventory, dual reporting will occur in Table 3 of the report. Thereafter, the emissions will be represented in only the method that is most relevant.

Table 4 shows the emissions intensity, if emissions intensity metrics were provided.

Table 4: Emissions Intensity Summary

Emission Intensity Metrics	Input	tCO ₂ e per Intensity Metric (Location based)
Number of FTE	318.37	8.19
Gross Revenue (\$Mil)	0.00	0.00
Production (MT)	0.00	0.00



Note: labels for less than 2% are not displayed.

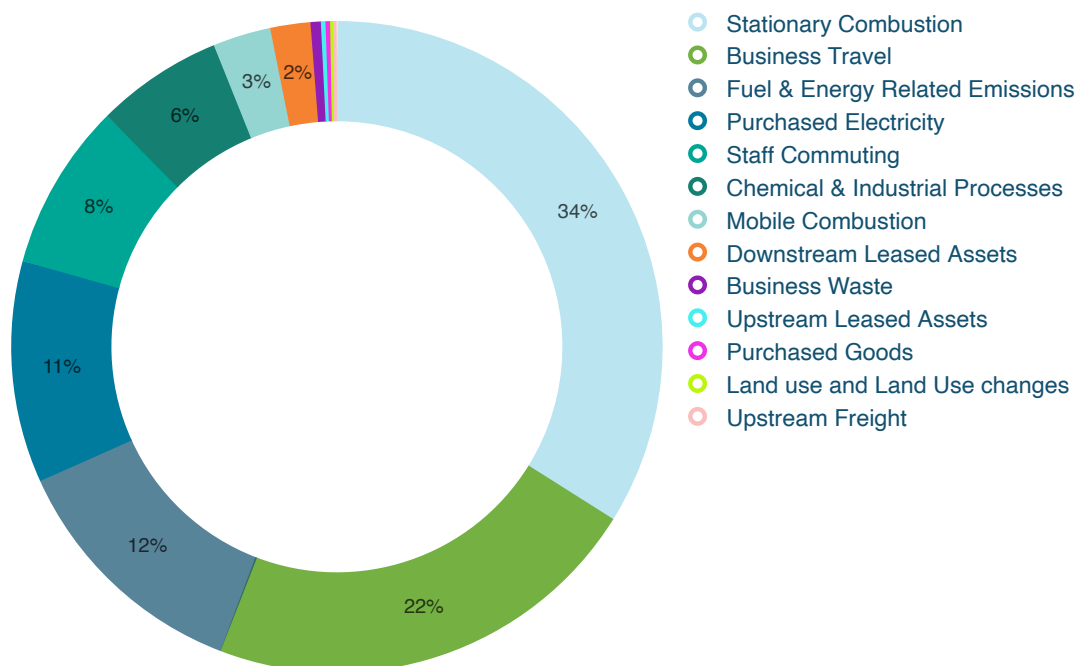
Figure 3: Emissions by Scopes

6.2 Emissions by Activities

Table 5 and Figure 4 below shows the emissions by Activity groups and the % it represents.

Table 5: GHG emissions by Scope and Activity groups

GHG scope	Factor Groups	Sum of tCO ₂ e	% of Inventory
1	Stationary Combustion	883.94	33.91%
1	Chemical & Industrial Processes	163.95	6.29%
1	Mobile Combustion	74.78	2.87%
1	Land use and Land Use changes	3.97	0.15%
2	Purchased Electricity	286.73	11.00%
3	Business Travel	572.06	21.94%
3	Fuel & Energy Related Emissions	323.78	12.42%
3	Staff Commuting	216.70	8.31%
3	Downstream Leased Assets	52.33	2.01%
3	Business Waste	13.56	0.52%
3	Upstream Leased Assets	5.91	0.23%
3	Purchased Goods	5.72	0.22%
3	Upstream Freight	3.57	0.14%
Grand Total		2,607.00	100.00%



Note: labels for less than 2% are not displayed.

Figure 4: Emissions by Activity Groups

Table 6 and Figure 5 below identifies the organisation's top emissions sources by ranking the largest to the smallest.

Table 6: GHG emissions sources ranked by largest to smallest

Emission Sources	GHG tCO ₂ e	% of Inventory
Stationary Combustion - Natural Gas	882.23	33.84%
Electricity - New Zealand (All Sites)	286.73	11.00%
Well to tank emissions	270.07	10.36%
Business Travel - DCP - pre-verified tCO ₂ e	206.00	7.90%
International Air Travel - Long Haul International Economy Class	167.94	6.44%
Refrigerant Gases	163.42	6.27%
Staff Commuting - Petrol	160.55	6.16%
Domestic Air Travel - New Zealand Domestic Economy Class	114.35	4.39%
Mobile Combustion - Diesel	56.54	2.17%
International Air Travel - Short Haul International Economy Class	47.24	1.81%
Staff Commuting - Diesel	37.75	1.45%
Natural Gas T&D Losses	32.74	1.26%
Downstream Leased Assets - Stationary Fuels LPG	24.87	0.95%
Downstream Electricity - New Zealand (Metered Tenants)	24.45	0.94%
Electricity T&D Losses	20.97	0.80%
Mobile Combustion - Petrol (regular)	17.92	0.69%
Staff Commuting - Petrol Hybrid	17.12	0.66%
International Air Travel - Long Haul International Premium Economy Class	14.38	0.55%
Waste & Wastewater General Waste to Landfill - With Gas Recovery (Unit 1)	13.56	0.52%
Business Accommodation - New Zealand	7.91	0.30%
Business Travel - Rental cars	7.09	0.27%
Upstream Electricity - New Zealand (NIWA)	5.91	0.23%
Paper & Board: Mixed	5.72	0.22%
Fertiliser Use - Non-urea nitrogen fertiliser	3.97	0.15%
Business Accommodation - Australia	3.85	0.15%
Downstream Electricity - New Zealand (Scion Village)	3.01	0.12%
Business Travel - Taxi	1.82	0.07%
Stationary Combustion - Diesel	1.71	0.07%
Outward Freight Air Freight - Domestic	1.69	0.06%
Outward freight (mainfreight)	1.62	0.06%
Staff Commuting - Electric Vehicle	1.28	0.05%
Business Travel - Petrol	0.81	0.03%
Mobile Combustion - LPG	0.32	0.01%
Gas type - CO ₂ kg	0.27	0.01%
On-site composting	0.26	0.01%

Emission Sources	GHG tCO ₂ e	% of Inventory
Business Accommodation - Other	0.23	0.01%
International Air Travel - Short Haul International Business Class	0.22	0.01%
Outward Freight Other Freight - Truck	0.15	0.01%
Outward Freight Other Freight - Courier Van	0.10	0.00%
Business Accommodation - France	0.07	0.00%
Business Accommodation - United Kingdom	0.06	0.00%
Business Accommodation - Japan	0.05	0.00%
Business Accommodation - Germany	0.04	0.00%
Business Accommodation - Canada	0.01	0.00%
Outward Freight - RoRo-Ferry - Average	0.00	0.00%
Grand Total	2,607.00	100.00%

● GHG tCO₂e

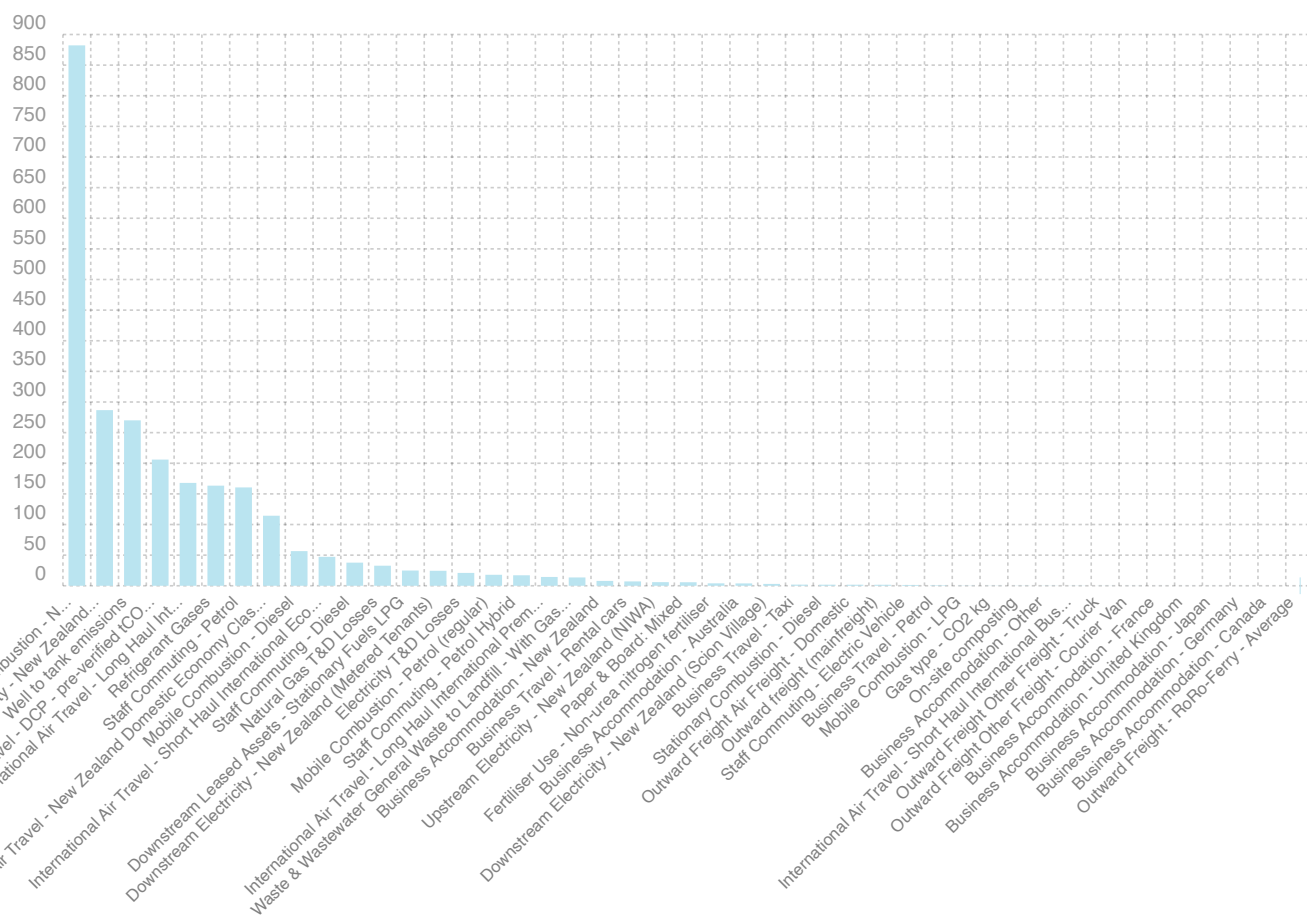


Figure 5: Emissions by Activities

7 Data Quality, Uncertainties and Assumptions

Activity data was obtained from a range of sources, and the data quality are ranked and outlined in Table 7 below.

Table 7: Activity data collection - quality and source

Emissions source	Scope	Unit	Data source	Data quality	Any assumptions made
Diesel Consumption (excluding transport)	1	L	Scion Purchase Order	Medium	Applied \$ spent extrapolation for 50% of the data based on real data from invoice. Split 32% was stationery (boiler) and 68% was mobile combustion (tractor).
Natural Gas Consumption	1	KWH	Supplier Invoices	Good	No assumptions.
Mobile Combustion - Fuels	1	L	Supplier Invoices	Good	Diesel for tractor: Applied \$ spent extrapolation for 50% of the data based on real data from invoice. Split 32% was stationery (boiler) and 68% was mobile combustion (tractor).
Chemical Used in Manufacturing or Processing	1	kg	Supplier Invoices	Good	No assumptions.
Fertiliser Use	1	KG	Internal records	Medium	No assumptions.
Electricity - Electricity Consumption	2	KWH	Supplier invoices	Good	Deducted the electricity on-charge for tenants (reported under Scope 3).
Purchased Goods and Services	3	KG	Supplier Invoices	Medium	No assumptions.
Other Freight Received	3	TKM	Supplier report	Good	Pre-verified report.
Air Freight Sent	3	TKM	Supplier report	Good	Pre-verified report.
Other Freight Sent	3	TKM	Supplier report	Good	Pre-verified report.
Waste & Wastewater - Landfill Waste	3	KG	Waste Management Report	Good	
International Business Flights	3	PKM	Supplier Reports	Medium	Assumed average type of plane. Short haul business class assumed as private charter Plus economy premium. Immaterial distance. Two main travel providers used the PKM provided by reports. Minimal travel booked through credit cards.
Domestic NZ Business Flights	3	PKM	Supplier Report	Medium	Assumed average type of plane and class.
Business Accommodation	3	Person nights	Supplier Report	Good	No assumptions. Finland and Kenya have been reported as other as emission factors weren't available.
Business Travel Vehicle Mileage	3	KM	accounts report	Medium	Considered all to be petrol.
Business Travel Taxi Distance	3	KM	Accounts report	Good	Converted \$ to KM (\$3.20/km).
Business Travel Rental Cars	3	KM	Supplier invoices and Credit card	Medium	For the credit card portion assumed \$50 a day and 50km per day.
Staff Vehicle Mileage	3	KM	Staff survey	Low	Staff Survey received 75.5% response rate, these were extrapolated to estimate the full total. As there was no information on who was carpooling, the general diesel or petrol emission factor was applied. Excluded ferry, motorbike and bus as de minimis.

Emissions source	Scope	Unit	Data source	Data quality	Any assumptions made
Upstream Leased Assets - Electricity	3	KWH	Supplier report	Medium	Monthly meter reading. From facility manager - 13.3% split information was from the contract provided by the legal department. The KWH amount provided by NIWA.
Electricity Consumption of items Leased to a Third Party	3	KWH	Invoices and local meters	Good	No assumptions.
Downstream Leased Assets - Stationary Fuels	3	L	Eastwood Cafe email.	Good	No assumptions.
Refrigerant Gases	1	tCO2e	Supplier invoices	Good	For R12 refrigerant gas, two pieces of equipment were decommissioned and the refrigerant gases were lost, hence assumed that the full capacity was lost.
Outward freight (mainfreight)	3	tCO2e	Supplier Report	Good	Pre-verified report.
On-site composting	1	tCO2e	Internal Records	Good	No assumptions.
Business Travel - DCP - pre-verified tCO2e	3	tCO2e	Supplier - pre-verified report	Good	No assumptions.
DCP - pre-verified tCO2e - WTT	3	tCO2e	internal calculations	Low	Assumed that the air travel WTT represents 13.19% of the total.

The client source data is rated on a scale of Good, Medium, Low to Poor. The rating is given based on assessing the data source against our Data quality matrix. The classification is based on determining two criteria of uncertainties; Data completeness and Data accuracy. The higher the level of uncertainty due assumptions in the calculation or lack of data for the period, then the lower the quality of the data.

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

It is recommended that the organisation works to improve the data collections processes for any items listed above as having low data quality or high 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.

7.1 Scope 1 Emissions By Gas Type

ISO 14064-1 requires Direct emissions to be reported separately, showing emissions contribution by the 6 Kyoto GHG gas types. The breakdown by CO₂, CH₄ and N₂O is shown in Table 8 below. Breakdown by HFCs, PFCs and SF₆ will be shown in Table 8.1, if applicable. If none displayed it is not applicable or none occurred.

Table 8: Direct emissions breakdown by gas types

GHG scope	1
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Emission Sources	tCO ₂ e	tCO ₂	tCH ₄	tN ₂ O
Stationary Combustion - Diesel	1.71	1.70	0.01	0.00
Stationary Combustion - Natural Gas	882.23	879.78	2.05	0.39
Mobile Combustion - Petrol (regular)	17.92	17.17	0.23	0.52
Mobile Combustion - Diesel	56.54	55.66	0.08	0.79
Mobile Combustion - LPG	0.32	0.31	0.00	0.01
Gas type - CO ₂ kg	0.27	0.00	0.00	0.00
Fertiliser Use - Non-urea nitrogen fertiliser	3.97	0.00	0.00	3.97
Refrigerant Gases	163.42	163.42	0.00	0.00
On-site composting	0.26	0.00	0.16	0.09
Grand Total	1,126.64	1,118.05	2.53	5.77

7.2 Other Emissions

Fugitive emissions - (refrigerants)

No sites have reported any top-ups of gas for this reporting period. Air conditioning is excluded from the inventory where offices are leased.

There are no operations that use PFC, NF3 or SF6.

Combustion of Biomass - (e.g wood pellets)

No known combustion of biomass occurred from the operation during this measure period and therefore no emissions from the combustion of biomass are included in this inventory.

Land use and Land use change

Usage of fertiliser.

Pre-verified data

Freight suppliers provided pre-verified reports.

8 Emission Performance Against Previous Years

Table 9 and figure 6 below shows emissions comparison against base year and previous year, if applicable.

Table 9: Comparison against base year

Activities	Base year tCO ₂ e (location-based)	Current year tCO ₂ e (location-based)	% Change against base year
Stationary Combustion	917.15	883.94	-3.62%
Business Travel	495.78	572.06	15.39%
Fuel & Energy Related Emissions	368.25	323.78	-12.08%
Purchased Electricity	315.22	286.73	-9.04%
Staff Commuting	302.45	216.70	-28.35%
Chemical & Industrial Processes	44.30	163.95	270.12%
Mobile Combustion	95.90	74.78	-22.03%
Downstream Leased Assets	59.83	52.33	-12.53%
Business Waste	8.78	13.56	54.50%
Upstream Leased Assets	5.58	5.91	5.95%
Purchased Goods	2.97	5.72	92.76%
Land use and Land Use changes	3.84	3.97	3.35%
Upstream Freight	89.74	3.57	-96.03%
Grand Total	2,709.78	2,607.00	-3.79%

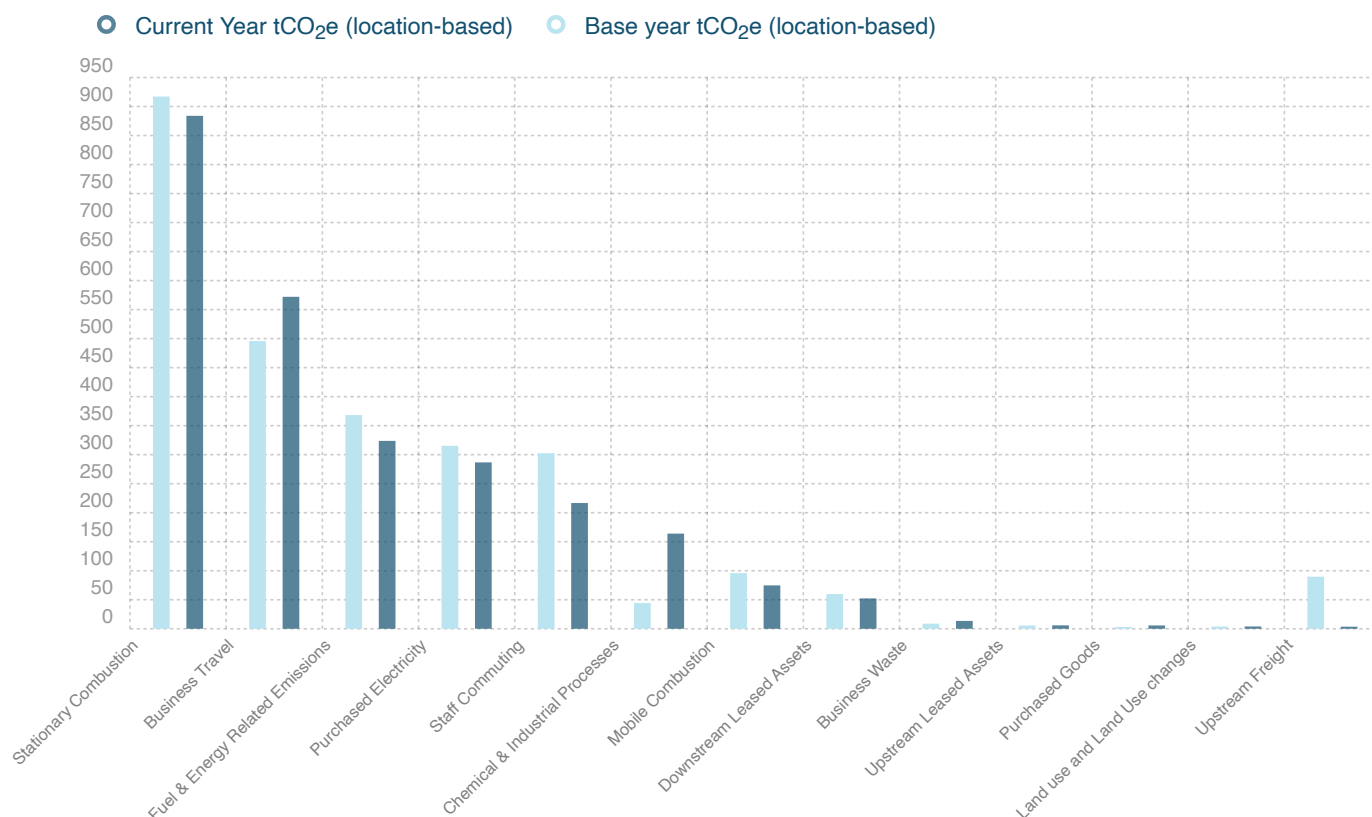


Figure 6: Emissions compared with previous years

There has been a slight decrease in Scope 2 emissions from electricity consumption. This aligns with the ongoing electricity efficiency project, now in its second year. The project has increased awareness and engagement through targeted messaging and implemented several technological improvements, including the installation of LEDs, upgrades to building control systems, and an update to our main chiller system. There were no specific changes to utility meters, but these efficiency measures have contributed to the observed reduction.

There was an increase in business travel emissions. This is related to more air travel and more detailed capture of travel-related expenses through the P-card, which may have contributed to the uptick. This increase reflects an actual rise in travel activity during the reporting period.

There was a reduction in staff commute emissions. While the data appears accurate, with a response rate of 75% compared to 80% last year, the lower staff numbers could also be a factor. Some comments noted a shift to hybrid vehicles, the reduction could be partially attributed to changes in commuting patterns, but no specific actions were taken that would fully explain this decrease.

There was an increase in emissions from refrigerant gases, largely due to a substantial loss of R22 when the old chiller system failed.

Emissions from mobile combustion saw a reduction, primarily driven by a decrease in diesel usage by our fleet. This reduction is likely a result of our "no unnecessary travel" initiative, combined with reduced access to forest work areas due to Cyclone Gabrielle.

There was a drop in freight emissions. It can relate to a substantial spending freeze towards the end of period. Additionally, it moved from manually pulling freight data to relying on supplier emissions report, which increase the data quality, but may have also contributed to the variation.

9 Emission Reduction Recommendations

Please refer to a separate, detailed decarbonisation programme plan prepared by the organisation which documents the targets, responsibilities, actions and top level management commitment.

In 2016 New Zealand ratified the decarbonisation of fossil fuels 2015 Paris Agreement. As a result New Zealand announced a climate emergency in 2020, passed the Zero Carbon Act and committed to decarbonise the public sector by 2025.

SCION'S Research sustainability carbon targets include reduction of natural gas use, refrigerant gasses, electricity, waste and other initiatives.

In June 2021, Scion engaged with Beca Limited to conduct a decarbonisation study, focussed on gas use, for Te Papa Tipu Innovation Park. The purpose of this study was to provide a pathway for Scion to realise our carbon targets.

SCION'S Research Board has approved the adoption of the Carbon Neutral by 2025 goal. This programme summary outlines the approach being adopted to implement the changes required to realise Scion's Carbon Neutral status by 2025.

For the current reporting year, we observed a total emissions reduction of 3.79% compared to the base year, reflecting the impact of ongoing efforts to improve efficiency and optimize operations across various categories.

Significant reductions were achieved in upstream freight, staff commuting, mobile combustion, and purchased electricity emissions.

Despite these successes, certain areas experienced increases. Business travel emissions rose by 15.39%, driven by more kilometers traveled per FTE and improved tracking of travel-related expenses through P-card reporting. Chemical and industrial process emissions spiked by 270.12%, due to a significant refrigerant gas loss caused by the failure of our old chiller system. Business waste emissions increased by 54.50%, requiring further investigation to identify potential mitigation measures.

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 do not require offset.

There were no known instances of recognised offset deductions relevant for this inventory.

There were no known instances of double counting of emissions within this inventory.

11 Offsets and Certification

11.1 Certification Type

SCION Research has chosen to apply for Carbon Conscious Certification.

11.2 Offset Amount

Table 10: Offset calculation

Total Gross GHG Emissions	Offset requirement		Purchased credits/ Pre-offset	Net offset requirement	Total Credits to offset
2,607.00	Carbon Conscious (User Selected)	0.00		0.00	0.00

11.3 Carbon Credits

No offset required for this inventory.

12 References & Other Information

12.1 Standards

International Organization for Standardization, 2006. ISO14064-1:2018. Greenhouse gases – Part 1: Specification with guidance at the organisation level for quantification and reporting of greenhouse gas GHG emissions and removals. ISO: Geneva, Switzerland.

World Resources Institute and World Business Council for Sustainable Development, 2004 (revised). The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard. WBCSD: Geneva, Switzerland.

12.2 Emission Factors

MfE - 2024 Emission Factors Workbook.

DESNZ - 2024 UK Government GHG Conversion Factors for Company Reporting.

Radiative Forcing - Aviation GHG emission calculations take into account the greenhouse gases covered by the UNFCCC Paris Agreement relevant to aviation (carbon dioxide, methane and nitrous oxide). There are also additional global warming impacts of aviation emissions called "radiative forcing" (RF). These include water vapour, NO_x, and contrails. Some voluntary carbon offset suppliers make inclusion of RF mandatory and others exclude it. This is because of the scientific uncertainties associated with the methodology for accurately calculating radiative forcing.

Following the MFE methodology, Ekos uses a radiative forcing multiplier of 1.9 for all flight related activity.

Uplift factor - does not apply to domestic air travel. However, it has been applied to international air travel. (section 7.5.4 and 7.5.5 of the MfE Emissions detailed Guide 2023).

Well to Tank factors were sourced from DESNZ and is automatically applied to relevant activity data. WTT Business travel EF is 'with RF'.

All NZ electricity factors are location-based unless otherwise stated.

The NZ Residual Supply Mix factor is sourced from BraveTrace where applicable.