

**GREAT SOUTH** 

Southland Regional Development Agency

# **Greenhouse Gas Emissions Inventory Report**

**FY 2021 - 2022**

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## IMPARTIAL CARBON FOOTPRINT REVIEW

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TO THE DIRECTORS OF SOUTHLAND REGIONAL DEVELOPMENT AGENCY

Reporter: Southland Regional Development Agency (Great South)  
Registered address: 143 Spey Street, Invercargill, New Zealand

Ekos Kamahi Limited was engaged to conduct an impartial review of the greenhouse gas (GHG) calculations and associated organisational emissions reported by Great South. The review was completed on 11 August 2023. The intended users of this review are Ekos Kāmahī Limited (GHG Programme) and Great South.

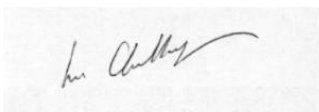
The determination of the GHG emissions and the sufficiency of the procedures is the sole responsibility of the intended users. Ekos Kamahi Limited was not involved in determining the GHG emissions. Our sole responsibility was to provide an impartial review on the accuracy of the GHG emissions quantification based on agreed-upon procedures.

The procedures as agreed with the Ekos GHG Programme included select parts of ISO 14064-1:2018, specifically:

- Organisational Boundary and Reporting Boundary.
- Consolidation Approach (Operational Control) and its application.
- Quantification of emissions.
- Materiality is set at 5%.
- Remote/desk-top review, and
- No verification of source activity data.

A separate findings log was documented and issued to Great South. There were no material findings issued.

- Total Gross GHG Emissions: 161.35 tonnes CO<sub>2</sub>e
- Period: 1 July 2021 to 30 June 2022
- Quantification reference: Copy of Master Calculator 2021\_Ekos v5.0.xlsx



**Ian Challenger, Reviewer**

Ekos Kamahi Limited  
Nelson, New Zealand  
11 August 2023

We consent to the release of this statement by you to interested parties but without accepting or assuming any responsibility or liability on our part to any other party who may have access to this statement. Any correspondence regarding this statement is to be directed to [ekos@ekos.co.nz](mailto:ekos@ekos.co.nz)

245 Hardy Street, Nelson, 7010, New Zealand. Ph 0211 131042  
[ian@ekos.co.nz](mailto:ian@ekos.co.nz)

Report Title: Greenhouse Gas Emissions Inventory Great South FY 2021- 2022

Measurement period: 1/07/2021 to 30/06/2022

Base year period: 1/07/2018 to 30/06/2019

Prepared by: Paula López  
Sustainability Planner  
Date: 20/10/2022  
Updated: 10/08/2023

Reviewed by: Stephen Canny  
General Manager Strategic Projects  
Date: 28/10/2022

Approved for release by: Chami Abeysinghe  
Chief Executive  
Date: 06/03/2023

Contact: Great South  
143 Spey Street  
PO Box 1306  
Invercargill 9840  
Southland  
New Zealand

## Disclaimer

This report has been prepared by Great South (Southland Regional Development Agency) with all reasonable skill and diligence. Great South does not accept responsibility of any kind to any third parties who make use of its contents. Interpretations, analyses, or statements of any kind made by a third party and based on this report are beyond Great South's responsibility.

Contrary to indications in previous editions, the scope of this report includes emissions from Space Operations New Zealand Limited (Space Ops). This decision has been taken because Great South owns 100% of Space Ops and is still providing administration and logistical support.

If you have any suggestions, complaints, or any other feedback, please contact us at [info@greatsouth.nz](mailto:info@greatsouth.nz)

## Availability

This report, once verified, will be made available in electronic format for public viewing via posting on the sustainability section of our website. A summary of the inventory will also be published in our Annual Report.

## Statement

This inventory is consistent with the International Standards Organisation's process for calculating and reporting GHG emissions 14064-1 (2018). However, while this measurement has been externally reviewed as consistent with the ISO standard, it is an unverified inventory.

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## ABBREVIATIONS

<b>Abbreviation</b>	<b>Meaning</b>
ES	Environment Southland
GDC	Gore District Council
GHG	Greenhouse gas
GS	Great South
ICC	Invercargill City Council
ILT	Invercargill Licensing Trust
MLT	Mataura Licensing
SCC	Southland Chamber of Commerce
SDC	Southland District Council
SIT	Southern Institute of Technology
tCO <sub>2</sub> e	Tonnes of carbon dioxide equivalent

## EXECUTIVE SUMMARY

This report is the third greenhouse gas (GHG) emissions inventory report for Great South (GS) and measures GHG emissions associated with GS activities for the 2021/22 Financial Year (FY).

Its aim is to share the progress GS has made towards reaching its goal of becoming carbon neutral by 2025 and to have a low waste and water consumption.

On 6 March 2023, The GS Board approved the following recommendations:

1. To adopt the Draft report and the planned actions,
2. To incorporate the GHG emissions report into the annual report,
3. Agreement in principle to assign a decarbonisation amount in the annual budget
4. To seek third party carbon verification and certification
5. To prepare a summary infographic and to post this on the GS website

Recommendations for specific projects aimed at key emissions sources are listed in Table 11.

### Total Emissions

Total emissions came to 161.35 tonnes of carbon dioxide equivalent (tCO<sub>2</sub>e). Scope 3 is the largest contributor to the total emissions for GS (68%), specifically staff commute and ILT Kidzone event. There has been a 41% reduction since the base year (2018/19). This is attributable to replacement of the diesel boiler with heat pumps, replacement of fluorescent lights with LED lights, and a reduction in air travel and staff commuting due to Covid restrictions. Emissions intensity per full time equivalent employee was 3.68tCO<sub>2</sub>e and tCO<sub>2</sub>e for every \$1,000,000 of gross revenue earned was 14.93.

### Scopes

As adapted from the GHG Protocol 2004, the emissions sources included in this inventory were classified into the following scopes.

- Scope 1: Direct GHG emissions from sources that are owned or controlled by the company. For example, emissions from combustion of fuel in vehicles owned or controlled by the organisation.
- Scope 2: Indirect GHG emissions (in the form of electricity, heat or steam) from the generation of purchased energy that the organisation uses.
- Scope 3: Indirect GHG emissions that occur as a consequence of the company's activities but from sources not owned or controlled by the company. For example, air travel and staff commuting.

Table 1: Summary emissions (tCO<sub>2</sub>e) by scopes for this measurement period FY 2021-2022

Emissions	CO <sub>2</sub> (tCO <sub>2</sub> e)	CH <sub>4</sub> (tCO <sub>2</sub> e)	N <sub>2</sub> O (tCO <sub>2</sub> e)	HFC (tCO <sub>2</sub> e)	Total (tCO <sub>2</sub> e)
Scope 1	26.30	0.23	0.58	0.01	<b>27.14</b>
Scope 2	24.30	0.65	0.05	-	<b>25.01</b>
Scope 3	84.72	3.92	2.31	-	<b>109.20</b>
<b>Total</b>	<b>135.33</b>	<b>4.81</b>	<b>2.95</b>	<b>0.01</b>	<b>161.35</b>

**Note:** Due to rounding, the numbers in the above table will not add correctly to give the total.  
WTT emissions: 19.85 tCO<sub>2</sub>e are counted only under tCO<sub>2</sub>e and not divided by gas type.

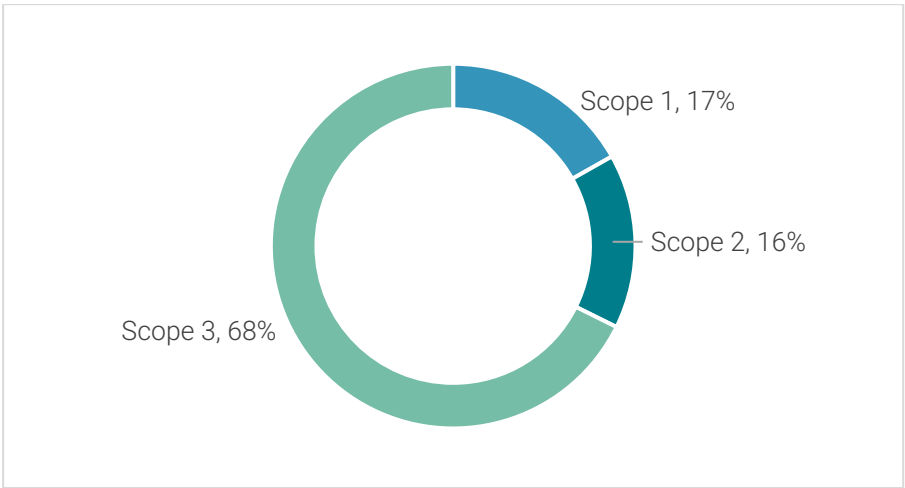


Figure 1: Emissions by scopes for this measurement period FY 2021-2022

**Comparison to base year**

Table 2: Historical GHG inventory summary comparisons

Emissions	Base year 2018/19	2021/22	2018-2022 Evolution
Scope 1	53.50	27.14	<b>-49%</b>
Scope 2	10.58	25.01	<b>136%</b>
Scope 3	212.01	109.20	<b>-48%</b>
<b>Total</b>	<b>276.10</b>	<b>161.35</b>	<b>-41%</b>

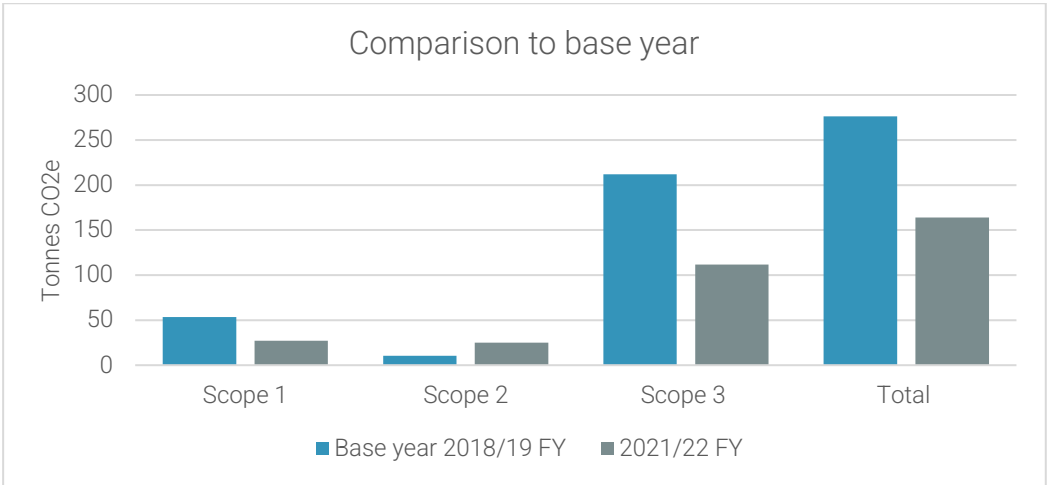


Figure 2: Summary of historical emissions inventories per scope

## RESULTS

The top three sources shown in Table 3 (below) comprise on average 60% of GS's total emissions for 2021/22 reporting period.

Table 3. Historical top three emission sources for all reporting periods

Reporting Period	Emission Sources	Percentage of total emissions	Total emissions (tCO <sub>2</sub> e)
Base year 2018/19	1. Domestic flights 2. International flights 3. Staff commute	27% 19% 16%	65.6 45.2 38.4
2019/20	1. Staff commute 2. Domestic flights 3. ILT Kidzone	19% 22% 11%	26.4 29.8 15.3
2020/21	1. Domestic flights 2. Staff commute 3. Heating fuel Spey St	27% 23% 14%	42.3 36.2 21.8
2021/22	1. Staff commute 2. ILT Kidzone 3. Electricity	23% 19% 18%	35.4 26.3 25.0

Note: 2019/20 Covid First lockdown, 2020/21 Covid restrictions without lockdowns, ILT Kidzone was cancelled and 2021/22 Covid Second lockdown.

Table 4: GHG emissions inventory summary, for this measurement period FY 2021-2022

Scope	Emissions ISO category	tCO <sub>2</sub> e
1	1. Direct GHG emissions	27.14
2	2. Indirect GHG Emissions from Imported Energy	25.01
3	3. Indirect GHG emissions from Transportation & Distribution	58.51
	4. Indirect GHG emissions from products & services used by the organisation	50.70
	5. Indirect GHG emissions from the use of the Organisations Products	
	6. Indirect emissions from other sources	
<b>Total Gross emissions (Location Based)</b>		<b>161.35</b>
Less GHG removals / sinks		-
Purchased credits / Pre-offset (Location Based)		-
<b>Total Net GHG emissions (Location Based)</b>		<b>161.35</b>

Table 5: Emissions intensity, for this measurement period FY 2021-2022

Emissions intensity	Intensity unit	tCO <sub>2</sub> e per intensity unit
Full Time Equivalent Employee	43.9 employees	3.68
Per \$1,000,000 Revenue	\$ 9,251,816	14.93

## EMISSIONS INTENSITY

### Per Full time Equivalent Employee (FTE)

Emissions per FTE decreased by 43% less compared to the baseline year. The number of FTEs is used as a unit of measurement for business activity. This is to ensure that increased activity, such as more business travel, is not penalised when counting emissions or drawing comparisons with other organisations no matter the size.



Therefore, it would be expected that an increase in FTEs would result in a reduction of emission per FTEs as the fixed emissions are shared across more employees. However, of all these emission sources, staff commute is the most significant contributor to GS's overall emissions.

### Per revenue

For every \$1,000,000 of revenue earned in the reporting period 14.93 tCO<sub>2</sub>e were emitted. Based on \$ 9,251,816 gross revenue, 2022 Annual Report.

## ORGANISATIONAL CONTEXT

### Organisation description

GS was established as Southland's regional development agency in March 2019 and is responsible for economic development and promotion of the Murihiku Southland region. Its vision is 'even better lives through sustainable development'.

GS is a council-controlled organisation, with eight shareholders (ICC, SDC, GDC, ES, ILT, MLT, SCC, and SIT) and is governed by an independent Board of Directors. It also has a memorandum of understanding with all four Murihiku Papatipu Rūnaka. GS receives funding from its shareholding Councils to cover operational and Core costs in line with the KPIs set, Central Government agencies who contract GS to perform specific services, as well as private sector partners.

GS (including Space Operations) has ten company cars and four physical sites, Spey St office, Te Anau office, Hargest House (Space Ops office), Awarua Satellite Ground Station. Additionally GS runs one main annual event – the ILT Kidzone festival currently held at Southland Girls High School (SGH). GS has been committed to decarbonisation and environmental sustainability since early 2019, under the project: Te Ara Toitū – Sustainable Plan 2023. The goal is for GS to become carbon neutral by 2025, with a 50% reduction in emissions by 2022 and to have a low waste and water consumption.

### Statement of intent

GS's Statement of Intent 2022–2025 key priorities are:

1. Regional leadership
2. Diversify the economy
3. Support business growth
4. Promote the region
5. Support environment and climate action

*Within the climate action priority, its goals are to*

- Support implementation of Net Zero Southland Report
- Develop Southland Regional Energy Strategy
- Decarbonise Invercargill City
- Manage carbon offset practices
- Support primary sector with emissions and environment planning
- Facilitate sustainable Destination Management

The intended audience of this report include :

- GS staff
- GS shareholders
- Murihiku Papatipu Rūnaka
- General public

## Persons responsible

Responsibility for the preparation of the inventory and report:

- GS Sustainability Planner
- GS Strategic Projects Engineer

Responsibility for reduction performance as well as reporting results to the Chief Executive

- GS Environmental Sustainability Activation Group
- GS People and Culture Manager

Assisting with background data and supporting information:

- GS GM Finance, IT and Facilities
- GS Conference and Events Manager
- GS Front Desk Administrator
- GS Visit Fiordland Manager

The GS Emissions Inventory will be included as an agenda at quarterly GS Environmental Sustainability Activation Group meetings. This meeting includes the Sustainability Planner, the People and Culture Manager and at least one representative from Administration, Business Services, Events, Management, Strategic Projects, Tourism, Te Anau and Space Ops. Emissions performance and related projects will be reviewed, and follow-up actions tabled, as and when required to ensure the organisation is on track for meeting our emissions performance targets.

A draft budget for Te Ara Toitū – Sustainable Plan 2023 has been proposed to the GS Board.

## STAFF ENGAGEMENT

Staff are made aware of our emissions reduction commitments through the company intranet and through the recent introduction of “Lunch & Learn Sessions.” During these sessions an initiative to reduce emissions is presented. It is recommended that new staff be informed during the staff induction process about the Te Ara Toitū – Sustainable Plan 2023 and about GS’s emission reduction targets. Additionally, it is advised to publish the current and previous GHG emissions inventory reports on the company intranet to boost staff engagement.



Figure 3: Staff room wall poster in Spey Street office to record emissions and reductions.

For the major emissions sources, key staff that either a) provide emission source data, and/or b) have a major influence on the management of the emission source activities, are recommended to attend Environmental Sustainability Activation Group meetings, where presentations on our emissions inventory will provide an opportunity for discussion on emission measurement and management projects.

## MONITORING AND REPORTING

Monitoring and reporting on an annual basis will be undertaken by the Strategic Projects Engineer and the Sustainability Planner.

### Reporting period

Base year measurement period: 01/07/2018 to 30/06/2019.

This base year period was selected because it represents the first year in which we have access to a materially complete set of data records for forming the inventory. A financial year was chosen to align to our annual reporting cycles.

Measurement period of this report: 01/07/2021 – 30/06/2022

Frequency of reporting will be annual. Normally to be presented in August each year.

## Organisational boundary and consolidation approach

Organisational boundaries were set with reference to the methodology described in the ISO 14064-1:2018 and the Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard 2004. The standard allows two distinct approaches to be used to consolidate GHG emissions: the equity share or control (either financial or operational) approaches<sup>1</sup>.

An operational control approach was used to account for emissions. This consolidation approach aligns with our intended users. In particular, it is considered to be more effective at reflecting our carbon risk exposure across the subsidiaries in which we have 100% ownership (Space Ops), but no financial control. Figure 4 shows the organisational structure of GS.

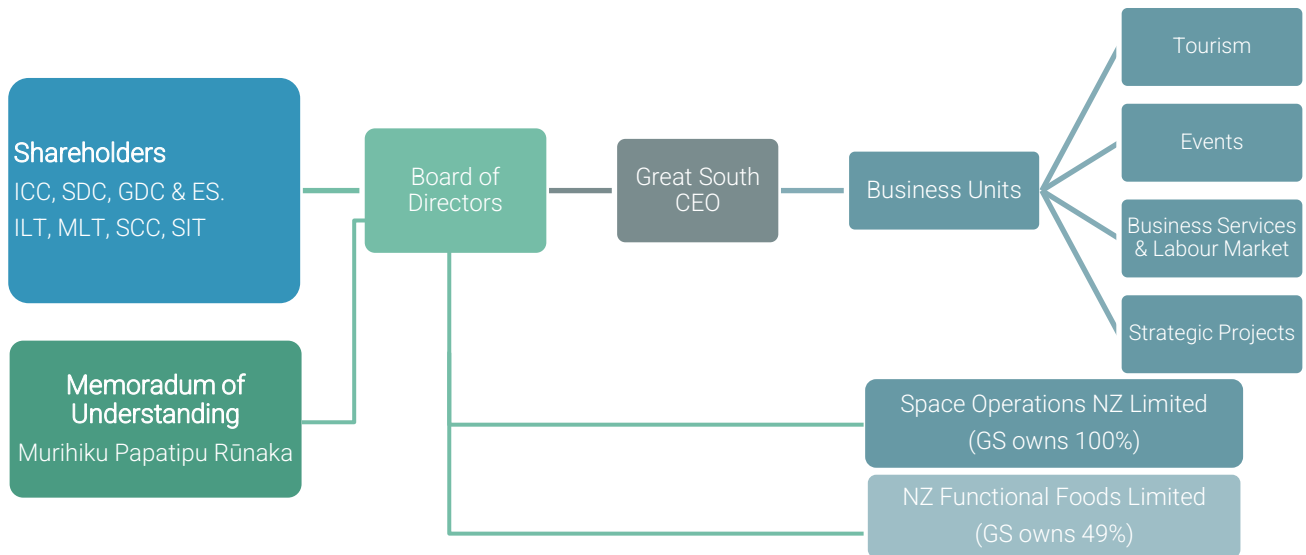


Figure 4: Southland Regional Development Agency Limited (trading as Great South) organisational structure

## Excluded facilities or physical sites

A storage unit at 115 Clyde Street, Invercargill only has lights that use power. Power consumption data at that facility is not available therefore it is not included in the following inventory. GS has a 49% share in NZ Functional Foods and this facility is excluded under the control approach.

<sup>1</sup>Control: the organization accounts for all GHG emissions and/or removals from facilities over which it has financial or operational control. Equity share: the organization accounts for its portion of GHG emissions and/or removals from respective facilities.

Table 6 shows what physical sites have been included in the context of the entire organisational profile.

Table 6. Brief description of the structure (physical sites) included in this emissions inventory.

Physical sites	Location	Description
Spey Street office	143 Spey Street, Invercargill	GS head office. Housing majority of staff. Two storey building, with an approximate floor area 760m <sup>2</sup> – 450m <sup>2</sup> on the first floor and 310m <sup>2</sup> on the ground floor. There are 4 meeting rooms and a board room. There are 2 kitchens, 2 bathrooms and 2 EV charging stations.
Te Anau office	116 Town Centre, Te Anau	GS assumed responsibility for this office space and staff from 1 April 2021. 200m <sup>2</sup> upper storey with open plan office space, separated offices/meeting rooms and one kitchenette and bathroom.
ILT Kidzone	328 Tweed Street, Invercargill	Annual event organised by GS held over 5 days (14–19 July 2021) at Southland Girls High School.
Hargest House (Space Ops office)	62 Deveron Street, Invercargill	SpaceOps NZ head office. 150m <sup>2</sup> open plan office space, shared use of one kitchenette and bathroom.
Awarua Station (Satellite ground and radio tracking Space Ops)	781 Colyer Road, Invercargill	Awarua Satellite Ground Station hosts and runs client and GS-owned antennas and electronics. 4.4 hectares property with a 70m <sup>2</sup> control centre housing the office and IT systems, a 17m <sup>2</sup> generator shed and 32 antennas.

## Carbon Footprint Recalculation Policy

GS uses 2018-19 as the baseline year for its carbon footprint. In order to accurately track progress towards carbon reduction targets, we will adjust our base year emissions inventory to account for significant changes, as described below, but only if the changes drive an increase/decrease in emissions of greater than 5%. We may also choose to recalculate our baseline for changes less than 5%, if organisational structure changes occur.

**Organisational structure changes:** Including acquisition, divestment, mergers and permanent closures of business or facilities that existed during 2018-19.

**Methodology changes:** Include updated emission factors, improved data access or updated calculation methods or protocols and the Global Warming Potential (GWP).

**Other changes:** We will only recalculate our emissions for the following reasons: Discovery of significant error, or a number of cumulative errors.

Change in our organisational boundary<sup>2</sup> and change in our operational boundary<sup>3</sup>

<sup>2</sup> Organisational boundary defines whether to account for GHG emissions by equity share or financial control.

<sup>3</sup> Operational boundary defines the scope of direct (scope 1) and indirect emissions (scope 2, scope 3) for operations that fall within a company's established organisational boundary (WRI, 2004).

# METHODOLOGIES AND EMISSION FACTORS

## Quantified 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.

Emissions Factors were obtained from the Ministry for the Environment's 2023 Emission Factors Workbook.

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

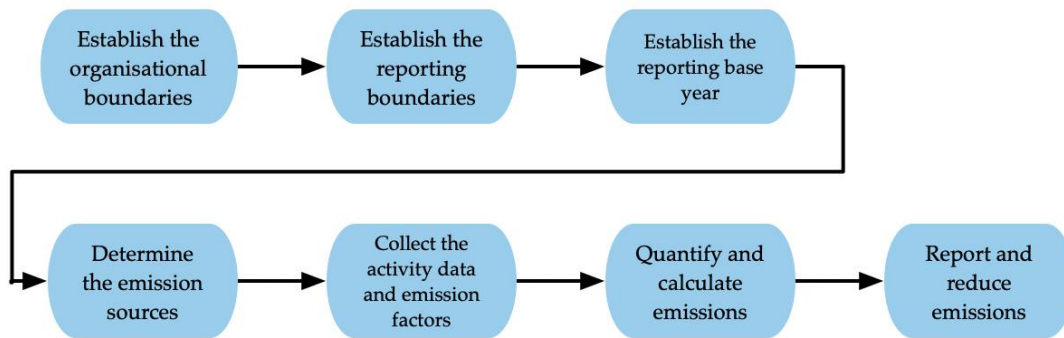


Figure 5: Methodology used.

## GHG Information Management and monitoring procedures

GS 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.

## EMISSION RESULTS

GHG emissions for the organisation for the current reporting period are detailed in Table 2. There is a decrease of 114 tCO<sub>2</sub>e compared to the base year across all scopes and a decrease of 102 tCO<sub>2</sub>e for Scope 3 compared to the base year.

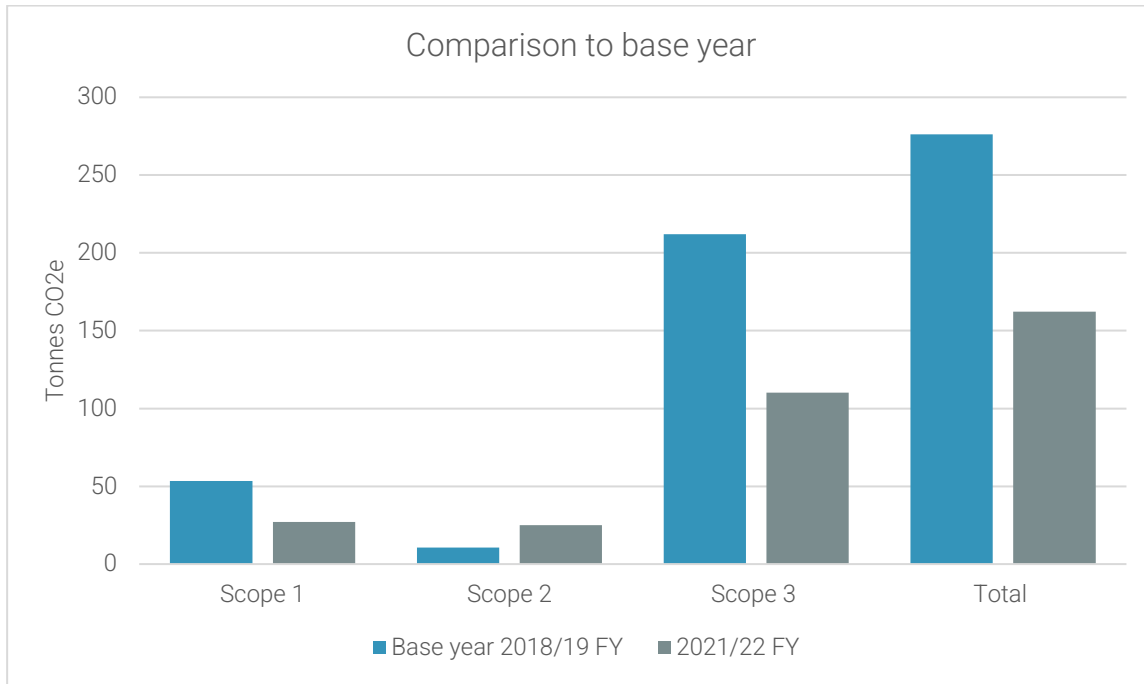


Figure 6: Comparison of emissions by scope between the base year and the current report period

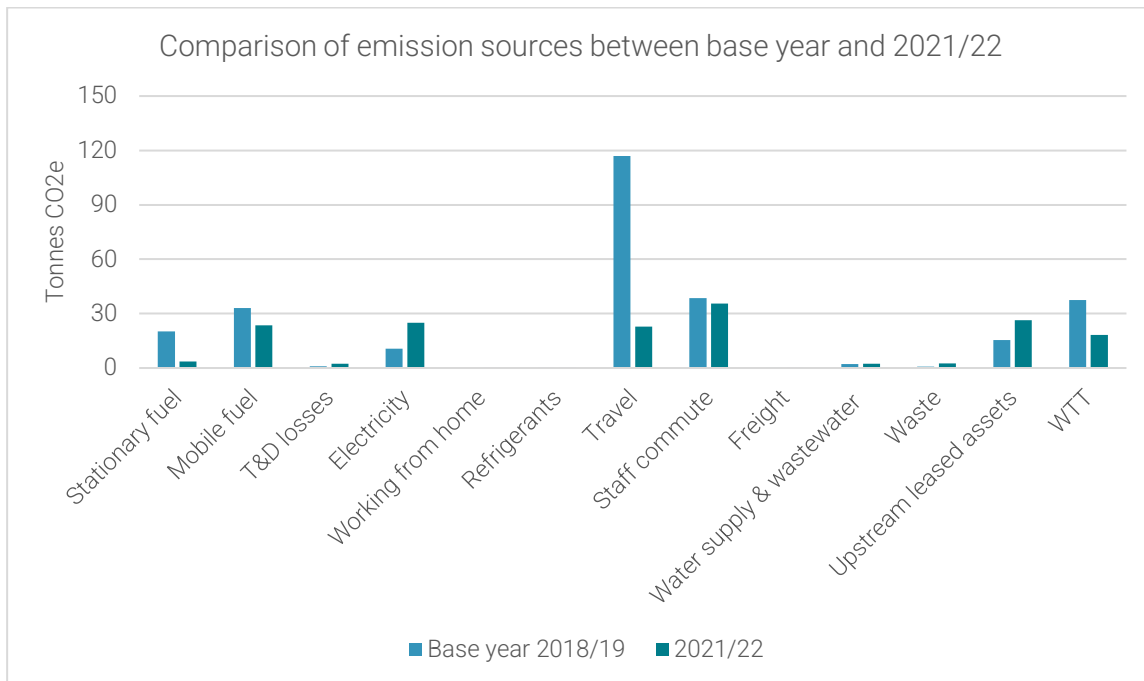


Figure 7: Comparison of emissions by source between the base year and the current reporting period

\*T&D: Transmission and distribution losses from electricity

\*WTT: Well To Tank emissions

## Historical Breakdown of top three emission sources

GS's top three sources of emissions are staff commute (Fig.7), ILT Kidzone (Fig.8) and electricity (Fig.9).

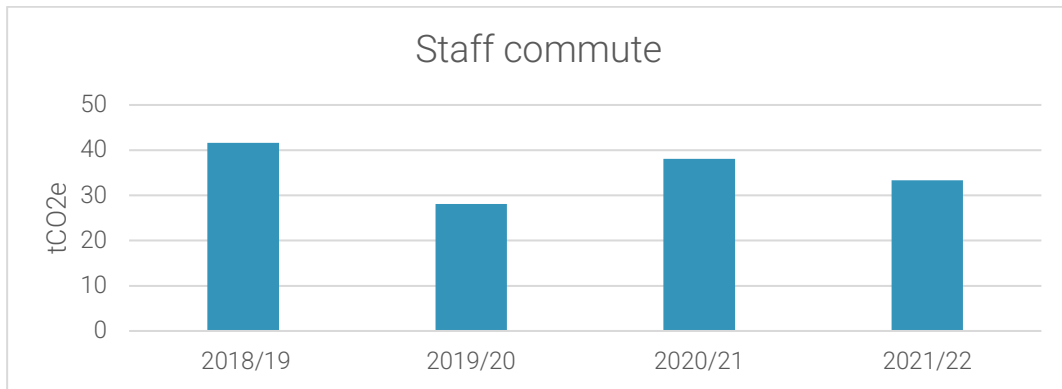


Figure 8: Comparison of staff commute between the reporting periods.

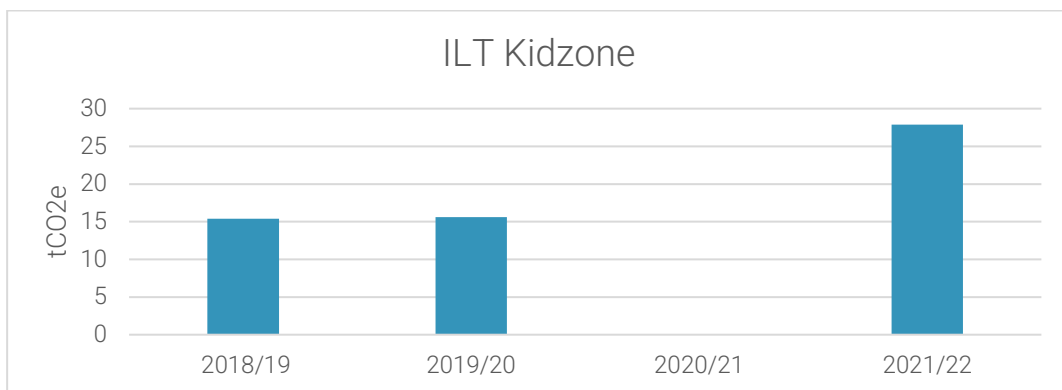


Figure 9: Comparison of ILT Kidzone (fuel heating and electricity) between the reporting periods.

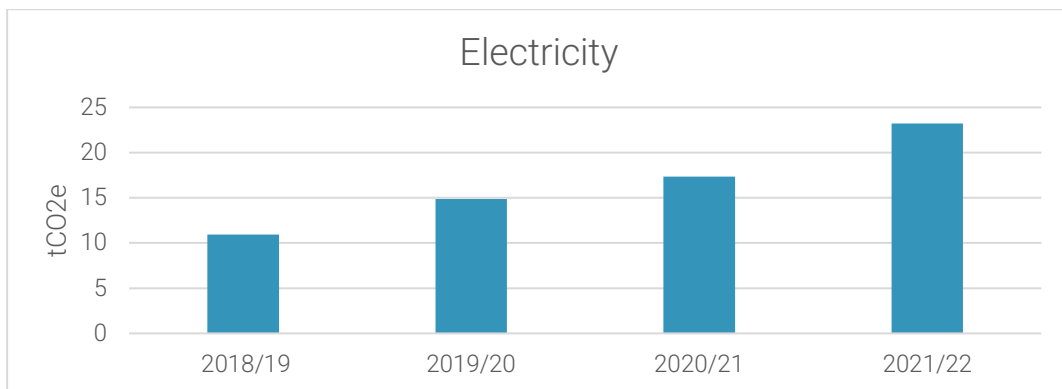


Figure 10: Comparison of electricity between the reporting periods.

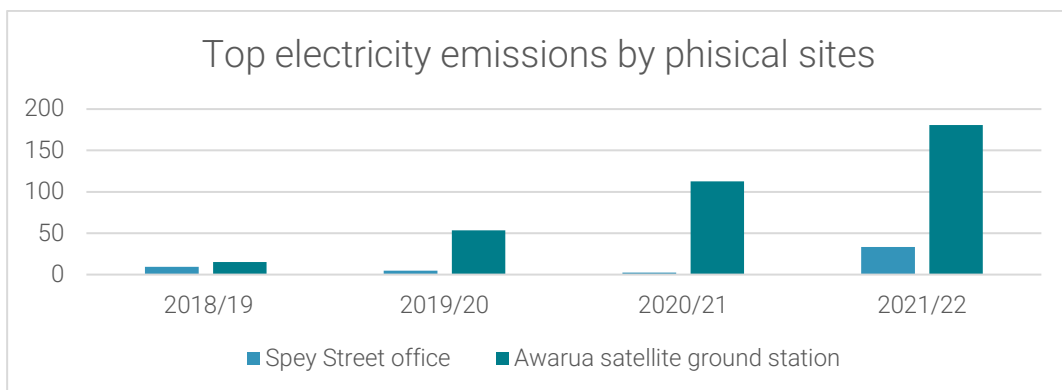


Figure 11: Comparison of top electricity emissions by physical sites between the reporting periods



## Significant emissions sources

The top three emissions sources for GS in the current reporting period 21-22 FY are staff commute, ILT Kidzone and electricity.

For staff commute, half of the emissions in this source come from petrol vehicles manufactured pre 2010 and post 2015. Emissions from staff commuting decreased by 8% compared to the baseline year as a result of fewer employees and Covid restrictions forcing staff to work from home.

Data was collected through the online annual Staff Commute Survey during August 2022; the response rate was 83% or 33 people. SpaceOps NZ staff did not take part in this survey. In this reporting period, twenty-three people (70%) only commuted by car, this being among the most polluting means of transport. The main reasons were convenience, family obligations and easy parking facilities in Invercargill. Three people (9%) of those surveyed, say they only bike to work and one person (3%) said they only commute by walking (Figure 12).

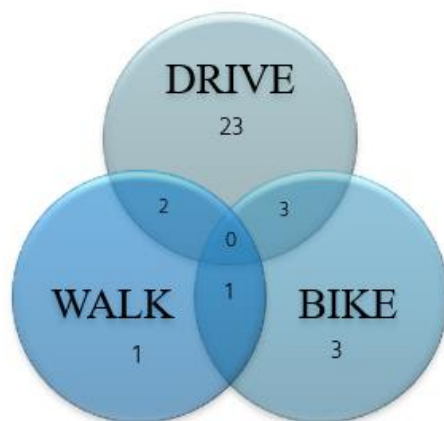


Figure 12: Commuting patterns by method during the reporting period

Table 7. Staff commute survey 2022 highlights

Vehicle type	Number of people
Very small <1350cc	1
Small 1350-1600cc	5
Medium 1600-2000cc	10
Large 2000-3000cc	4
Very large >3000cc	4
Petrol-plugin hybrid	2
Km's travel to get to work	Number of people
0 - 2 km away <sup>4</sup>	3
2.1 - 5 km away <sup>5</sup>	11
5.1 - 10 km away <sup>6</sup>	5
10 + km away	8
Other patterns	Number of people
Work 5 days a week	25
Work from home on a regular basis	2

<sup>4</sup> Perfect for walking, scooting or biking.

<sup>5</sup> Comfortable distance for biking, scooting or bus.

<sup>6</sup> Still good for biking, many people might be looking at an e-bike for distances closer to 10km,

The second highest contributor of emissions is the venue for ILT Kidzone event (Southland Girls High-SGH). The six days event used 11.88 tonnes of sub-bituminous coal which is equivalent to 23.81 tonnes of carbon equivalent. Previously the event was host in James Hargest College (JHC) The rest of emissions of ILT Kidzone for the reporting period are from electricity used and transmission and distribution losses.

Table 8. Summary of ILT Kidzone fuel consumption

Reporting Year	6 Days event	Venue	Tonnes of coal	Stationary Fuel	Tax Invoice
Base year 2018/19	11-16 July 2018	JHC	9.9 tonnes	Coal - Lignite	0606
2019/20	10-15 July 2019	JHC	9.9 tonnes	Coal - Lignite	74451
2020/21	Cancelled	-	-	-	-
2021/22	14-19 July 2021	SGH	11.8 tonnes	Coal - Sub-Bituminous	0735

\*Note: Fuel consumption for ILT Kidzone event July 2022 will be reflected in reporting period 2022/23 FY.

For SpaceOps NZ, electricity was the main source of emissions, with 180,583 kWh consumed compared to 33,301 kWh in the Spey Street office. SpaceOps NZ's business growth and decarbonisation of GS facilities (Attributable mainly to replacement of the diesel boiler with heat pumps in Spey Street office) will continue to be reflected in an increase of energy consumption.

**These three top emissions sources, staff commute, ILT Kidzone and electricity, can be significantly reduced or influenced by:**

- Changing staff behaviour with incentives to promote the use of active transport.
- Changing GS's travel and procurement policies and selection of venues.
- Exploring on-site electricity generation from wind turbine or solar power for Awarua station.

Table 9 highlight GS's exposure to the carbon price. The cost of GS's emissions 2021/22 FY was calculated as \$13,634 NZD.

Table 9. Cost of GS's emissions in 2022

Reporting Period	Carbon price	Annual emissions (tCO2e)	Cost of emissions
21-22 FY	\$84.50*	161.35	\$13,634 NZD

\*Note: Price NZUS-Spot 2/11/2022.

## REDUCTION TARGETS

The organisation is committed to managing and reducing its emissions in accordance with Te Ara Toitū – GS’s Sustainability plan, 2021. Table 10 provides details of the emission reduction targets to be implemented. The GS’s Environmental Sustainability Activation Group is responsible for implementing the plan, prioritising and selecting solutions.

Table 10. Emission reduction targets against base year emissions 276.10 tCO<sub>2</sub>e.

Target name	Report period	Target date	Target year emissions (tCO <sub>2</sub> e)	Actual
35% emissions reduction	20/21 FY	July 2021	179.47	154.1 tCO <sub>2</sub> e or 35% reduction
50% emissions reduction	21/22 FY	July 2022	138.05	140.3 tCO <sub>2</sub> e or 41% reduction
60% emissions reduction	22/23 FY	July 2023	110.44	TBA <sup>7</sup>
65% emissions reduction	23/24 FY	July 2024	96.64	TBA
Carbon neutral	24/25 FY	July 2025	Offset residual emissions	TBA
<b>Sub target 60% emissions reduction</b>				
Reduce Scope 2 indirect emissions (Electricity – Spey St) by Jul 2023				
Reduce Scope 3 indirect emissions (Staff commute) by Jul 2023				
Reduce Scope 3 indirect emissions (ILT Kidzone) by Jul 2023				
<b>Sub target 65% emissions reduction</b>				
Reduce Scope 2 indirect emissions (Electricity – Awarua) by 2024				
Reduce Scope 3 indirect emissions (Staff commute) by July 2024				
Reduce Scope 3 indirect emissions (ILT Kidzone) by Jul 2024				

<sup>7</sup> To be announced

## REDUCTION PROJECTS

In order to achieve the reduction targets identified in Table 10, specific projects have been identified to achieve these targets, and are detailed in Table 11 below. To maintain our position and reputation as the preferred supplier for services and projects in the region, we must continue to show leadership by reporting and being accountable for the GHG emissions that we create and actively avoid and/or reduce our carbon footprint.

Table 11. Projects to reduce emissions

Emission Source	Recommended quick wins	Project	Responsibility	Completion date	Potential co-benefits (If applicable)	Suggested Actions/ feedback
<b>Staff Commuting</b>	Use personal cars more efficiently	Investigate options for monthly incentives to promote the use of active transport among the staff (members who clock up the most km on bikes or walking).	Sustainability Planner & People and Culture Manager	Ongoing	Improved wellbeing, productivity and mental alertness by increased physical activity	Plan Walking Challenge for November
	Encourage active travel					
	Encourage staff to leave cars at home					
	Offer staff bikes/e-bike and safety equipment with GS branding.	GM Finance, IT and Facilities	23/12/2022	Increase the uptake and visibility of GS	Uptake of use of bikes during the e-bike trial was low so potentially not a cost that is warranted at the moment.	
	Take active participation in "Aotearoa Bike Challenge 2023" by aiming to be Southland's winner.	Sustainability Planner & People and Culture Manager	28/02/2023	Team building Increase productivity Attract and retain great staff	2023 – 3rd in region for our category, 16th overall in our region.	
<b>Events</b>		Investigate options to reduce coal consumption in ILT Kidzone event.	Conference and Events Manager	30/06/2023	Reduced air pollution	Girls High School boiler is being replaced with a wood chip boiler, starting in Sep 2023.
		Give preference to low emissions venues (electricity or biomass	Conference and Events Manager	30/06/2024	Reduced air pollution	No other options are being considered at this stage –

Emission Source	Recommended quick wins	Project	Responsibility	Completion date	Potential co-benefits (If applicable)	Suggested Actions/ feedback
		heating options). If a low-emissions venue is not possible, offsetting carbon emissions is highly recommended				there are no other suitable options at this stage either
<b>Electricity consumption-Spey St</b>	Heat and cool spaces efficiently	Replace single glazed windows with double glazing, including insulation of upstairs lightwell (with a polycarbonate corflute sheet)	GM Finance, IT and Facilities	03/02/2023	Reduce electricity consumption	This is progressing with the landlord – a date for completion hasn't been confirmed yet.
	Understand energy use	Review electricity supplier, contract and infrastructure (Pricing, off peak charging rates for EVs and others)	GM Finance, IT and Facilities	31/01/2023	Reduce electricity consumption	Electricity demand will increase; therefore this point is extremely important to review this point, within our target to become carbon neutral.
	Use lighting more efficiently	Replace fluorescent tubes and incandescent bulbs with LED lights and install occupancy sensor	GM Finance, IT and Facilities	30/06/2023	Reduce electricity consumption	
		Implement energy efficiency signage throughout the GS buildings	Sustainability Planner	Ongoing	Reduce electricity consumption	
<b>Electricity consumption – Awarua</b>	Understand energy use	Explore on-site electricity generation	CEO Space Ops	30/06/2024	TBC	More research is needed to determine the best option
<b>Staff air travel</b>	Offset flight emissions	Include mandatory offset of carbon emissions to be added to the GS travel policy	People and Culture Manager	31/01/2023	TBC	Dependent on budget
<b>Diesel &amp; petrol company cars</b>	Use company cars more efficiently	Update the Vehicle Policy section 4.11 Purchase of Fleet – Emissions to prioritise the procurement of EV and PHEV (plug-in hybrid) vehicles	People and Culture Manager	03/02/2023	TBC	
	Understand vehicle use	Consider having a fleet audit through EECA to optimise the use of vehicles and infrastructure.	GM Finance, IT and Facilities	30/06/2023	TBC	GM Strategic Projects was researching cost of this
		All staff that are anticipated to drive >1,000km per year to be put through a driver behaviour course,	GM Finance, IT and Facilities	30/06/2023	TBC	

Emission Source	Recommended quick wins	Project	Responsibility	Completion date	Potential co-benefits (If applicable)	Suggested Actions/ feedback
		to promote fuel-efficient driving practices				
<b>Waste</b>	Reduce waste at the office	Remove paper towels and utilise roller towels or replace with electric hand dryers	People and Culture Manager	31/12/2022	Reduce company bill	
		Educating staff as to their impact on waste goals	Sustainability Planner	Ongoing	TBC	Part of Lunch & Learn sessions
		Find ways to promote the use of reusable cups and cutlery instead of single-use plastic or take-away items	Sustainability Planner	28/02/2023	TBC	
		Introduce a sustainable procurement policy that considers renewable energy sources, climate change positive action and circular economy	People and Culture Manager & Sustainability Planner	30/06/2023	TBC	
		Investigate options to divert packaging at point of purchase	Sustainability Planner	30/06/2023	TBC	No progress has been done in this point.
<b>Water</b>		Consider replacing plumbing fittings in the downstairs toilets and kitchen with modern equivalents to minimise unnecessary water use	GM Finance, IT and Facilities	31/12/2022	TBC	

Table 12 highlights emission sources that have been identified for improving the quality of data in future inventories. The emissions inventory chapter identified various emissions liabilities. Table 13 details the actions that will be taken to prevent GHG emissions from these potential emissions sources.

Table 12. Projects to improve data quality

Emissions source	Actions to improve data quality	Responsibility	Completion date
Waste (all sites)	Work with waste pickup providers to quantify waste weights collected	Sustainability Planner	February 2023
Purchased Energy	Separate EV charging at a staff member's home, a free or commercial charging station as indirect, scope 3.	Sustainability Planner	February 2023

Table 13. Projects to prevent emissions from liabilities

Emissions source liability	Actions to prevent emissions	Responsibility	Completion date
Air conditioning units	Regular servicing and preventing damage to units	GM Finance & Operations	TBC
Vehicle fleet	Regular servicing and preventing damage to cars	GM Finance & Operations	TBC

The Spey Street Office building has a long-term tenancy lease so all upgrades or changes to the building need to be negotiated with the owner, and a shared benefit lease agreement developed.

## REFERENCES

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## Appendix 1: Detailed GHG Inventory

Additional inventory details are disclosed in the tables below, and further GHG emissions data is available on the spreadsheet accompanying this report.

### 1. 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.

### 2. Combustion of Biomass

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.

### 3. Land use and Land use Change

No deforestation has been undertaken by the organisation on land it owns during this measurement period. Therefore no emissions from deforestation are included in this inventory.

### 4. Pre-verified data

No pre-verified data is included within the inventory.

Table 14. Direct GHG emissions, quantified separately for CO<sub>2</sub>, CH<sub>4</sub>, N<sub>2</sub>O, NF<sub>3</sub>, SF<sub>6</sub> and CO<sub>2</sub>e.

Emissions by gas, converted to tCO <sub>2</sub> e								
Gas type	CO <sub>2</sub> (tCO <sub>2</sub> e)	CH <sub>4</sub> (tCO <sub>2</sub> e)	N <sub>2</sub> O (tCO <sub>2</sub> e)	NF <sub>3</sub> (tCO <sub>2</sub> e)	SF <sub>6</sub> (tCO <sub>2</sub> e)	HFC (tCO <sub>2</sub> e)	PFC (tCO <sub>2</sub> e)	tCO <sub>2</sub> e
Direct emissions from stationary combustion	3.649	0.014	0.008	-	-	-	-	3.671
Direct emissions from mobile combustion	22.656	0.220	0.576	-	-	-	-	23.451
Electricity used (T&D losses)	2.291	0.062	0.005	-	-	-	-	2.358
Electricity used	24.299	0.654	0.053	-	-	-	-	25.006
Staff commute and Working from home	34.303	0.324	0.860	-	-	-	-	35.487
Travel	21.466	0.076	0.304	-	-	-	-	22.869
Freight	0.033	0.000	0.001	-	-	-	-	0.034
Water supply & wastewater treatment	0.442	0.834	1.041	-	-	-	-	2.317
Waste	-	2.490	-	-	-	-	-	2.490
Refrigerants	-	-	-	-	-	0.016	-	0.016
Upstream leased assets (ILT Kidzone)	26.074	0.134	0.102	-	-	-	-	26.310
Well to tank (WTT)	-	-	-	-	-	-	-	17.223

Note: Due to rounding, the numbers in the above table will not add correctly to give the total.

## Appendix 2: Organisational/Reporting Boundaries

### 2.1 Emission source identification method and significance criteria

The GHG emissions sources included in this inventory were identified as those required, with reference to the methodology described in the ISO 14064-1:2018 standard and the Greenhouse Gas Protocol 2004. This included personal communications with relevant staff, review of invoices and staff commuting survey.

### 2.2 Included emissions sources and activity data collection

As adapted from the GHG Protocol 2004, the emissions sources deemed significant for inclusion in this inventory were classified into the following scopes.

- Scope 1: Direct GHG emissions from sources that are owned or controlled by the company. For example, emissions from combustion of fuel in vehicles owned or controlled by the organisation.
- Scope 2: Indirect GHG emissions (in the form of electricity, heat or steam) from the generation of purchased energy that the organisation uses.
- Scope 3: Indirect GHG emissions that occur as a consequence of the company's activities but from sources not owned or controlled by the company. For example, air travel and staff commuting.

For the report period 2022/23 FY ISO 14064-1:2018 categories will be use.

Category 1 direct emissions

Category 1 direct removals

Category 2 indirect emissions (imported energy)

Category 3 indirect emissions (transportation)

Category 4 indirect emissions (products used by organisation)

Category 5 indirect emissions (use of products from the organisation)

Category 6 indirect emissions (other sources)

Table 15. Inclusions and exclusions of emissions

Emissions category & sources	Ekos rule	Include/ Exclude/ Not relevant	Data source difficult/expensive to obtain	Limited level of influence	Insignificant/ de minimis
<b>Direct GHG emissions and removals</b>					
Stationary combustion	Mandatory	Include	NA	NA	NA
Mobile combustion	Mandatory	Include	NA	NA	NA
Chemical and industrial processes	Mandatory	Not Relevant	NA	NA	NA
Fugitive emissions	Mandatory	Include	NA	NA	NA
Land use and Land Use changes	Mandatory	Not Relevant	NA	NA	NA
<b>Indirect GHG emissions from imported energy</b>					
Purchased electricity	Mandatory	Include	NA	NA	NA
<b>Indirect GHG emissions from transportation</b>					
Upstream transport and distribution of goods	Mandatory	Include	NA	NA	NA
Business travel	Mandatory	Include	NA	NA	NA
Employee commuting	Non-Mandatory	Include	NA	NA	NA
Downstream transport and distribution of goods	Non-mandatory	Not Relevant	NA	NA	NA
<b>Indirect GHG emissions from products used by organisation</b>					
Waste generated in operations	Mandatory	Include	NA	NA	NA
Fuel and energy related activities (T & D Losses)	Mandatory	Include	NA	NA	NA
Fuel and energy related activities (WTT emissions for fuel)	Mandatory	Include	NA	NA	NA
Emissions from purchased goods	Non-mandatory	Not Relevant	NA	NA	NA
Emissions from the use of services	Non-mandatory	Not Relevant	NA	NA	NA
Capital goods	Non-mandatory	Not Relevant	NA	NA	NA
Upstream leased assets	Non-mandatory	Include	NA	NA	NA
<b>Indirect GHG emissions associated with the use of products from the organisation</b>					
Downstream leased assets	Mandatory	Not Relevant	NA	NA	NA
Processing of the sold product	Non-mandatory	Not Relevant	NA	NA	NA
Use stage of the product	Non-mandatory	Not Relevant	NA	NA	NA
End of life stage of the product	Non-mandatory	Not Relevant	NA	NA	NA
Franchises	Non-mandatory	Not Relevant	NA	NA	NA
Investments	Non-mandatory	Not Relevant	NA	NA	NA
<b>Indirect GHG emissions from other sources</b>					
Working from home – Default	Non-mandatory	Include	NA	NA	NA

## Appendix 3: Financial Statement

During the 2021/22 financial year the organisation had a revenue of \$7,016,669 and an expenditure of \$7,011,805. Organisational activities can be summarised as the delivery of projects, services and events. Most of GS's expenditure was in its staff and other expenses. The only exception to this was the events it ran.

Table 16: Summary of GS areas of work, revenue and expenditure budget 2021/22.

Areas of work	Expenditure 2021/22	Our work examples
Regional Economic Development	\$ 869,681	Support Space Operations New Zealand Ltd. Support implementation of Net Zero Southland Report Develop Southland Regional Energy Strategy Provide tools to support land use change
Business Support Services	\$ 1,103,612	Administer tourism business funding Support labour market needs Deliver the Southland Youth Futures programme
Regional Tourism Development	\$ 2,308,660	Destination marketing and development Tourism product development
Regional Event Delivery	\$ 1,413,553	Southlandnz.com Support key events ILT Kidzone event
<b>Total</b>	<b>\$5,695,506</b>	

## Appendix 4: Quantified Inventory of Emissions

A calculation methodology has been used for quantifying the emissions inventory based on the following calculation approach, unless otherwise stated below:

$$\text{Emissions} = \text{activity data} \times \text{emissions factor}$$

The quantification approach has not changed since the previous measurement period. All emissions were calculated using emissions factors and Global Warming Potentials provided by the MfE. Global Warming Potentials (GWP) from the IPCC fourth (AR4) and fifth assessment report (AR5) are used as the preferred GWP conversion<sup>8</sup>.

### Historical recalculations

Historical recalculations have been conducted for all the reporting periods. The inclusion of scope 3 staff commuting emissions, gathered through a staff survey. To ensure comparability between reporting years, an estimate based on 2021 commute emissions per full-time equivalent (FTE) has been applied over the base year 2018/19 and 2019/20 reporting periods. The inclusion of these previously omitted emissions resulted in an average increase of total annual emissions by 17%. The base year was also retrospectively amended to include emissions from generator fuel use at Awarua and Lochiel site electricity, giving a new total of 276.10 tCO<sub>2</sub>e.

ILT Kidzone heating fuel was previously reported incorrectly under scope 1 and electricity consumption during the event was reported under scope 2. These two emission sources have been reclassified under scope 3 – Category 8 Upstream leased assets, following the methodology of GHG Protocol Scope 3.

<sup>8</sup> If emission factors have been derived from recognised publications approved by the programme, which still use earlier GWPs, the emission factors have not been altered from as published.