



GREENHOUSE GAS EMISSIONS INVENTORY REPORT

Toitū carbonreduce and Toitū net carbonzero programme



Lincoln University

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Base year: 01 January 2019 to 31 December 2019

Verification status: Reasonable scope 1 & 2, Limited scope 3



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GREENHOUSE GAS EMISSIONS INVENTORY SUMMARY

Table 1: GHG emissions data summary.

	2019	2020
Scope 1	4,580.42	4,527.20
Scope 2	735.49	720.09
Scope 3 Mandatory	1,863.90	661.63
Scope 3 Additional	1,249.44	1,254.64
Scope 3 One time	0.00	0.00
Total gross emissions	8,429.26	7,163.56
Certified green electricity	0.00	0.00
Purchased emission reductions	0.00	0.00
Net GHG emissions (all scopes)	8,429.26	7,163.56
Total gross GHG emissions per Turnover/revenue (\$Millions)	66.44	60.66
Total mandatory GHG emissions per Turnover/revenue (\$Millions)	56.59	50.04

Note: total mandatory emissions includes scope 1, scope 2, and scope 3 (i.e. excludes scope 3 one-time and scope 3 additional). Refer to inventory spreadsheet for full time series.

Table 2: Gross organisation GHG emissions by scope for current measurement year.

Indicator	tCO ₂ e
Scope 1	
Freight	0.00
Other	126.72
Other fuels	111.05
Other fuels - coal	3,843.36
Other gases	0.03
Passenger vehicles - post-2015	3.33
Refrigerants	292.76
Transport fuels	149.94
Scope 2	
Electricity	720.09
Scope 3	

Indicator	tCO ₂ e
Electricity	61.72
Passenger vehicles - default age	2.38
Scope 3 Additional	1,254.64
Transport - other	539.42
Waste	58.11
Total	7,163.56

Table 3: GHG emissions inventory summary by scope and business unit.

Component gas	Scope 1	Scope 2	Scope 3	Total	Removals	After removals
CH ₄	133.63	27.55	72.39	233.58	0.00	233.58
CO ₂	4,075.60	691.54	1,805.82	6,572.96	0.00	6,572.96
HFCs	292.76	0.00	0.00	292.76	0.00	292.76
N ₂ O	25.21	0.99	38.06	64.26	0.00	64.26
NF ₃	0.00	0.00	0.00	0.00	0.00	0.00
PFCs	0.00	0.00	0.00	0.00	0.00	0.00
SF ₆	0.00	0.00	0.00	0.00	0.00	0.00
Total	4,527.20	720.09	1,916.27	7,163.56	0.00	7,163.56

Table 4: Mobile and stationary combustion of biomass.

Biomass	Quantity	Tonnes Biogenic CO ₂
No activity recorded	n/a	n/a

Table 5: Deforestation of two hectares or more.

Source	Mass	tCO ₂ e
Deforestation tCO ₂ e (tCO ₂ e)	0.00	0.00

Table 6: GHG stock liability (see Table 13: for mass of individual gases).

Source	Units	Quantity	Potential Liability tCO ₂ e
Coal default commercial	tonnes	35.00	61.91
Diesel stationary combustion	litres	11,000.00	29.81
HCFC-22 (R-22, Genetron 22 or Freon 22)	kilograms	33.80	61.18
HFC-134a	kilograms	29.00	41.47
HFC-32	kilograms	9.50	6.41
R-404A	kilograms	54.00	211.77
R-407C	kilograms	0.00	0.00
R-407F	kilograms	0.00	0.00
R-410A	kilograms	538.12	1,123.33
R-507	kilograms	27.00	107.60

Table 7: Land-use liabilities.

Type of sequestration	Liability tCO ₂ e
Contingent liability (carbon sequestered this reporting period)	0.00
Potential sequestration liability (total carbon stock)	0.00

Table 8: Renewable electricity generation on-site.

Renewable generation on-site	kWh generated	tCO ₂ e avoided
On-site renewable generation (kWh) 1/01/2020 to 31/12/2020 - Lincoln University	195,410.00	19.82

Table 9: Purchased emissions reductions.

Type of emission reductions purchased	Amount	tCO ₂ e
Certified green electricity (tCO ₂ e)	0.00	0.00
Purchased emission reductions (tCO ₂ e)	0.00	0.00
Total	0.00	0.00

1 INTRODUCTION

This report is the annual greenhouse gas (GHG) emissions¹ inventory report for the named organisation. The inventory is a complete and accurate quantification of the amount of GHG emissions that can be directly attributed to the organisation's operations within the declared boundary and scope for the specified reporting period. The inventory has been prepared in accordance with the requirements of the **measure**-step² of the Programme, which is based on the *Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard (2004)* and *ISO 14064-1:2006 Specification with Guidance at the Organization Level for Quantification and Reporting of Greenhouse Gas Emissions and Removals*³. Where relevant, the inventory is aligned with industry or sector best practice for emissions measurement and reporting.

2 STATEMENT OF INTENT

This inventory forms part of the organisation's commitment to gain Programme certification.

This inventory reports into the Toitū carbonreduce and Toitū net carbonzero programmes. We also intend to use this inventory to provide metric reporting to align with the Lincoln University Sustainability Plan.

3 ORGANISATION DESCRIPTION

Lincoln University is the smallest university in New Zealand situated in Selwyn in a park-like campus, surrounded by farms used for demonstration and research. For this audit, the "campus" is the two land titles that cover 120.5 hectares from Springs Road to the farm boundary beyond Johnstone Memorial Lab (JML) (east to west) and Ellesmere Junction Road to Iverson Field (north to south). In the 2020 audit the boundary was extended to include JML and the Biological Husbandry Unit. The surrounding farms are not included at this stage as they establish benchmarking under the Carbon Neutral Government Programme (CNGP).

Lincoln University has a Sustainability Plan which aspirational target includes the goal of being carbon neutral by 2030 and carbon zero by 2050.

4 ORGANISATIONAL BOUNDARIES INCLUDED FOR THIS REPORTING PERIOD

Organisational boundaries were set with reference to the methodology described in the GHG Protocol and ISO 14064-1:2006 standards. The GHG Protocol allows two distinct approaches to be used to consolidate GHG emissions: the equity share and control (financial or operational) approaches. The Programme specifies that the operational control consolidation approach should be used unless otherwise agreed with the Programme.

An operational control consolidation approach was used to account for emissions.

¹ Throughout this document "emissions" means "GHG emissions".

² Programme refers to the Toitū carbonreduce and the Toitū net carbonzero programme.

³ Throughout this document 'GHG Protocol' means the *GHG Protocol Corporate Accounting and Reporting Standard* and 'ISO 14064-1:2006' means the international standard *Specification with Guidance at the Organizational Level for Quantification and Reporting of Greenhouse Gas Emissions and Removals*.

Lincoln University has focused this audit on the larger Te Waihora campus of 120.5 hectares which is the 59ha title that is predominantly teaching and accommodation space, and the adjacent 61.5ha title including the Biological Husbandry Unit (BHU) and Johnstone Memorial Laboratory (JML). This audit does not include the surrounding Lincoln University Farms at this stage as there is a separate measuring guide for this sector.

This audit has not broken-down details to business units yet whilst we create better processes to collect the data. Lincoln Agritech is a subsidiary of Lincoln University, and its operational work is not included, but as they are on campus has been included in the footprint from buildings etc. Therefore, there is only one site for this audit.

The LU Property Joint Venture, Lincoln Hospitality and LUAgR Joint Facility are also noted in this audit as they are registered subsidiaries operating within the campus. Activities from these subsidiaries are covered in this audit through the general operation.



Organisation Chart

as at 31 December 2020

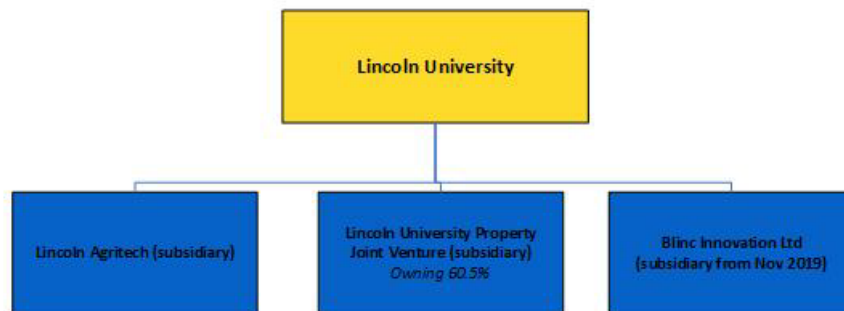


Figure 1: Organisational structure.

This first the Carbon Audit aggregates all information together into the one report - there are no business unit splits at this stage but hope to do that in the future.

Table 10: Brief description of business units in the certifying entity.

Business unit	Address	Purpose
Lincoln University	Ellesmere Junction Road, Lincoln	58ha + 61.5ha titles to define "campus" - not the surrounding farms
Lincoln Agritech	LU Campus, Lincoln	In future years we will split this out - 2020 data is aggregated.
Lincoln University Property Joint Venture	LU Campus, Lincoln	This is a 60.5% owned subsidiary predominantly managed within finance - all LU data aggregated into campus data
Blinc Innovation Limited	LU Campus, Lincoln	A subsidiary of Lincoln University from Nov 2019. Campus operation costs has been grouped under Lincoln University data.

5 ORGANISATIONAL BUSINESS UNITS EXCLUDED FROM INVENTORY

All university campus business units are included in the overall audit where the 58ha boundary sits. This includes Iverson Field but does not include Johnstone Memorial Laboratory.

Lincoln University Farms are excluded from this report due to their sector targets and guidelines. These will be included in this audit from 2021 but in the meantime has separate reporting through He Waka Eke Noa (Primary Sector Climate Action Partnership).

Lincoln Agritech is aggregated for the onsite footprint and is expected to be separated out in future audits.

6 GHG EMISSIONS SOURCE INCLUSIONS

The GHG emissions sources included in this inventory are those required for Programme certification and were identified with reference to the methodology described in the GHG Protocol and ISO 14064-1:2006 standards. Identification of emissions sources was achieved via personal communications with Lincoln University staff, and cross-checked against operational expenditure records for the reporting period. These records were viewed in order to see what activities may be associated with emissions from all of the operations.

As adapted from the GHG Protocol, these emissions were classified into the following categories:

- **Direct GHG emissions (Scope 1):** GHG emissions from sources that are owned or controlled by the company.
- **Indirect GHG emissions (Scope 2):** GHG emissions from the generation of purchased electricity, heat and steam consumed by the company.
- **Indirect GHG emissions (Scope 3):** GHG emissions required by the Programme that occur as a consequence of the activities of the company but occur from sources not owned or controlled by the company. Inclusion of other Scope 3 emissions sources is done on a case-by-case basis.

After liaison with the organisation, the emissions sources in Table 11 have been identified and included in the GHG emissions inventory.

Table 11: GHG emissions sources included in the inventory

Business unit	GHG emissions source	GHG emissions level scope	Data source	Data collection unit	Uncertainty (description)
LU - whole	Air travel domestic (broken down into medium aircraft, jet aircraft and average aircraft)	3 Mandatory	APX travel	person kilometres	Information report from supplier - considered true and correct.
LU - whole	Air travel long haul (broken down into economy, premium (econ+), and business)	3 Mandatory	APX travel	person kilometres	Information report from supplier - considered true and correct.
LU - whole	Air travel short haul (broken down into economy, business/first class, and average)	3 Mandatory	APX travel	person kilometres	Information report from supplier - considered true and correct.
LU - whole	Bus travel (average) (staff and student commute)	3 Additional	2018 Travel Survey & Annual Report for staff and student FTE numbers	person kilometres	Formulas used for days staff and student commute to campus. Bus commute from survey was calculated into distance groups to estimate distance travelled. Assumption made that primary source of transport was 70% and secondary 30% however where more modes were indicated this was broken down further.
LU - whole	Bus travel (diesel) (Field Trips)	3 Mandatory	Travlon through finance data	person kilometres	Bus hire companies' data from finance.

Business unit	GHG emissions source	GHG emissions level scope	Data source	Data collection unit	Uncertainty (description)
					Manually estimated mileage through destination information to calculate person kilometres. Some assumptions were made from data from the previous procurement system where destinations were not recorded.
LU - whole	Car Average (staff and student carpool commute)	3 Additional	2018 Travel Survey & Annual Report for staff and student FTE numbers		Formulas used for days staff and student commute to campus. Carpool commute from survey was calculated into distance groups to estimate distance travelled. Assumption made that primary source of transport was 70% and secondary 30% however where more modes were indicated this was broken down further.
LU - whole	Car Average (staff and student single car commute)	1	2018 Travel Survey & Annual Report for staff and student FTE numbers		Formulas used for days staff and student commute to campus. Single occupancy car commute from survey was calculated into distance groups to estimate distance travelled. Assumption made that primary source of transport was 70% and secondary 30% however where more modes were indicated this was broken down further.
LU - whole	Car Average (staff business car travel)	1	Staff claims for mileage (spreadsheet CarbonCreditReporting)	kilometres	Data from Finance general ledger code Mileage (3226), and anything coded 'mileage' in Travel & Accommodation (4303). Conversion of amount to kms @ .79c per km.
LU - whole	CO ₂ (for winemaking)	1	3720 Cost Centre WFB code: 3731 from AGLS faculty or finance	kilograms	All gas/ bottles filtered out and entered Co ₂ "bottles" classed as Co ₂ .

Business unit	GHG emissions source	GHG emissions level scope	Data source	Data collection unit	Uncertainty (description)
LU - whole	Coal default commercial	1	FM - monthly coal bill / steam spreadsheet	kilograms	
LU - whole	Diesel (Fleet)	1	CardSmart Fleet Invoices	litres	Separated out petrol purchases from diesel purchases.
LU - whole	Diesel commercial (generators)	1	Diesel (generators)	litres	invoices for commercial diesel
LU - whole	Electricity	2	Meridian monthly accounts	kiloWatt hours	Monthly accounts report from supplier - considered true and correct.
LU - whole	Electricity distributed T&D losses	3 Mandatory	automatic calculation from above entry	kiloWatt hours	This is a Toitū automatic calculation for emissions from source.
LU - whole	Enteric Fermentation Sheep	1	Pauline Murphy, AGLS for HRA and Iverson, Robin McAnulty for JML	Head	Count of sheep held on Iverson Fields.
LU - whole	Enteric Fermentation Deer	1	Robin McAnulty (or Chris Logan) for JML	Head	Count of deer held around JML
LU - whole	Fertiliser use Nitrogen (Urea based)	1	Pauline Murphy, AGLS & Robin McAnulty/Chris Logan	kg N	Amount of fertiliser recorded that is used on Iverson Field.
LU - whole	Freight Road van (average)	1	NZ Couriers, NZ Post, Aramex from Finance	kg km	Filter payments from Finance accounts for 3 couriers and multiply by mileage cost of 82c (for a van) to get km's.
LU - whole	HFC-134a	1	Data available from HPAC	kilograms	Data supplied by HPAC, collated per-month use to get year total.
LU - whole	HFC-32	1	Data available from HPAC	kilograms	Data supplied by HPAC, collated per-month use to get year total.
LU - whole	LPG stationary commercial	1	LPG from Elgas	GJ	Data supplied by elgas, collated each delivery to get year total.

Business unit	GHG emissions source	GHG emissions level scope	Data source	Data collection unit	Uncertainty (description)
LU - whole	Manure Management Sheep	1	Pauline Murphy, AGLS	Head	Count of sheep held on Iverson Fields.
LU - whole	Manure Management Deer	1	Robin McAnulty (or Chris Logan) for JML	Head	Count of deer held around JML
LU - whole	Petrol (Fleet)	1	Fleet vehicles - petrol	litres	Separated out diesel purchases from petrol purchases.
LU - whole	R-404A	1	Data available from HPAC	kilograms	Data supplied by HPAC, collated per-month use to get year total.
LU - whole	R-407C	1	Data available from HPAC	kilograms	Data supplied by HPAC, collated per-month use to get year total.
LU - whole	R-407F	1	Data available from HPAC	kilograms	Data supplied by HPAC, collated per-month use to get year total.
LU - whole	R-410A	1	Data available from HPAC	kilograms	Data supplied by HPAC, collated per-month use to get year total.
LU - whole	R-507	1	Data available from HPAC	kilograms	Data supplied by HPAC, collated per-month use to get year total.
LU - whole	Rental Car Large - petrol	1	Hertz Rentals, Thrifty Rentals	kilometres	Car rentals sorted into appropriate sizes.
LU - whole	Rental Car Medium - Petrol	1	Hertz Rentals, Thrifty Rentals	kilometres	Car rentals sorted into appropriate sizes.
LU - whole	Rental Car Small - Petrol	1	Hertz Rentals, Thrifty Rentals	kilometres	Car rentals sorted into appropriate sizes.
LU - whole	Rental Car XL - Petrol	1	Hertz Rentals, Thrifty Rentals	kilometres	Car rentals sorted into appropriate sizes.

Business unit	GHG emissions source	GHG emissions level scope	Data source	Data collection unit	Uncertainty (description)
LU - whole	Taxi (regular)	3 Mandatory	Taxis and Shuttles (3,223), incidental travel (3,229) and travel & accommodation (4,303) general ledgers - collated in "CarbonCredit Reporting" spreadsheet	dollars	Through searching for key words "taxi" and "shuttle" across each general ledger.
LU - whole	Waste disposal recycling of Paper	3 Additional	Waste Management invoices	kilograms	Information report from supplier - considered true and correct but combined paper and cardboard into this line.
LU - whole	Waste landfilled No LFGR Garden and food	3 Mandatory	Catering records for Pig Farm delivery weight	kilograms	Based on food volume an educated guess has been provided in this instance.
LU - whole	Waste landfilled No LFGR Mixed waste	3 Mandatory	Waste Management invoices	kilograms	Information report from supplier - considered true and correct but mixed recycling was added into this line as there was nowhere else to enter it.

6.1 Other emissions – HFCs, PFCs and SF₆

We use hydrofluorocarbons (HFCs) in our operations, and these have been included in the inventory. Hydrofluorocarbons (HFCs) are gases that we use for many of the air-condition units on campus. The different gases depend on the model and age of the unit. HFCs are also refrigerants that we use.

No operations use perfluorocarbons (PFCs), Nitrogen Trifluoride (N₃) nor sulphur hexafluoride (SF₆), therefore no holdings of these are reported and no emissions from these sources are included in this inventory.

6.2 Other emissions – biomass

No biomass is combusted in the operations and therefore no emissions from the combustion of biomass are included in this inventory.

6.3 Other emissions – deforestation

No deforestation has been undertaken by the organisation on land it owns and that is included in this inventory. Therefore, no emissions from deforestation are included in this inventory.

6.4 Pre-verified data

No pre-verified data is included within the inventory.

7 GHG EMISSIONS SOURCE EXCLUSIONS

Emissions sources in Table 12 have been identified and excluded from the GHG emissions inventory.

There have been some emissions that we have been unable to collect, such as accommodation whilst travelling. This could not be separated out easily in the data that we have. However, in 2021 when the university changes contract to Orbit, this will be collected separately.

Construction waste will also be collected in future audits, although currently the responsibility of the contractor.

Table 12: GHG emissions sources excluded from the inventory

Business unit	GHG emissions source	GHG emissions level scope	Reason for exclusion
Whole university	Staff Accommodation (when travelling)	3	Unable to extract this data out. However, now we have changed to Orbit, this will be done from 2021.
Whole university	Mileage claimed	1	Was only able to retrieve data that was identified as mileage - there possibly were claims that didn't get coded to the mileage general ledger code or had an identifier that it was mileage... this should be low
Whole university	Freight road van (courier)	<i>de minimis</i>	Minimal use and uncertainty of data has meant we have excluded this based on <i>de minimis</i> . Original findings found only 0.005 tCO ₂ e

Business unit	GHG emissions source	GHG emissions level scope	Reason for exclusion
Campus Development for University	Construction waste	3	Construction of the Science South facility and the extension of Te Whare Hakinakina was carried out in 2020 but the waste was the responsibility of the contractors. In future audits, this will be measured and included.
Agritech	All emission sources related to internal operations ie. Travel & accomodation, fleet use, commute etc.	1, 2, 3	As a subsidiary, Agritech's daily internal operations has not been collected. This information will be collected in the future. In the meantime, the footprint of Agritech's buildings on campus is being collected in our campus data (ie. Electricity, coal, aircon, waste).

8 DATA COLLECTION AND UNCERTAINTIES

Table 11 provides an overview of how data were collected for each GHG emissions source, the source of the data and an explanation of any uncertainties or assumptions made. Estimated numerical uncertainties are reported with the emissions calculations and results.

All data was calculated using Toitū emanage and GHG emissions factors as provided by the Programme (see Appendix 1 - data summary.xls).

A calculation methodology has been used for quantifying the GHG emissions inventory using emissions source activity data multiplied by GHG emissions or removal factors.

This Toitū programme did not have a category for mixed cardboard/paper recycling, and therefore all cardboard is reported with paper in the 'Waste disposal recycling of Paper' category.

The 'mixed waste' data we have from the TEFMA report also could not be specifically separated, so where possible, we took out paper/cardboard, plastic and glass and the remainder went into 'landfill mixed waste'.

9 GHG EMISSIONS CALCULATIONS AND RESULTS

GHG emissions for the organisation for this measurement period are provided in Table 1 where they are stated by greenhouse gas, by scope, by business unit and as total emissions.

This is Lincoln's second year auditing carbon emissions, and as these have been delayed and audited in late 2021 and early 2022, there has been little effectual difference. The only area where a difference has been made is in Scope 3 due to the reduction of air travel subsequent to the world-wide pandemic.

Lincoln's largest emission source is Scope 1 which is more than double and predominantly from burning coal. Scope 1 also includes field trips which also have high emissions. Scope 2 is only from electricity which will be seen to go up as our coal emissions go down, and of which we will need to circumvent through producing more of our own energy. Scope 3 has reduced by approx 1,200ghgs due to less air travel.

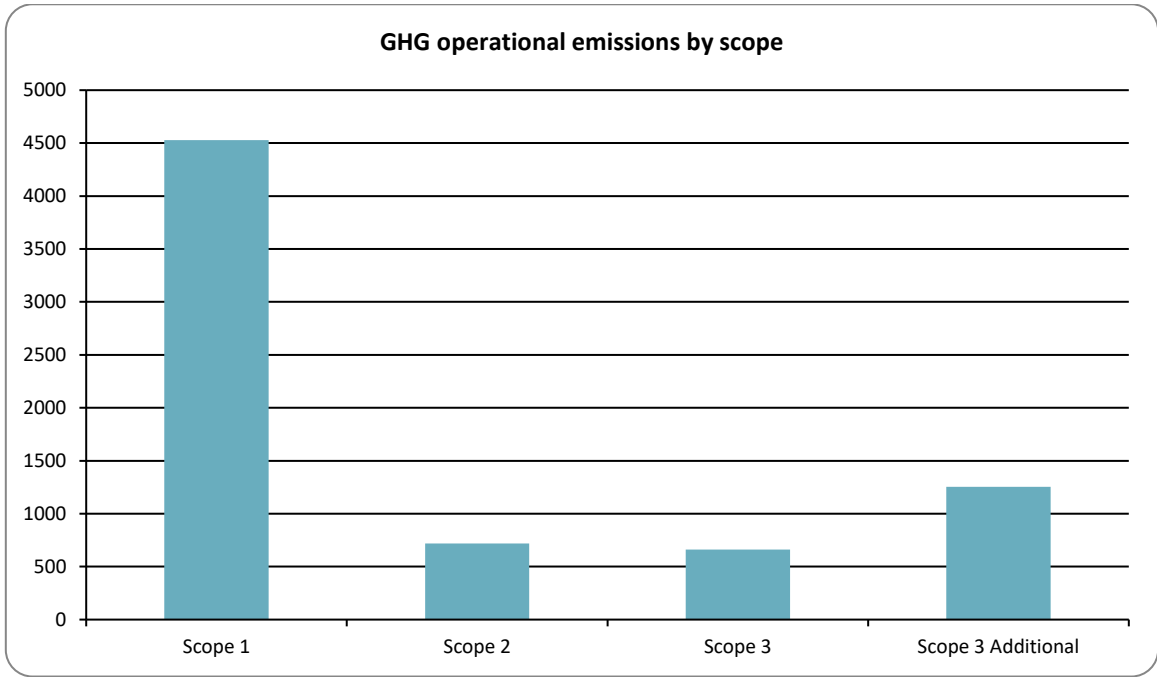


Figure 2: GHG emissions (tonnes CO₂e) by scope

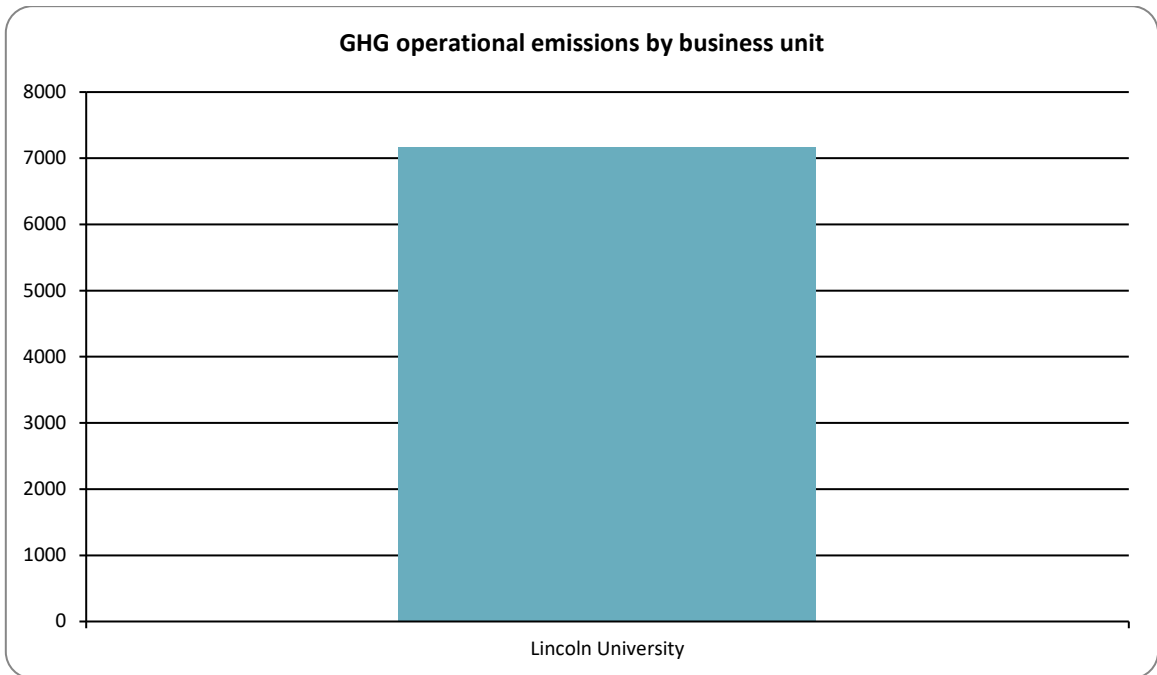


Figure 3: GHG emissions (tonnes CO₂e) by business activity.

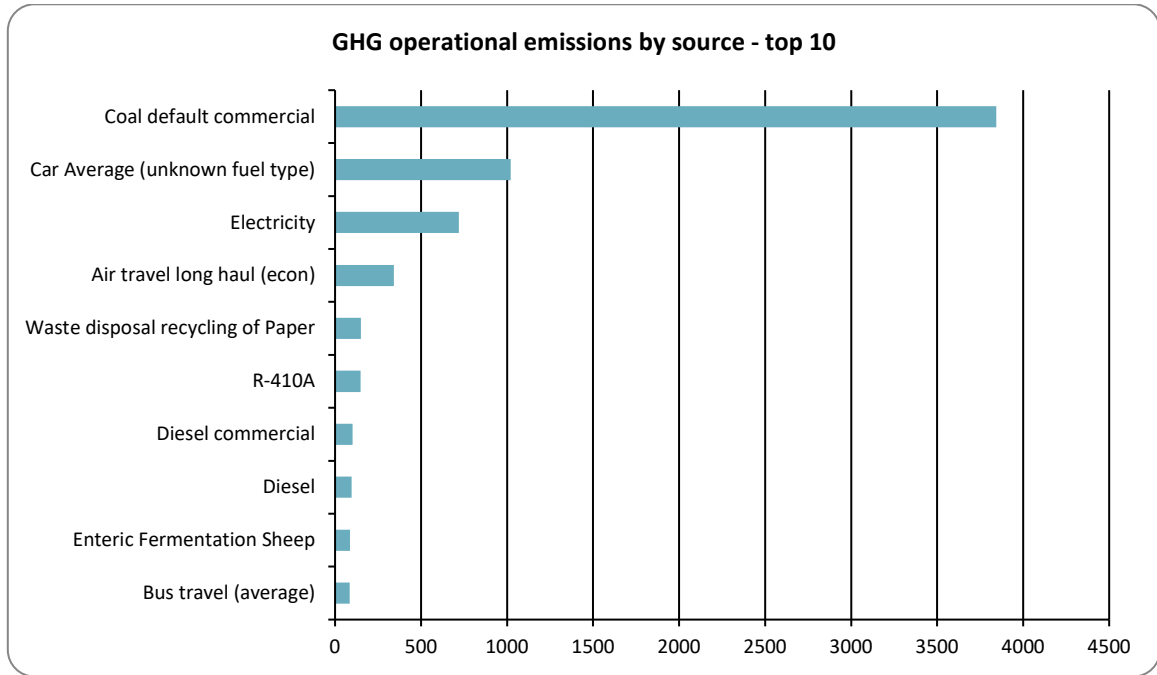


Figure 4: GHG emissions sources by source.

The inventory report and any GHG assertions are expected to be verified by a Programme-approved, third-party verifier. The level of assurance is reported in a separate Assurance Statement provided to the directors of the certified entity.

10 EMISSIONS REDUCTIONS AND REMOVALS ENHANCEMENT

GHG emissions for the organisation for the current reporting period are detailed in Table 1. Our baseline year was 2019 was completed at the end of 2020. This second-year audit is completed soon after. We reduced nearly 1500 tonne of GHG emissions. The difference is predominantly due to a reduction in coal usage over lockdown and a large reduction in long-haul air travel due to the pandemic. This reduction is incidental to the pandemic, but of which we will seek to maintain. The Sustainability Plan was finalised and published in mid-2020 with a Taskforce subsequently put in place to ensure progress is made on the Plan. The impact of this is expected to be seen from 2021. Although work has been underway to decommission the boiler since 2019, most of this work is building infrastructure to cope with a change to electricity, therefore it will take a few years to see the reduction in coal emissions. However, we do expect all the small changes we make to sustainability practices on campus, to have started showing.

The organisation will have an updated management plan in place for managing and reducing emissions in the future to maintain Programme recertification.

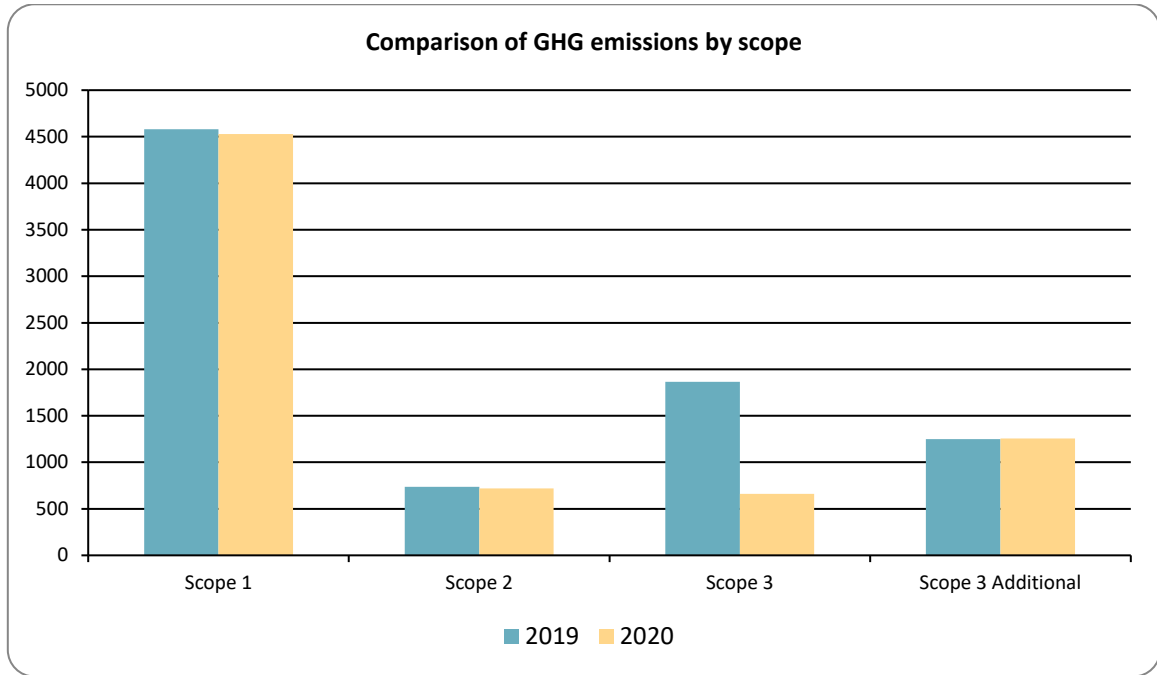


Figure 5: Comparison of GHG operational emissions by scope between the reporting periods.

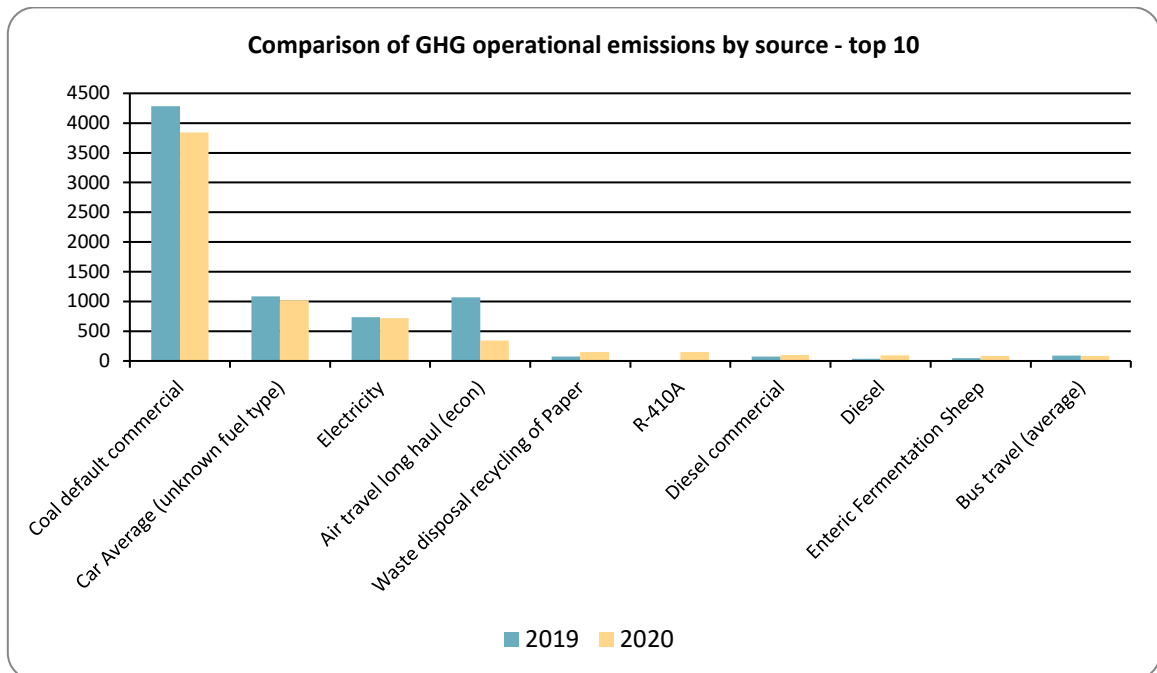


Figure 6: Comparison of GHG operational emissions by emissions sources between the reporting periods.

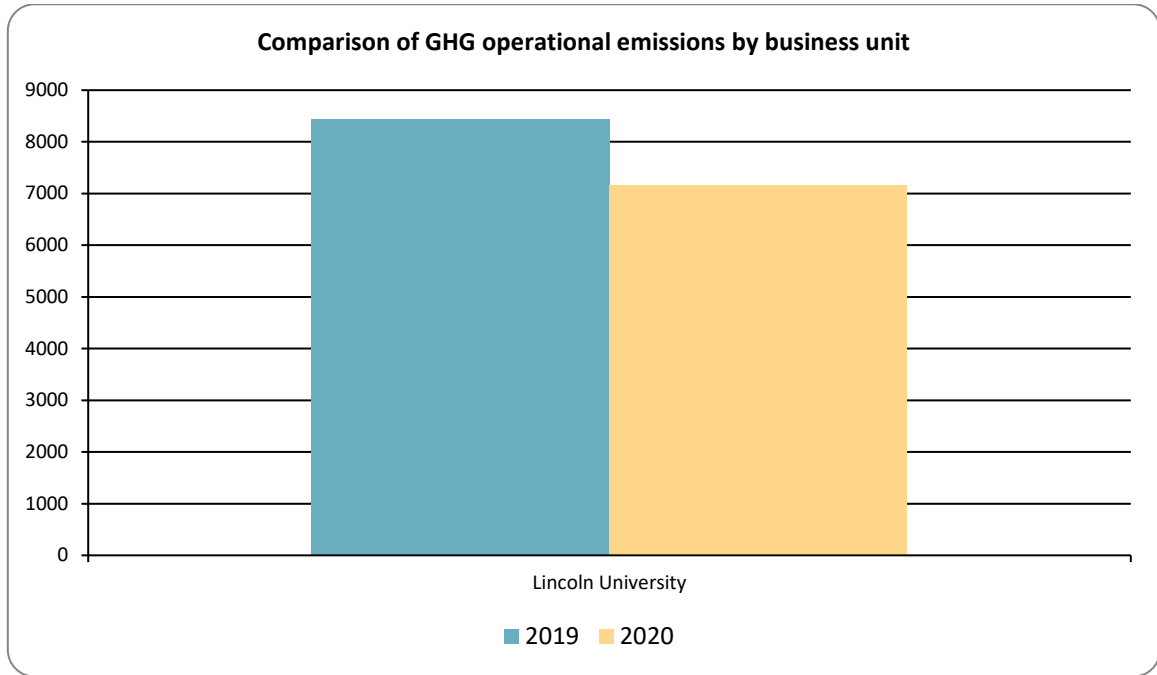


Figure 7: Comparison of emissions by business unit between the reporting periods.

11 LIABILITIES

11.1 GHG stocks held⁴

HFCs, PFCs and SF₆ represent GHGs with high global warming potentials. Their accidental release could result in a large increase in emissions for that year, and therefore the stock holdings are reported under the Programme (Table 13).

GHG stocks have been reported in this inventory and added into the GHG Stock Liability questionnaire. The GHG stocks reported in this inventory related to HFC stocks we hold. We have included GHG stock liability over 3kg.

Table 13: HFCs, PFCs and SF₆ GHG emissions and liabilities.

Business Unit	Source	Units	Amount held - start of reporting period	Amount held - end of reporting period	Potential Liability tCO ₂ e
Lincoln University	Coal default commercial	tonnes	35.00	35.00	61.91
Lincoln University	Diesel stationary combustion	litres	10,000.00	11,000.00	29.81
Lincoln University	HCFC-22 (R-22, Genetron 22 or Freon 22)	kilograms	33.80	33.80	61.18

⁴ HFC stock liabilities for systems under 3 kg can be excluded.

Business Unit	Source	Units	Amount held - start of reporting period	Amount held - end of reporting period	Potential Liability tCO ₂ e
Lincoln University	HFC-134a	kilograms	29.00	29.00	41.47
Lincoln University	HFC-32	kilograms	9.50	9.50	6.41
Lincoln University	R-404A	kilograms	54.00	54.00	211.77
Lincoln University	R-407C	kilograms	0.00	0.00	0.00
Lincoln University	R-407F	kilograms	0.00	0.00	0.00
Lincoln University	R-410A	kilograms	538.12	538.12	1,123.33
Lincoln University	R-507	kilograms	27.00	27.00	107.60

11.2 Land-use change

Organisations that own land subject to land-use change may achieve sequestration of carbon dioxide through a change in the carbon stock on that land. Where a sequestration is claimed, then this also represents a liability in future years should fire, flood or other management activities release the stored carbon.

Land-use change has not been included in this inventory. Lincoln University is not doing any sequestration.

12 PURCHASED REDUCTIONS

Purchased reductions could include certified “green” electricity, verified offsets or other carbon-neutral-certified services. Organisations may choose to voluntarily purchase carbon credits (or offsets) or green electricity that meets the eligibility criteria set by a regulatory authority. The reported gross emissions may not be reduced through the purchase of offsets or green tariff electricity.

Purchased emission reductions have been included in this inventory.

Certified green electricity has not been included in this inventory. All electricity is purchased through Meridian energy which is considered predominantly green; however we have not specifically purchased the certified green energy from them.

(No answer provided) Further solar installations were made in 2020, in addition to the array already on Te Kete Ika. The new arrays have been installed on the RFH Building, and two smaller arrays on accommodation units. These solar arrays can generate approximately 205 megawatt hours per annum. The array will supply renewable energy direct to the University's network, with Meridian Energy planning additional arrays as part of Lincoln's \$8m investment into renewable energy.

13 DOUBLE COUNTING / DOUBLE OFFSETTING

Double counting/offsetting refers to situations where:

- Parts of the organisation have been prior offset.
- The same emissions sources have been reported (and offset) in both organisation and product.
- 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.
- The organisation generates renewable electricity, uses or exports the electricity and claims the carbon benefits.
- Emissions reductions are counted as removals in an organisation's GHG emissions inventory and are counted or used as offsets/carbon credits by another organisation.

Double counting / double offsetting has not been included in this inventory.

14 REFERENCES

International Organization for Standardization, 2006. ISO 14064-1:2006. 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.

15 APPENDIX 1: GHG EMISSIONS DATA SUMMARY

More GHG emissions data is available on the accompanying spreadsheet to this report:

Inventory_2122_Lincoln University_CR_Org.xlsx