Core Laboratories Operational Footprint and Value Chain FY-2022

Sustainable1

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Giuliano Bordignon, Sustainability Analytics Services

S&P Global

Credits

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Sustainable1 Project Team

Kimberlee Glinka, Account Manager | Sustainability Specialist Market Intelligence
Giuliano Bordignon, Project Manager | Sustainability Analytics Services
Nivedita Rao, Ankita Sinha Lead Analysts | Sustainability Analytics Services

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Sustainable1 is part of S&P Global. A leader in carbon and environmental data and risk analysis, Sustainable1 assesses risks relating to climate change, natural resource constraints, and broader environmental, social, and governance (ESG) factors. Companies and financial institutions use Sustainable1 intelligence to understand their ESG exposure to these factors, inform resilience, and identify transformative solutions for a more sustainable global economy. S&P Global's commitment to environmental analysis and product innovation enables its team to deliver essential ESG investment-related information to the global marketplace. For more information, visit https://www.spglobal.com/esg/Sustainable1.

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Contact

E: Sustainable1info@spglobal.com
E: Sustainable1northamerica@spglobal.com
E: Sustainable1EMEA@spglobal.com
E: Sustainable1asiapacific@spglobal.com
E: Sustainable1southamerica@spglobal.com
Telephone (UK): +44 (0) 20 7160 9800
Telephone (North America): +1 800 402 8774

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Report Highlights

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- Under location-based approach, the total GHG emissions for FY2022 were 52,277 tCO_2e. Scope 2 (location-based) emissions account for 21% of the total, Scope 1 emissions for 20% and the remaining 59% is associated with Scope 3 which includes Categories 1 to 9 and 11 to 13.

- The total operational footprint for Core Laboratories, including both Scope 1 and Scope 2 (location-based) emissions in FY2022, was 21,360 tCO_2e. Out of this, Scope 2 emissions were 11,077 tCO_2e, or 52% of the total, with Scope 1 emissions representing the remaining 48% at 10,283 tCO_2e.

- The total Scope 3 emissions for Core Laboratories, including upstream and downstream emissions, were 30,917 tCO_2e.

- Upstream emissions represented the majority of Scope 3 emissions at 24,619 tCO_2e, or 80% of the total, whereas downstream emissions were limited to 6,297 tCO_2e.

- The total supply chain footprint for Core Laboratories, including Scope 3 Category 1 (Purchased Goods and Services) and Category 2 (Capital Goods and Services) in FY2022 was 7,590 tCO_2e. Out of this, Category 1 emissions were 5,544 tCO_2e and Category 2 emissions 2,047 tCO_2e, or 73% and 27% of the total, respectively.

- The total value chain footprint for Core Laboratories, which includes all calculated Scope 3 categories except Categories 1 and 2, was 23,326 tCO_2e in FY2022. These emissions include Category 3 (Fuel and Energy Related Activities), Category 4 (Upstream Transportation and Distribution), Category 5 (Waste Generated in Operations), Category 6 (Business Travel), Category 7 (Employee Commuting), Category 8 (Upstream Lease Assets), Category 9 (Downstream Transportation and Distribution), Category 11 (Use of Sold Products), Category 12 (End of Life Treatment of Sold Products) and Category 13 (Downstream Leased Assets), and does not include Category 10 (Processing of Sold Products), Category 14 (Franchises) and Category 15 (Investment) since no data was provided for these categories.

GHG Emissions

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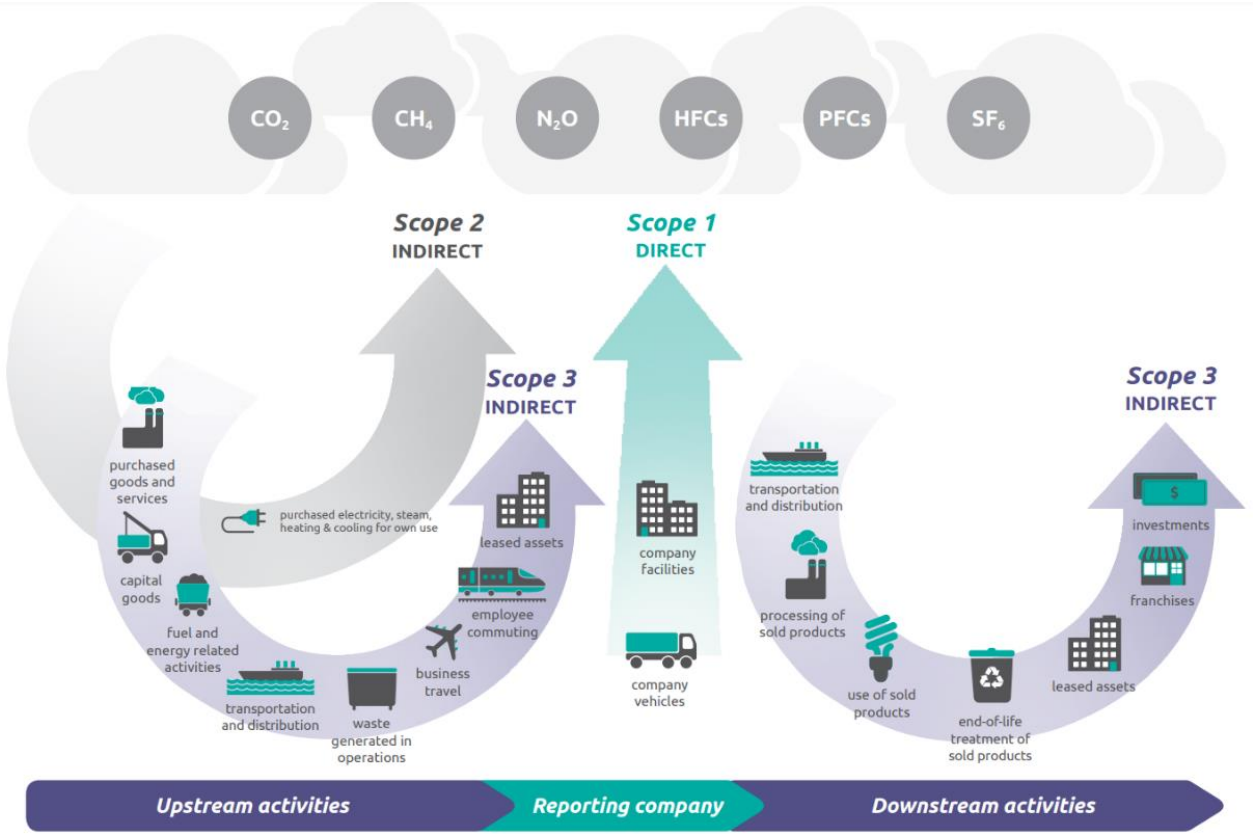

Source: WRI (2015) GHG Protocol: Corporate Value Chain (Scope 3) Accounting and Reporting Standard.

Scope 1

are emissions from

Fuel + Refrigerant

sources which a company owns or controls

Scope 2

are emissions from

Electricity + Heating + Cooling + Steam

procured from outside Company premise

Scope 3

are emissions from

Upstream ← → Downstream

sources not owned or directly controlled by the organization

Introduction

Introduction

- Core Laboratories' business, hereafter Core Lab, provides reservoir description and production enhancement services and products to the oil and gas industry. It is headquartered in Amstelveen, Netherlands.
- Core Lab engaged Sustainable1 to assess its Scope 1 and Scope 2 emissions, plus measurement of water usage, in accordance with Scope 1 and 2 GHG Inventory Guidance (GHG Protocol).
- Core Lab also engaged Sustainable1 to assess Scope 3 (Cat 1-9 and 11-13) greenhouse gas (GHG) emissions in line with the WRI/WBCSD Corporate Value Chain (Scope 3) Guidelines (GHG Protocol).
- The assessment allows Core Lab to report its relevant Scope 1, 2 and 3 emissions in accordance with the GHG protocol.
- Greenhouse accounting standard used: GHG protocol

Scope

Sustainable1 assessed Core Lab's Scope 1 and Scope 2 GHG emissions consistent with the GHG Protocol

- 214 sites covered
- Operational control approach followed for boundary setting

Sustainable1 also assessed Core Lab's Scope 3 (Cat 1-9 and 11-13) value chain GHG emissions consistent with the GHG Protocol.

Analysis period: January 2022 - December 2022

Scope 1 and 2 GHG Emission Approach

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- Core Lab provided Sustainable1 with data for calculation of its operational footprint. Data received from client were:
  - Operational fuel used – Natural Gas, Diesel, Gas Oil, Petrol, Propane and Kerosene
  - Vehicle fuel used – Diesel, Petrol, LPG and kWh and miles for Plug-in Hybrid Electric Vehicles
  - Electricity sourced from grid

- The Greenhouse Gas Protocol methodology for compiling GHG data is used to assess carbon footprint. This includes the following material GHGs: CO_2 (carbon dioxide), N_2O (nitrous oxide) and CH_4 (methane).

- The following emission conversion factor sources are used in calculations:
  - Fossil fuel emission factors (Scope 1 - Stationary and mobile): DEFRA 2022
  - Purchased electricity: EPA eGrid Factors 2021

Scope 3 GHG Emissions Approach

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Methodology

- Sustainable1 is estimating the GHG emissions of each category using the Sustainable1 Environmentally Extended Input-Output (EEI-O) model along with primary data, where available, for selected upstream and downstream impact categories. Examples of primary data included in the analysis:
  - Supplier spend
  - Energy consumption
  - Waste disposal
  - Business travel
  - Employee Headcount
  - Floor space

Please refer to Appendix II for the methodology associated with calculating GHG emissions for each Scope 3 category.

Scope of value chain GHG emissions footprint, GHG Protocol

Upstream or downstream	*Scope 3 category*
Upstream scope 3 emissions	1. Purchased goods and services 2. Capital goods 3. Fuel- and energy-related activities (not included in scope 1 or scope 2) 4. Upstream transportation and distribution 5. Waste generated in operations 6. Business travel 7. Employee commuting 8. Upstream leased assets
Downstream scope 3 emissions	9. Downstream transportation and distribution 10. Processing of sold products 11. Use of sold products 12. End-of-life treatment of sold products 13. Downstream leased assets 14. Franchises 15. Investments

Source: GHG Protocol: Corporate Value Chain Accounting Reporting Standard (WRI / WBCSD)

Operational Footprint

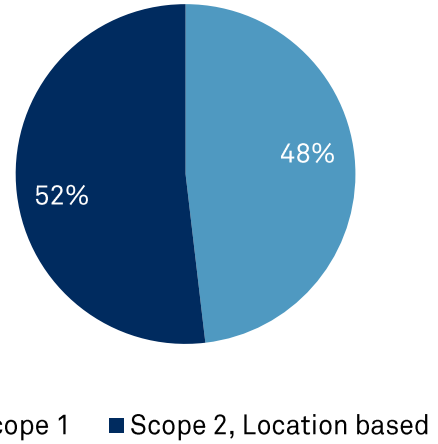
Group level results

Impact category	Impact	Units	FY2022
On-site Energy and Fuel use	Natural Gas	m^3	201,345
	Natural Gas	kWh	13,130,690
	Diesel	Litre	65,054
	Gas Oil	kWh	134,991
	Petrol	Litre	136,123
	Propane	Litre	11,222
	Propane	Tonnes	0
	Kerosene	Litre	6,557
Company Vehicles' Fuel consumption	Diesel	km	770,387
	Diesel	Litre	488,339
	LPG	Tonnes	0.03
	Petrol	Litres	2,149,007
	Plug-in HEV	kWh	49,483
	Plug-in HEV	miles	3,640
Refrigerants	R407C	kg	33
	R410A	kg	58
	HCFC-22/R22	kg	136
Purchased Electricity	kWh	kWh	31,256,871
Water	Abstracted	m^3	4,353
	Supplied	m^3	86,782
	Reused (Treated)	m^3	468

Emission Scope	Category	Absolute Emission tCO_2e
Scope 1	Stationary Emissions	3,366
	Mobile Emissions	6,490
	Refrigerants	427
Scope 2	Electricity: Location Based	11,077
	Electricity: Market Based	11,317
Total Emissions (Location Based)		21,360
Total Emissions (Market Based)		21,600

According to the GHG Protocol Scope 2 Guidance released in January 2015, corporates are now to report two Scope 2 emission totals – location-based and market-based, known as 'dual reporting'. Since market-based emission factors (such as renewable energy certificates, supplier emission factors or other tracking mechanisms) are not available to any of Core Lab's locations, Sustainable1 adopted residual emission factors where they are available. Future calculations shall be updated upon the release of residual factors for public use.

Core Lab's Scope 2 emissions calculated using market-based approach are 11,317 tCO_2e, or marginally higher than the 11,077 tCO_2e derived with a location-based approach. This is due to many geographies having higher residual emission factors than the average grid mix because a lot of renewable power generation is associated with contractual obligation and removed from residual calculations.



Environmental Impact

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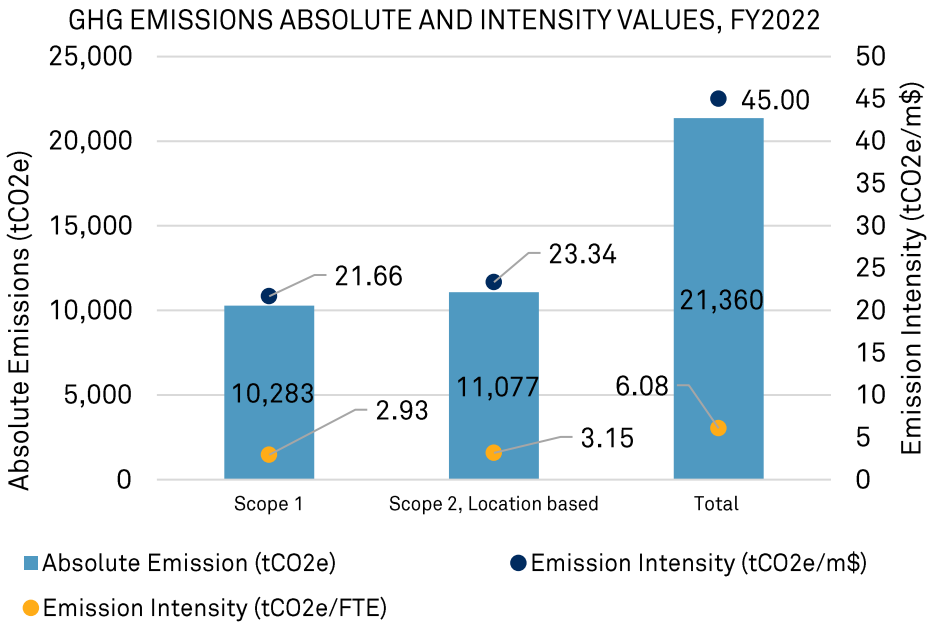
Greenhouse Gas Emissions

Sustainable1 reviewed Core Lab's environmental data for FY2022 and the table below summarizes the key environmental impacts. These impacts are described in absolute terms and in intensity terms by revenue (474.69 mUSD) and by employees (3,513). The intensities of GHG emissions, normalized by revenue and total employees, were 45.0 tCO_2e/mUSD and 6.08 tCO_2e/employee, respectively.

SCOPE	Emissions (tCO_2e)	Contribution %	tCO_2e per revenue (mUSD)	tCO_2e per employee
Scope 1	10,283	52%	21.66	2.93
Scope 2 – Location Based	11,077	48%	23.34	3.15
Total (Location Based)	**21,360**	**100%**	**45.00**	**6.08**



Direct (Scope 1) GHG Emissions

Direct emissions are GHG emissions from organizational operations (or Scope 1) are generally derived from natural gas and diesel for heating and backup generation, owned transportation and refrigeration processes. For Core Lab, we received data for backup generation and owned transportation. Core Lab's Scope 1 emissions during FY2022 were 10,283 tCO_2e.

Indirect (Scope 2) GHG Emissions

The second component of Core Lab's GHG emissions relates to indirect (or Scope 2) emissions from the consumption of purchased electricity. Core Lab's Scope 2 emissions (location based) during FY2022 were 11,077 tCO_2e.

Operational Footprint:
Water and Waste

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Operational Water Footprint

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Water Use

Sustainble1 reviewed the data received from Core Lab on water procured for its operations. Core Lab's aggregated water consumption for FY 2022 is 91,603 m^3, which comprises abstracted, treated and supplied water sources.

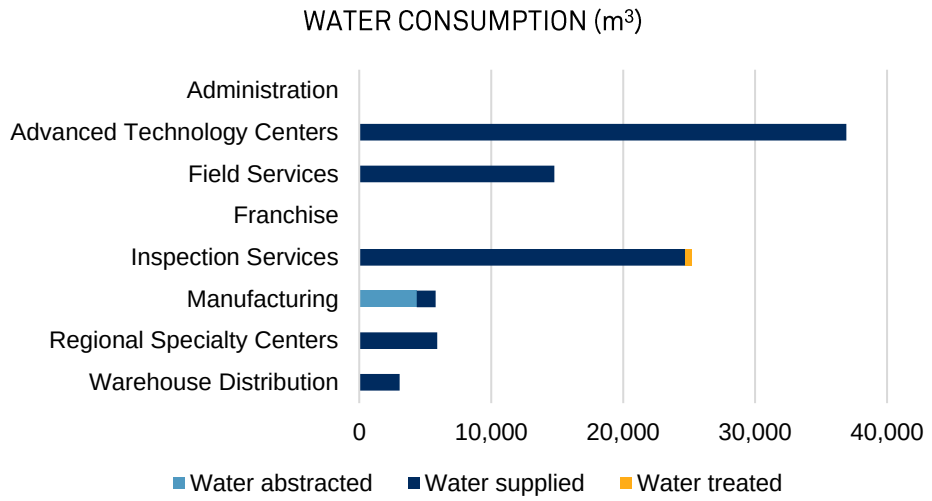
The table below highlights the absolute water use for FY 2022. The water intensity of Core Lab per mUSD of revenue generated is 193.0 m^3 of water. Water use per employee is 26.1 m^3.

ABSOLUTE WATER USE, FY2022

Nature of Supply	Water Consumption (m^3)	Contribution (%)	Intensity m^3/mUSD	Intensity m^3/Employee
Water supplied	86,782	94.7%	182.8	24.7
Water abstracted	4,353	4.8%	9.2	1.2
Water treated	468	0.5%	1.0	0.1
Total	**91,603**	**100%**	**193.0**	**26.1**

WATER CONSUMPTION BY DIVISION, FY2022

	Water abstracted (m^3)	Water supplied (m^3)	Water treated (m^3)
Administration	0.00	0.00	0.00
Advanced Technology Centers	0.00	36,912.25	0.00
Field Services	0.00	14,789.31	0.00
Franchise	0.00	0.00	0.00
Inspection Services	0.00	24,687.99	468.00
Manufacturing	4,352.80	1,431.29	0.00
Regional Specialty Centers	0.00	5,903.05	0.00
Warehouse Distribution	0.00	3,058.19	0.00
Total	**4,352.80**	**86,782.08**	**468.00**



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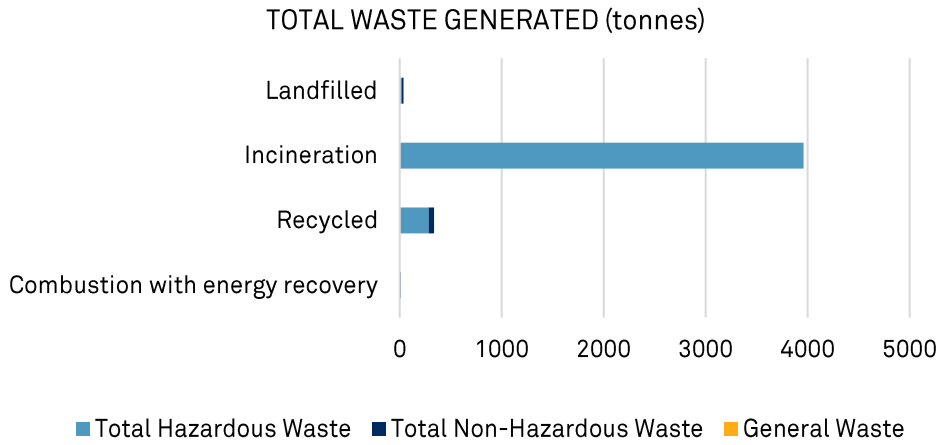
Waste Footprint

Waste Generated and Disposal Expenditures

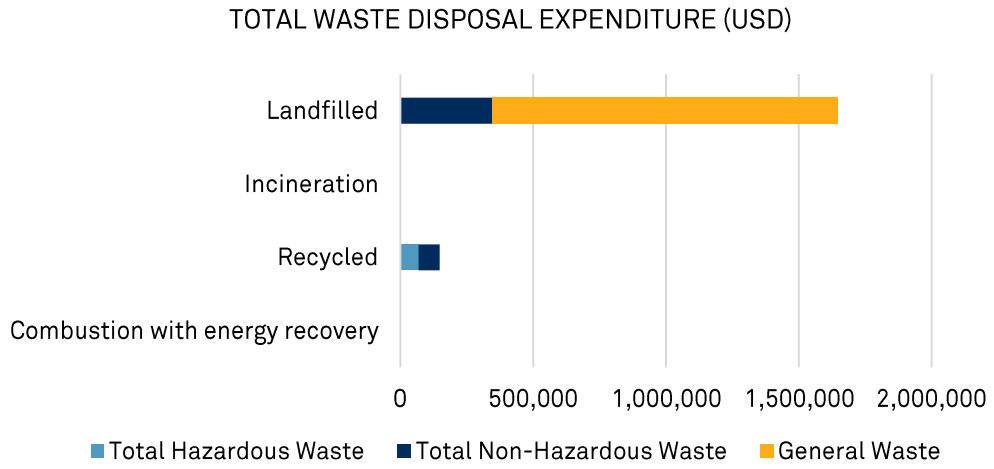
Absolute non-hazardous waste generated in FY2022 was 81.6 tonnes in addition to $426,571 of disposal expenditures. Absolute hazardous waste was 4,261 tonnes in addition to $68,617 of disposal expenditures, and total expenditures for disposal of general waste was $1,299,882.

TOTAL WASTE GENERATED AND DISPOSAL EXPENDITURE, FY2022

	Total Hazardous Waste (tonnes)	Total Non-Hazardous Waste (tonnes)	General Waste (tonnes)
Landfilled	18.09	18.68	0.00
Incineration	3,957.85	1.50	0.00
Recycled	283.25	53.59	0.00
Combustion with energy recovery	2.06	7.80	0.00
Total	**4,261.25**	**81.58**	**0.00**



	Total Hazardous Waste (USD)	Total Non-Hazardous Waste (USD)	General Waste (USD)
Landfilled	0	347,006	1,299,882
Incineration	0	0	0
Recycled	68,617	79,566	0
Combustion with energy recovery	0	0	0
Total	**68,617**	**426,571**	**1,299,882**



Value Chain Footprint

Total Value Chain Emissions

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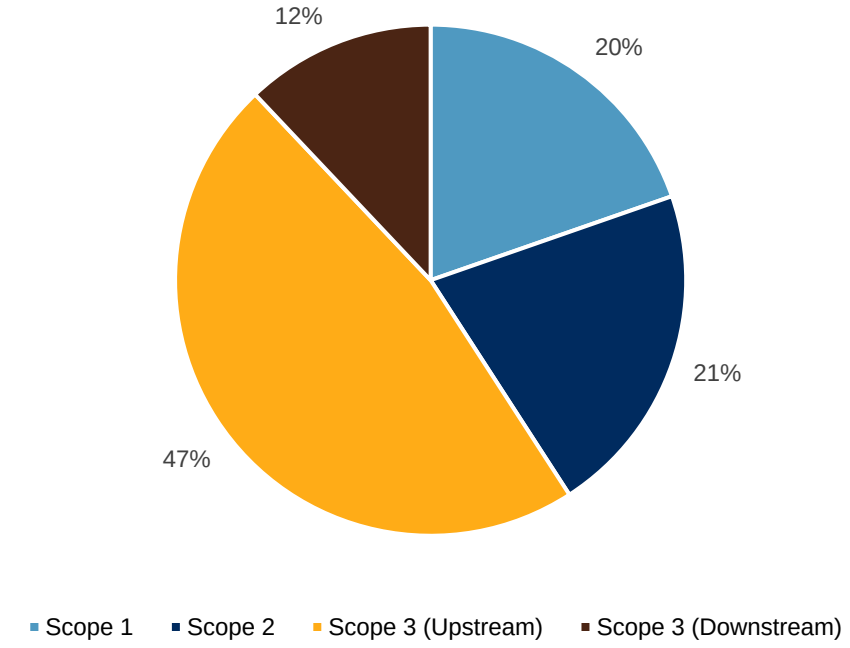
Core Lab's total GHG emissions were 52,277 tCO_2e in FY2022. Scope 3 is the largest contributor to the GHG footprint, accounting for 59% of total emissions. The table below displays the split among Scope 1, Scope 2 (location based approach) and Scope 3 (value chain emissions). All Scope 1, 2 and 3 emissions were calculated by Sustainable1 from the data provided by Core Lab.

EMISSION SCOPE	FY 2022 TOTAL GHG (tCO2e)	CONTRIBUTION (%)
Scope 1	10,283	19%
Scope 2	11,077	20%
Scope 3 (Upstream)	24,619	50%
Scope 3 (Downstream)	6,297	11%
Total	**52,277**	

Core Lab's GHG emissions, by scope FY2022



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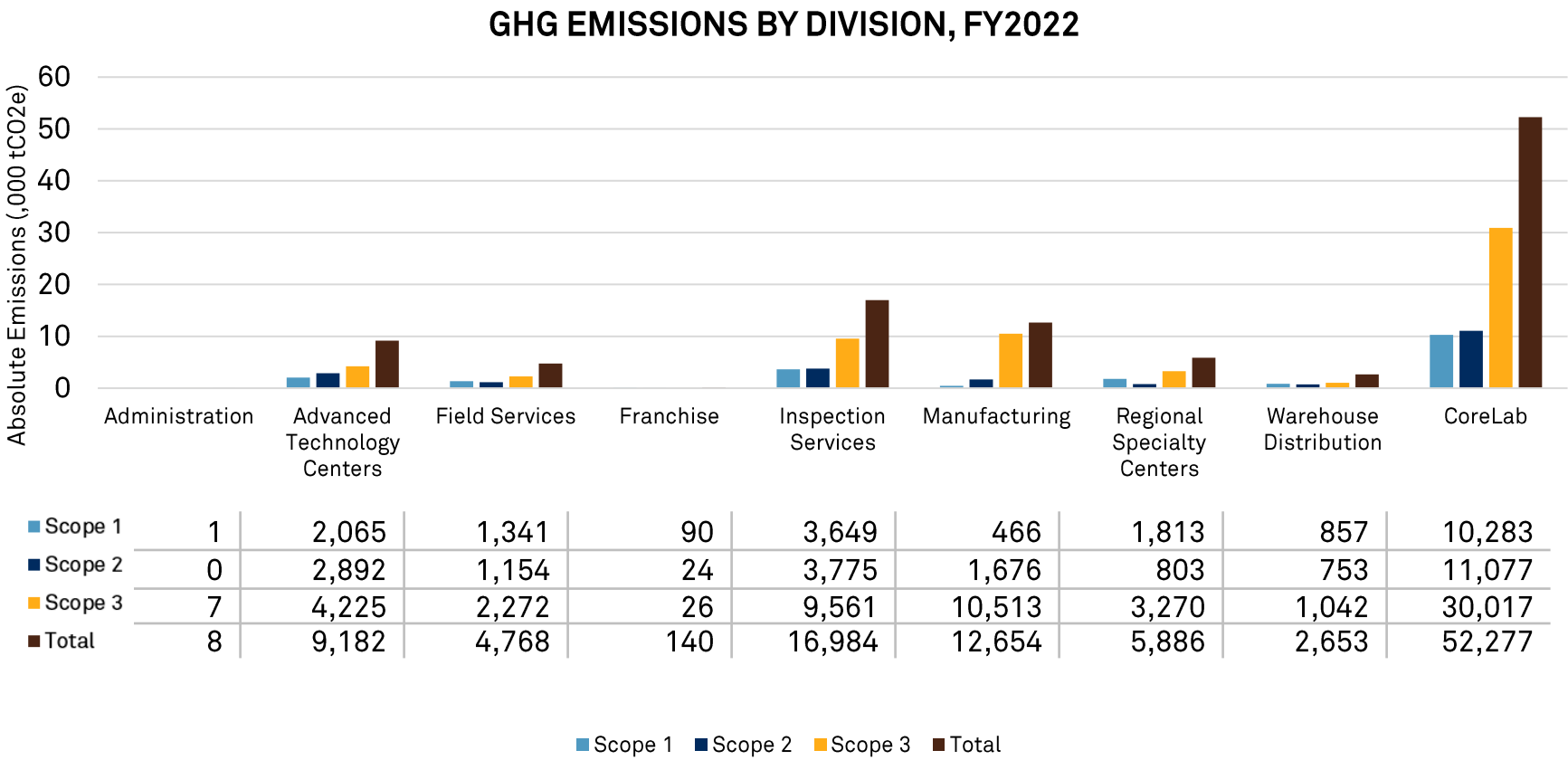
GHG Emissions by Division

The largest contribution to Core Lab's total GHG emissions in FY2022 came from Inspection Services with 32% of the company share, followed by Manufacturing with 24% and Advanced Technology Centers with 18%. The Administration and Franchise divisions had minimal emission contributions at less than 1%, whereas the contribution from Warehouse Distribution and Field Services remained below 10% each.



	Administration	Advanced Technology Centers	Field Services	Franchise	Inspection Services	Manufacturing	Regional Specialty Centers	Warehouse Distribution	CoreLab
Scope 1	1	2,065	1,341	90	3,649	466	1,813	857	10,283
Scope 2	0	2,892	1,154	24	3,775	1,676	803	753	11,077
Scope 3	7	4,225	2,272	26	9,561	10,513	3,270	1,042	30,017
Total	8	9,182	4,768	140	16,984	12,654	5,886	2,653	52,277

Value Chain Emissions by Category

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	VALUE CHAIN (SCOPE 3) CATEGORY	FY2022 TOTAL GHG (tCO_2e)	FY2022 SCOPE 3 GHG SHARE (%)	EVALUATION STATUS[1]
UPSTREAM	1) Purchased goods and services	5,544	18%	Relevant, calculated
	2) Capital goods	2,047	7%	Relevant, calculated
	3) Fuel- and energy-related activities	5,233	17%	Relevant, calculated
	4) Upstream transportation and distribution	2,824	9%	Relevant, calculated
	5) Waste generated in operations	401	1%	Relevant, calculated
	6) Business travel	1,742	6%	Relevant, calculated
	7) Employee commuting	6,268	20%	Relevant, calculated
	8) Upstream leased assets	560	2%	Relevant, calculated
DOWNSTREAM	9) Downstream transportation and distribution	4,042	13%	Relevant, calculated
	10) Processing of sold products	-	0%	Not calculated
	11) Use of sold products	6	0%	Not relevant, calculated
	12) End-of-life treatment of sold products	2,236	7%	Relevant, calculated
	13) Downstream leased assets	13	0%	Not relevant, calculated
	14) Franchises	-	0%	Not calculated
	15) Investments	-	0%	Not calculated
	Total	**30,917**	**100%**	

[1] The materiality threshold is set at 1% of scope 3 emissions.

Overall Value Chain Results

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Total GHG Emissions

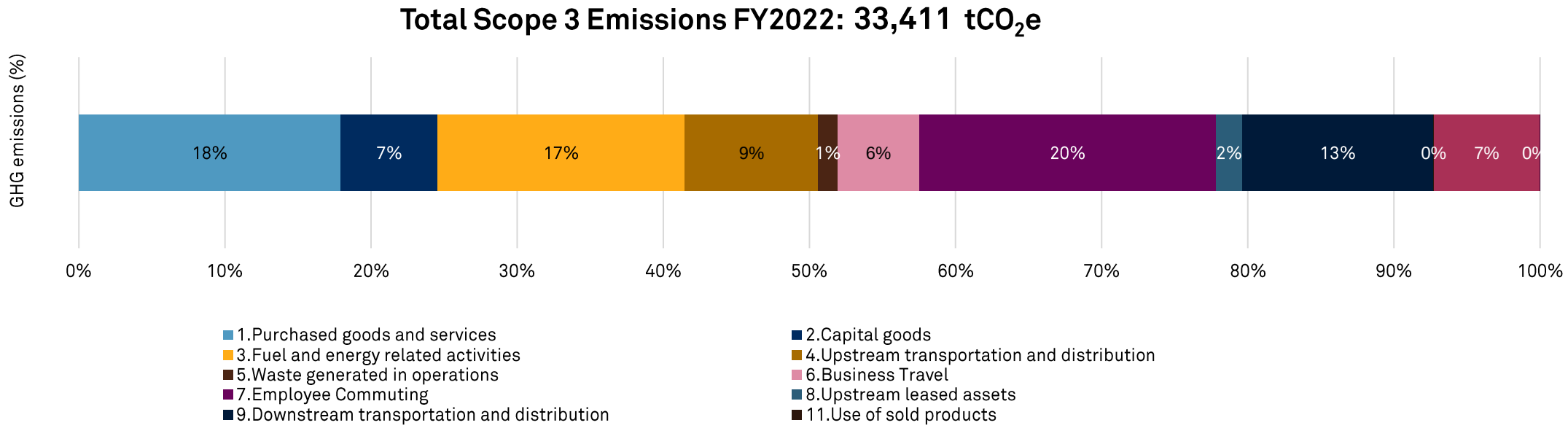
- The total Emissions from Core Lab's value chain are 30,917 tCO_2e. About 80% of the calculated emissions come from its upstream value chain, with the remaining from downstream activities.

Upstream GHG Emissions

- Emissions from Employee Commuting (Category 7), followed by Purchased Goods and Services (Category 1) and Fuel and Energy related activities (Category 3) are the biggest contributors to Core Lab's upstream value chain, with their combined share accounting for 55% of the total Scope 3 emissions.

Downstream GHG Emissions

- Emissions from Downstream Transportation and Distribution (Category 9) are the biggest contributors to Core Lab's downstream value chain, accounting for 13% of Core Lab's total value chain emissions.



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Value Chain Footprint by Category

Upstream Value Chain Results: Categories 1and 2

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Data sources

Sustainable1 received data from Core Lab's purchase ledger for FY2022. Key data points provided include supplier names, category of purchase and spend amount.

Methodology

Sustainable1 used Core Lab's supplier spend data and supplier disclosed emissions data from Trucost Environmental Register where available. If supplier data was not available, sector-specific emission factors (tCO_2e/mUSD) from the Trucost EEI-O model was applied, to calculate the supply chain GHG emissions through all tiers up to and including raw material extraction.

Parameter	No. of suppliers	Expenditure (mUSD)
Non-negative expenses provided by Core Lab	4,437	77.2
Data analysed by Sustainable1	4,186	72.4
Percentage analysed	94%	94%

Final Activity Data

Sustainable1 has quantified the GHG scope 3 categories: Category 1, Purchased goods and services, and Category 2, Capital goods. This has been done by analyzing Core Lab's expenditures on 4,186 suppliers accounting for $72.4 mUSD of spend, or 94% of total spend for that period (after eliminating tax spending, financial transactions, items for Scope 3 categories 3-15, and negative expenditures).

Exclusions

Sustainable1 excluded the following data in accordance with our standard practice and the Greenhouse Gas Protocol:

- All credits/negative spend lines and spend lines with zero or negative value
- Spend related to Scope 3 categories other than Purchased Goods and Services and Capital goods
- All other spend not related to Purchase goods and services and Capital goods such as taxes, fees or employee salary and benefits

Scope 3 Categories 1 and 2 – Expenditure and GHG

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Total Purchased Goods and Services and Capital Goods Emissions: 7,590 tCO_2e

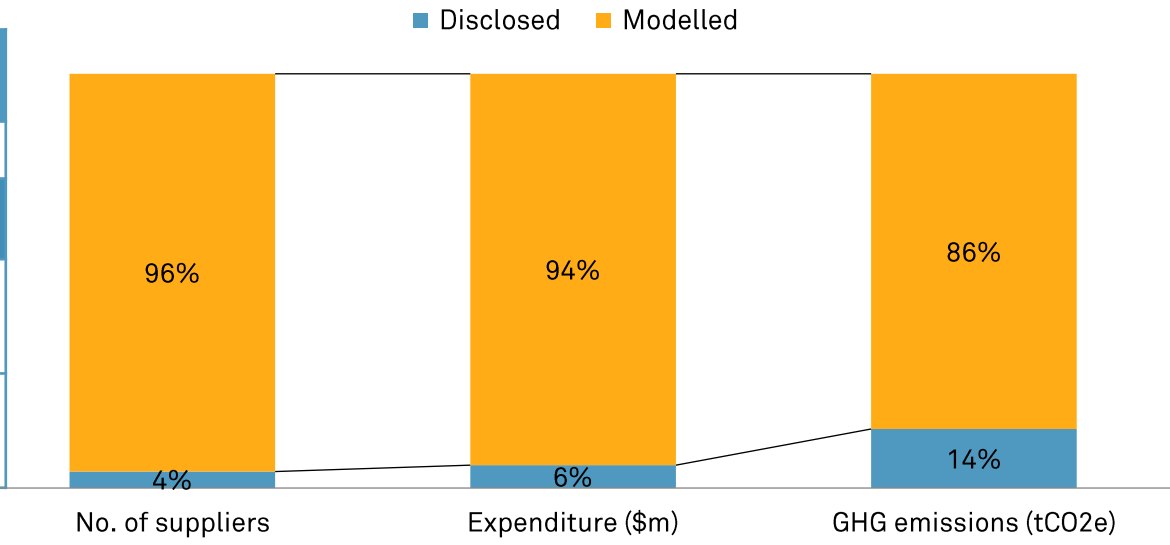
Emissions in this category are associated with the production of products and capital goods purchased by the company.

Total GHG emissions from Category 1, Purchased Goods and Services, and Category 2, Capital goods, are 7,590 tCO_2e, accounting for 23% of total Scope 3 emissions. The average intensity of Core Lab's supply chain is 105 tCO_2e/mUSD of spend.

Currently, 167 of the 4,187 suppliers analyzed disclose Scope 1 emissions. This accounts for 4% of all suppliers. However, these suppliers account for 14% of supplier Scope 1 emissions and 6% of supply chain spend.

Scope 3 Categories 1 and 2 Summary

Suppliers Analyzed	Total GHG Footprint (tCO_2e)	Average GHG Intensity (tCO_2e/mUSD)
4,186	7,590	105
Data Source	**Number of Suppliers**	**GHG Emissions (tCO_2e)**
Supplier disclosed data	167	1,083
Sustainable1 modeled data	4,019	6,508



Scope 3 Categories 1 and 2 – Expenditure and GHG

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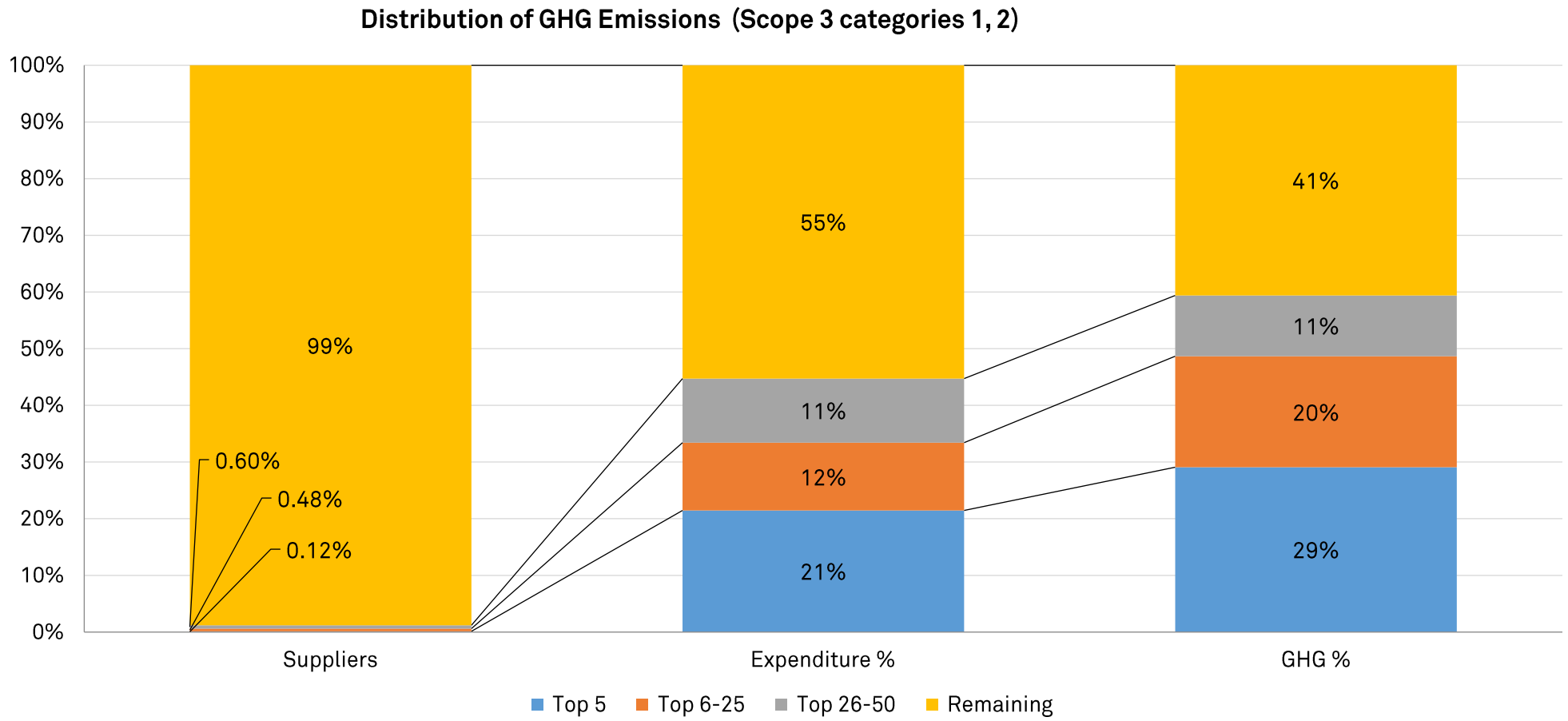
As per the graph below, the top 5 suppliers account for 29% of upstream suppliers' GHG emissions. The top 50 suppliers with the greatest GHG contribution represent 59% of the total upstream supplier emissions. While Core Lab has a diverse supplier set, there is potential to enact impactful management strategies by engaging with a small percentage of top suppliers.



Scope 3 Categories 1 and 2 – Emissions by Key Suppliers

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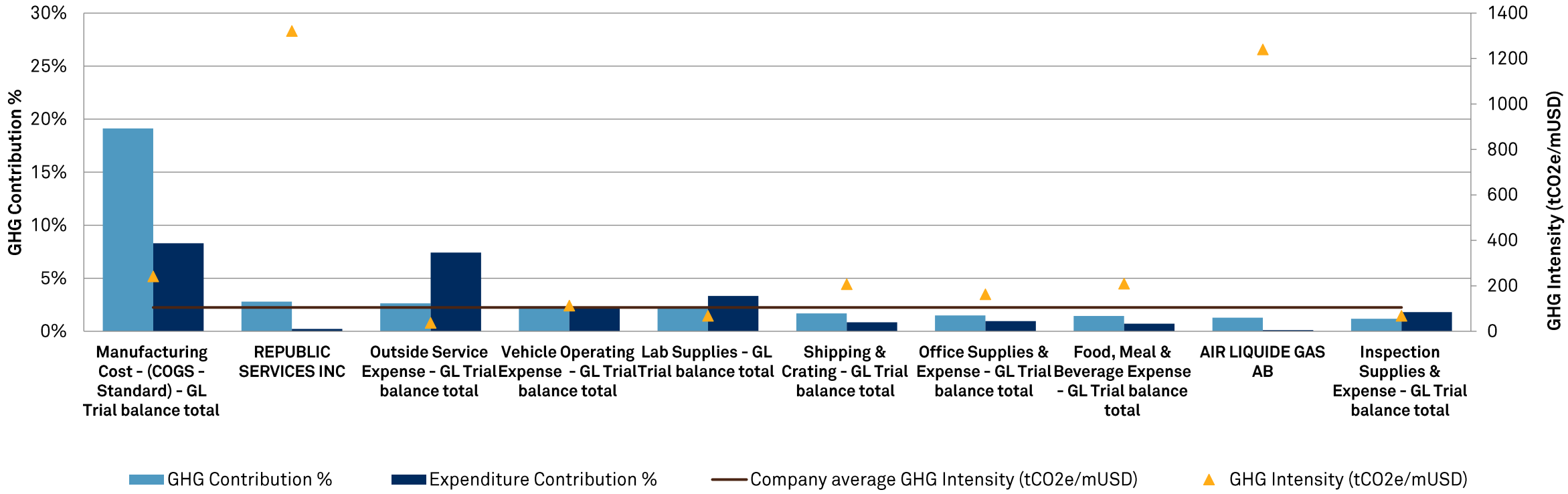
- The top 10 suppliers having the highest emissions account for 36% of Core Lab's total supply chain emissions and 26% of Core Lab's supply chain spend. The supplier with the highest contribution is Manufacturing Cost (COGS – Standard) – GL Trial Balance Total at 19% of total Scope 1 and 2 GHG emissions, and also has the highest share of spend at 8%.
- Six of the top 10 suppliers have intensities above the overall supply chain average of 105 tCO_2e/mUSD of spend. Republic Services Inc. has the highest intensity of the top 10 at 1,321 tCO_2e/mUSD of spend.

Top ten suppliers, by contribution to the GHG footprint (Scope 3 Categories 1 and 2)



Scope 3 Categories 1 and 2 – Emissions by Key Sectors

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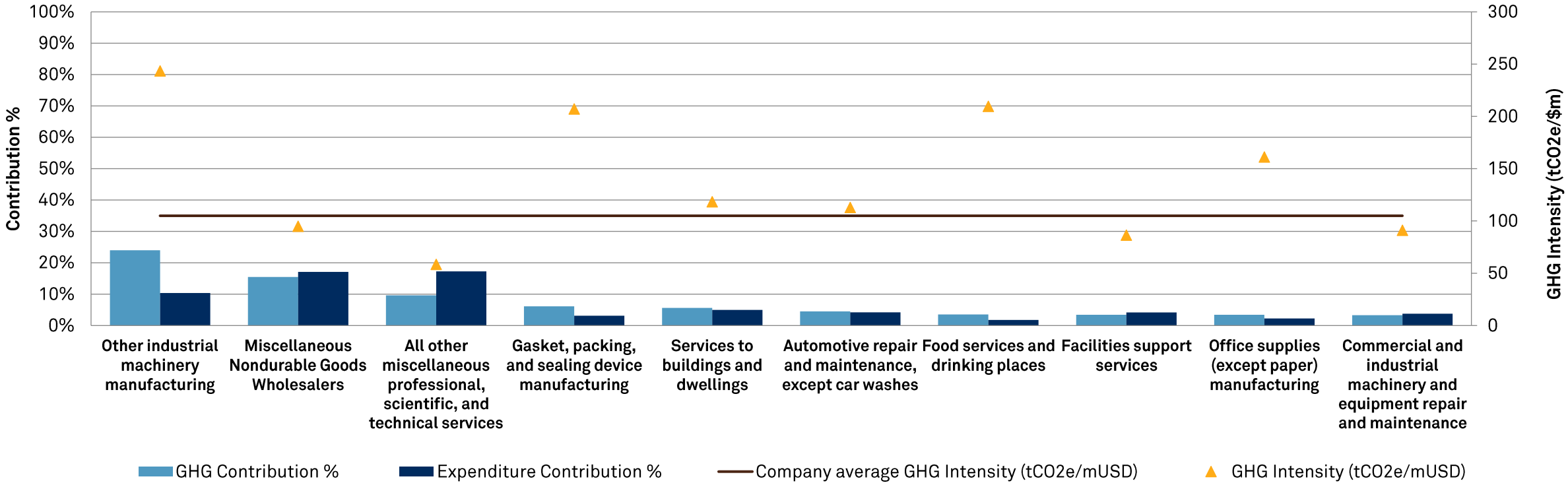
- Sustainable1 found that suppliers from the top 10 sectors contribute to approximately 79% of supply chain emissions.
- The sector Other Industrial Machinery Manufacturing is the largest contributor in terms of GHG footprint. This sector contributes to 24% of upstream suppliers GHG emissions.
- Six of the top 10 sectors have intensities above the overall supply chain average of 105 tCO_2e/mUSD of spend.

Top ten sectors, by contribution to the GHG footprint (Scope 3 Categories 1 and 2)



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Scope 3 Category 3 – Fuel and Energy Related Activities

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Total fuel and energy related activities emissions: 5,233 tCO_2e

Data sources

Sustainable1 received data from Core Lab including actual fuel and electricity consumption by location.

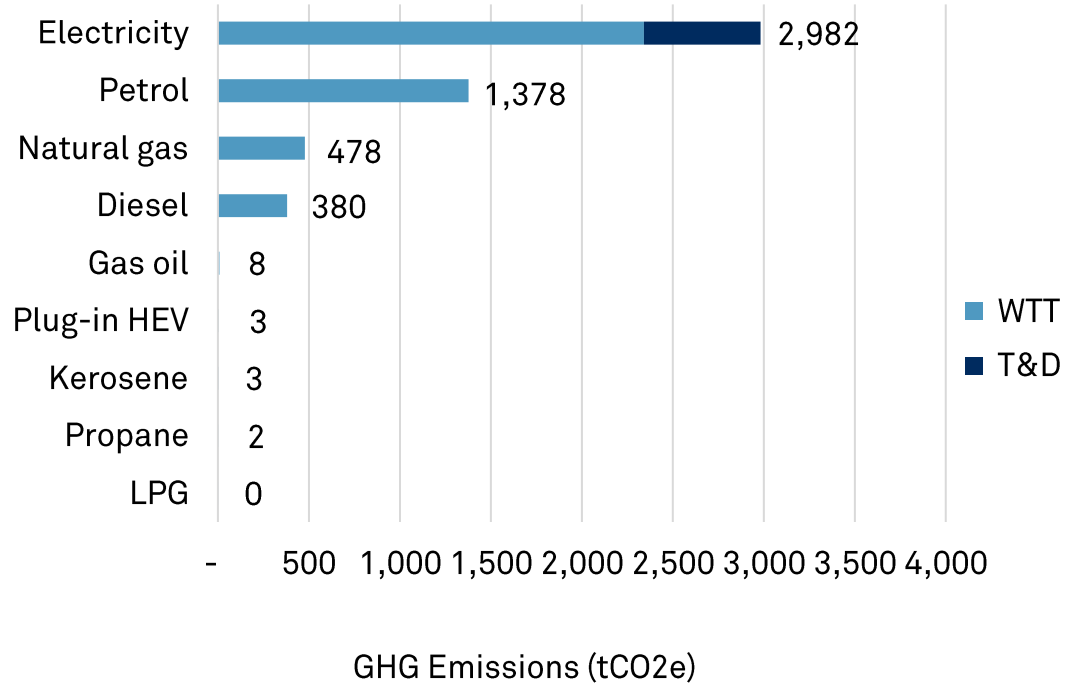
Methodology

Sustainable1 used Core Lab energy consumption and applied location specific Defra emission factors to calculate transmission & distribution (T&D)[6] and well-to-tank (WTT)[7] emissions.

Final Activity Data

Sustainable1 has quantified the GHG emissions of Scope 3 Category 3, Fuel and Energy Related Activities. The chart to the right displays the emissions for each energy type. Energy sources included electricity, petrol, natural gas, diesel, gas oil, plug-in hybrid electric vehicles, kerosene, propane and LPG. Electricity consumption accounts for 57% of total emissions, followed by petrol at 26%, natural gas at 9% and diesel at 7%. The remaining sources contribute to less than 1% combined.

Emissions for fuel and energy related activities, by type of fuel



[6] Transmission and distribution (T&D) factors are used to account for emissions associated with grid losses (the energy loss that occurs in getting the electricity from the power plant to the organizations that purchase it).

[7] Well-to-tank (WTT) fuels conversion factors are used to account for emissions associated with extraction, refining and transportation of the raw fuel sources prior to combustion or electricity generation.

Scope 3 Category 4 - Upstream Transportation and Distribution

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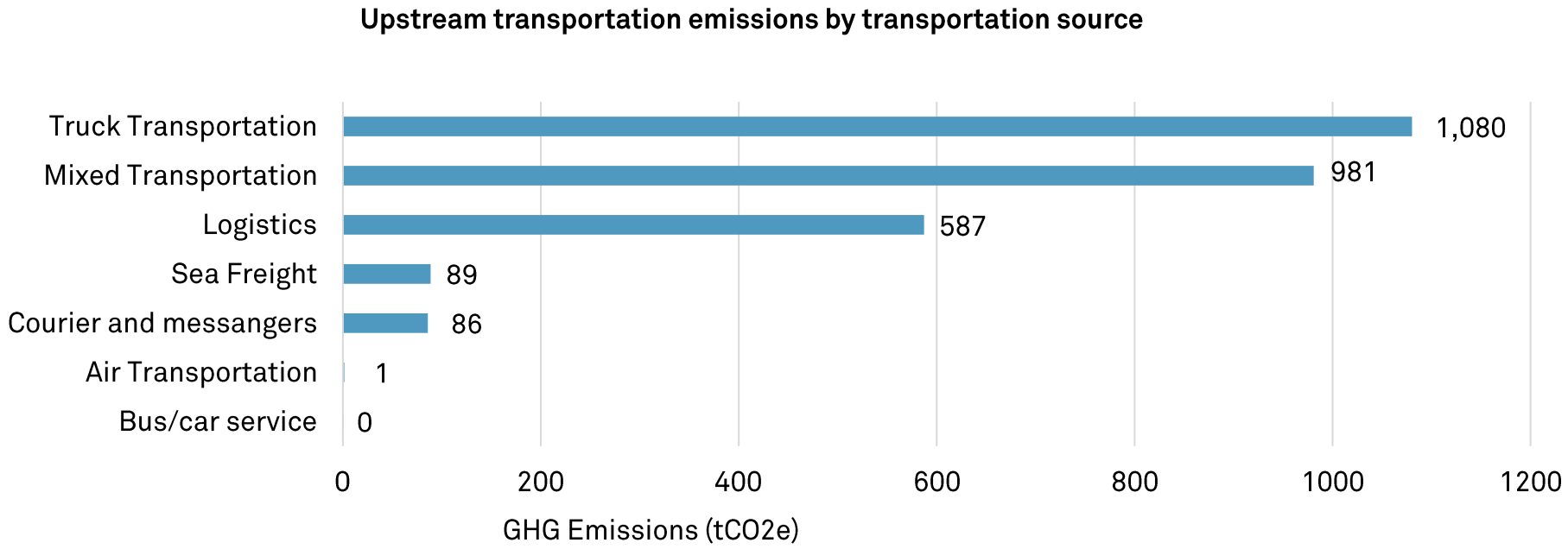
Total upstream transportation and distribution emissions: 2,824 tCO_2e

- Total expenditure were provided by Core Lab. Sustainable1 estimated the associated emissions using expenditure data and the EEI-O model.
- Truck transportation contributes to about 38% of overall Category 4 emissions, with the remaining 62% coming from several transportation modes of which the largest is Mixed Transportation.



S&P Global

Scope 3 Category 5 – Waste Generated in Operations

Total Waste related emissions: 401 tCO_2e

Data sources

Sustainable1 received waste quantities by disposal route and waste type from Core Lab.

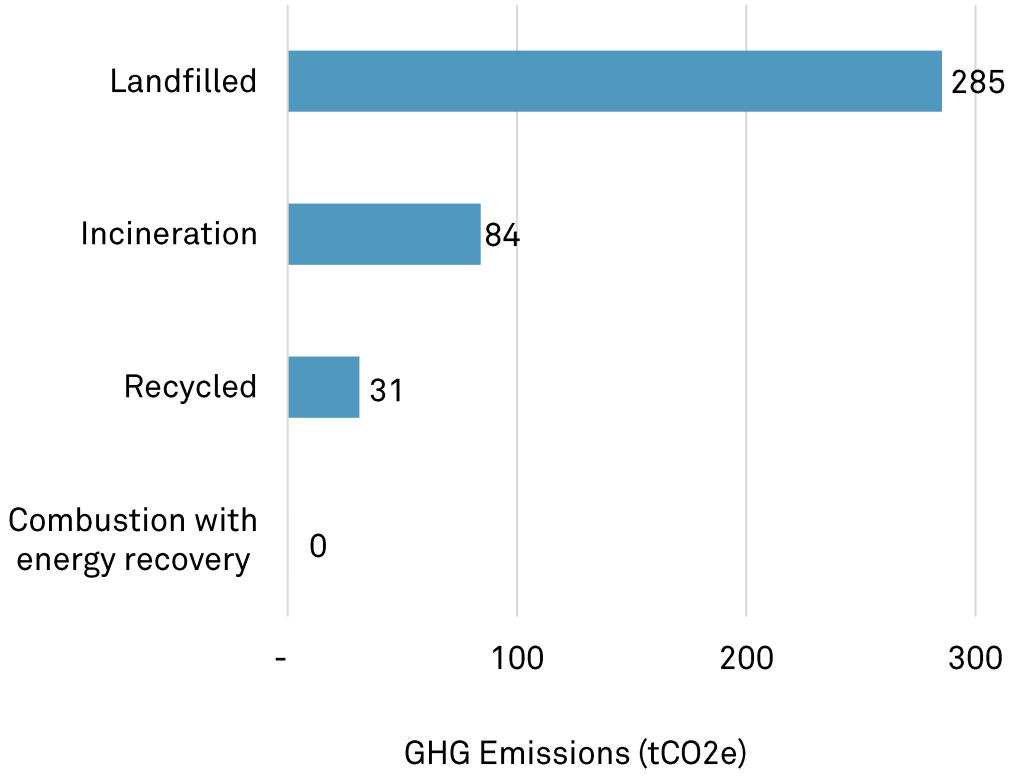
Methodology

Sustainable1 used Core Lab waste data and applied the appropriate or best match among the Defra emission factor based on waste type and disposal route.

Final Activity Data

The chart to the right displays the emissions for each disposal route. More than 70% all of the emissions came from the disposal of hazardous, non-hazardous and general waste in landfill, with most of the remaining share coming from incineration and recycling and less than 1 tCO_2e from combustion with energy recovery

Waste emissions by waste type



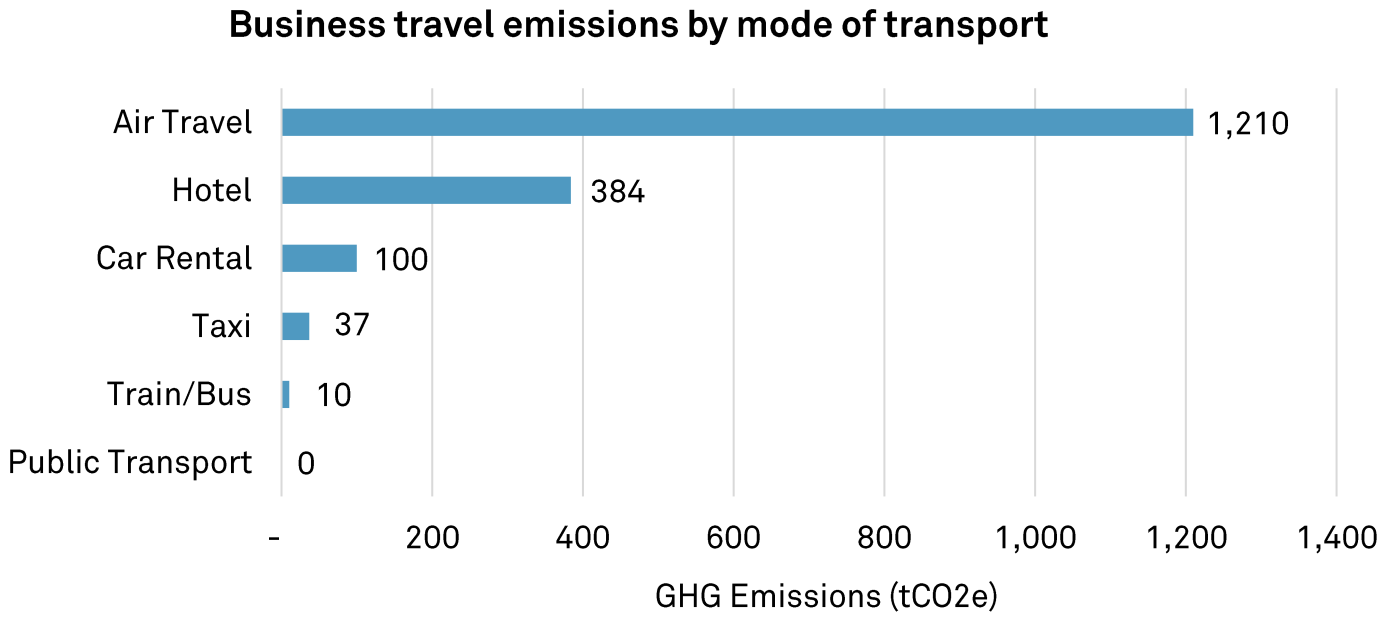
Scope 3 Category 6 – Business Travel

Sustainable1

Total Business Travel emissions: 1,742 tCO_2e

- Emissions from business travel were calculated based on business travel data from Core Lab. The majority of emissions came from air travel during FY2022, contributing to 69% of the total.

- Emissions from hotels and rental vehicles, including mileage reimbursed, represent another 28% combined, with the remaining amount associated to taxi, train/bus and other public transport.



Scope 3 Category 7 – Employee Commuting and WFH

Sustainable1

Total Employee Commuting and WFH-Related Emissions: 6,268 tCO_2e

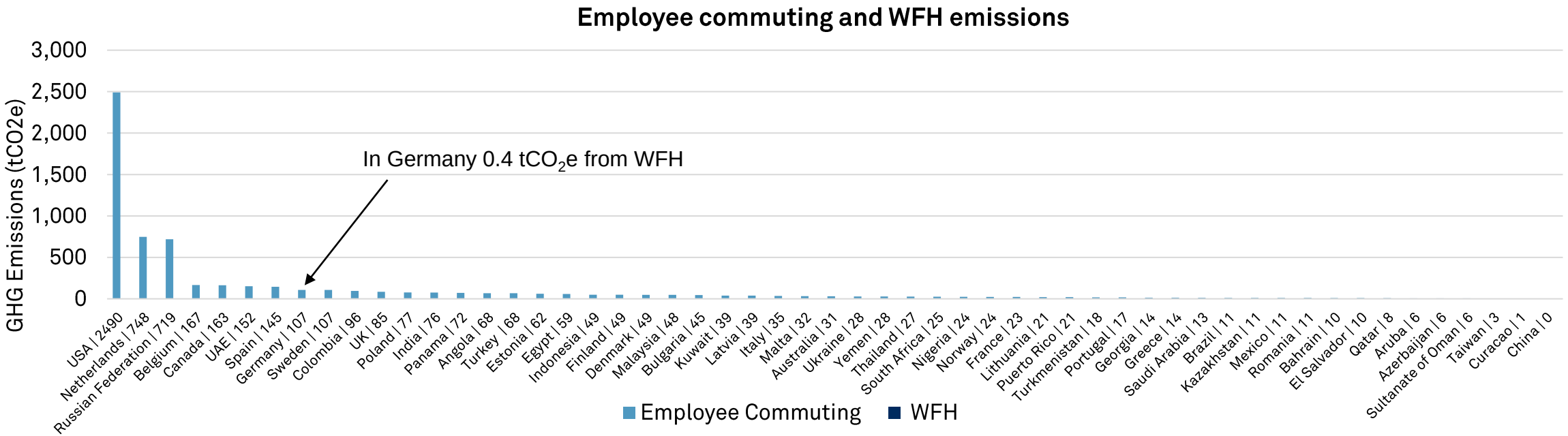
Data sources

Sustainable1 received total headcount (regular and temp employees) that included from 214 sites in 55 countries along with estimates of the percentage of employees working from home (WFH).

Methodology

Sustainable1 used Core Lab headcount data, combined with OECD working hours, country level average commuting time, country level transportation mode split survey data, and Defra factors by mode of transportation. Working from home emissions were calculated based on energy usage of office equipment, heating and cooling (where geographically relevant). Country specific electricity factors were applied to at home electricity usage.

Only Germany had employees working from home, with minimal contribution to total emissions



Note: data on the horizontal axis shows emissions by country in the format [country name | emissions in tCO_2e]

S&P Global

Scope 3 Category 8 – Upstream Leased Assets

Total Upstream Leased Assets emissions: 560 tCO_2e

Data sources

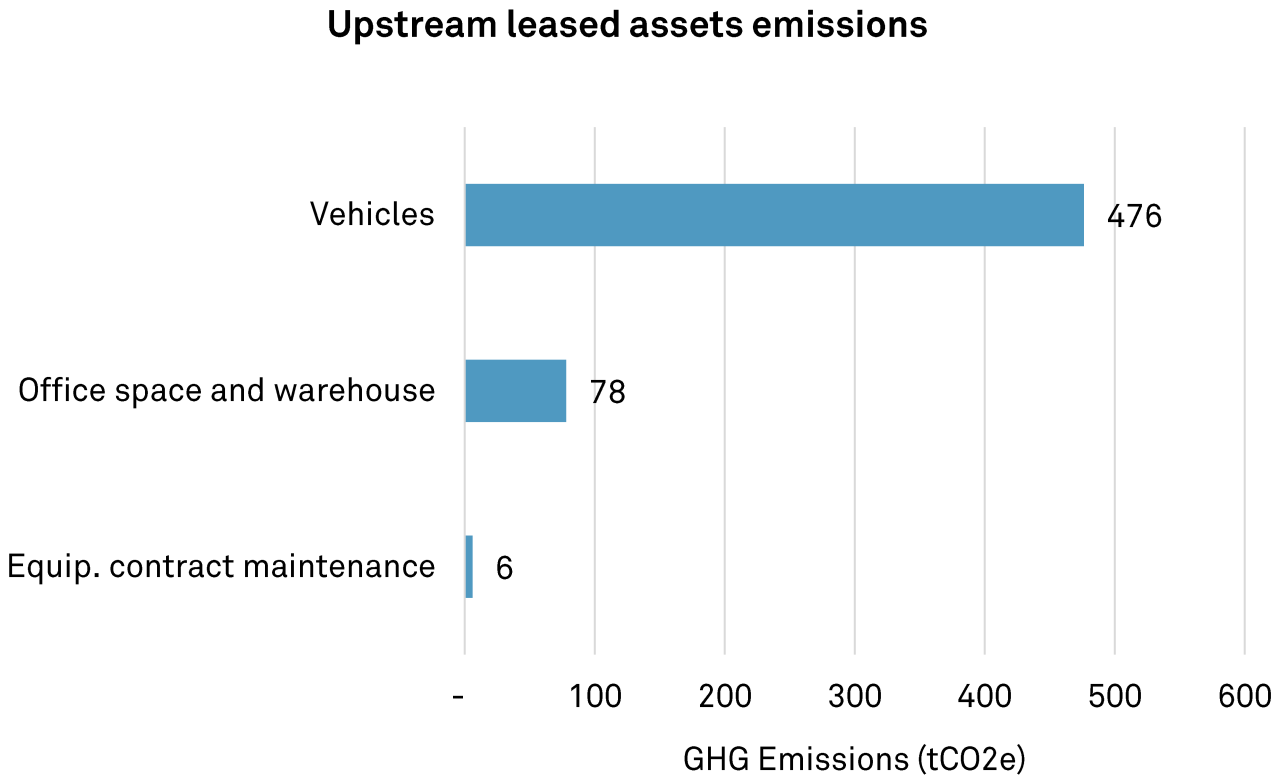
Sustainable1 received building type data and square footage or annual expenditure from Core Lab for all upstream leased buildings not included in Scope 1 and 2. In addition, Core Lab provided annual expenditure for their equipment contract maintenance and expenditure or fuel consumption for leased vehicles.

Methodology

Sustainable1 applied average Scope 1 intensity (tCO2e/sqft) and Scope 2 intensity (kWh/sqft) by building type. The scope 2 intensity was combined with IEA emission factors to determine the final Scope 2 emissions of upstream leased assets.

For assets where only expenditure data was provided, emissions were estimated from the EEI-O model.

Defra emission factors by fuel type was applied to fuel consumption for leased vehicles.



Scope 3 Category 9 – Downstream Transportation and Distribution

Sustainable1

Total Downstream Transportation and Distribution emissions: 4,042 tCO_2e

Data sources

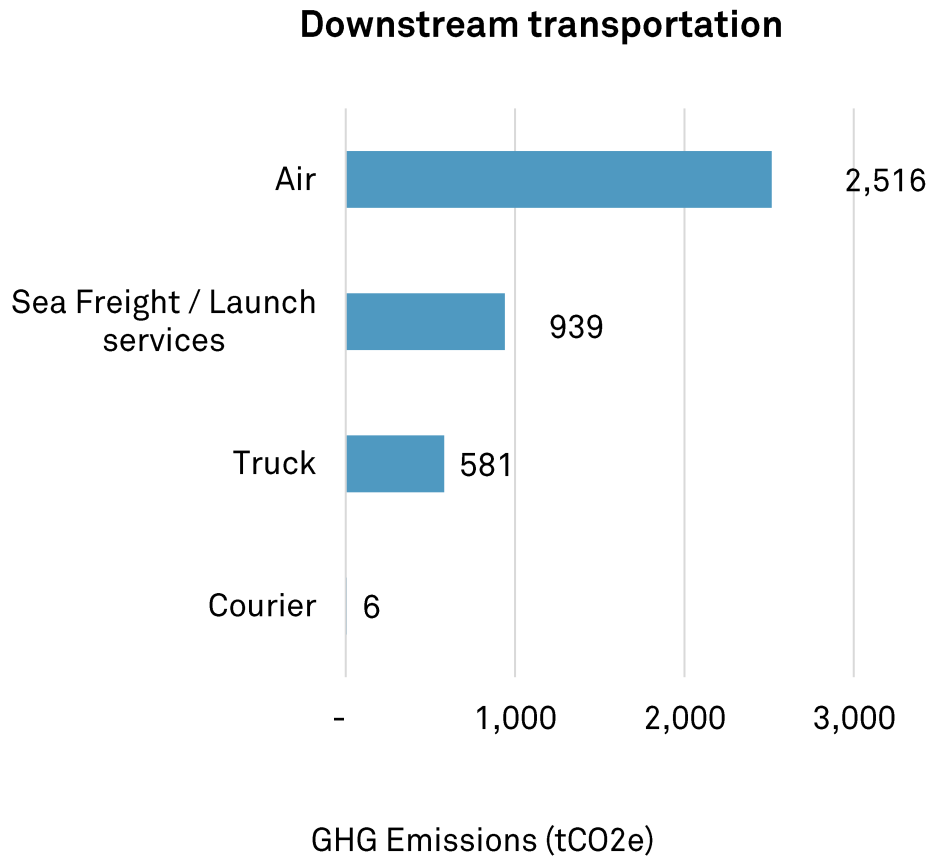
Sustainable1 received the amount of spend on downstream transportation from Core Lab for three locations: Godley, Clayton and Copenhagen.

Methodology

Sustainable1 used Core Lab spend data and emission factors (tCO2e/$mn) specific to each transportation mode from the EEI-O model to calculate the downstream transportation GHG emissions for all locations.

Final Activity Data

The majority of emissions, or 62%, come from air transportation, followed by sea freight and launch services at 23% and truck transportation at 14%. Emissions from couriers is much less than 1%.



Scope 3 Category 11 – Use of Sold Products

Total Use of Sold Products Emissions: 6 tCO_2e

Data sources

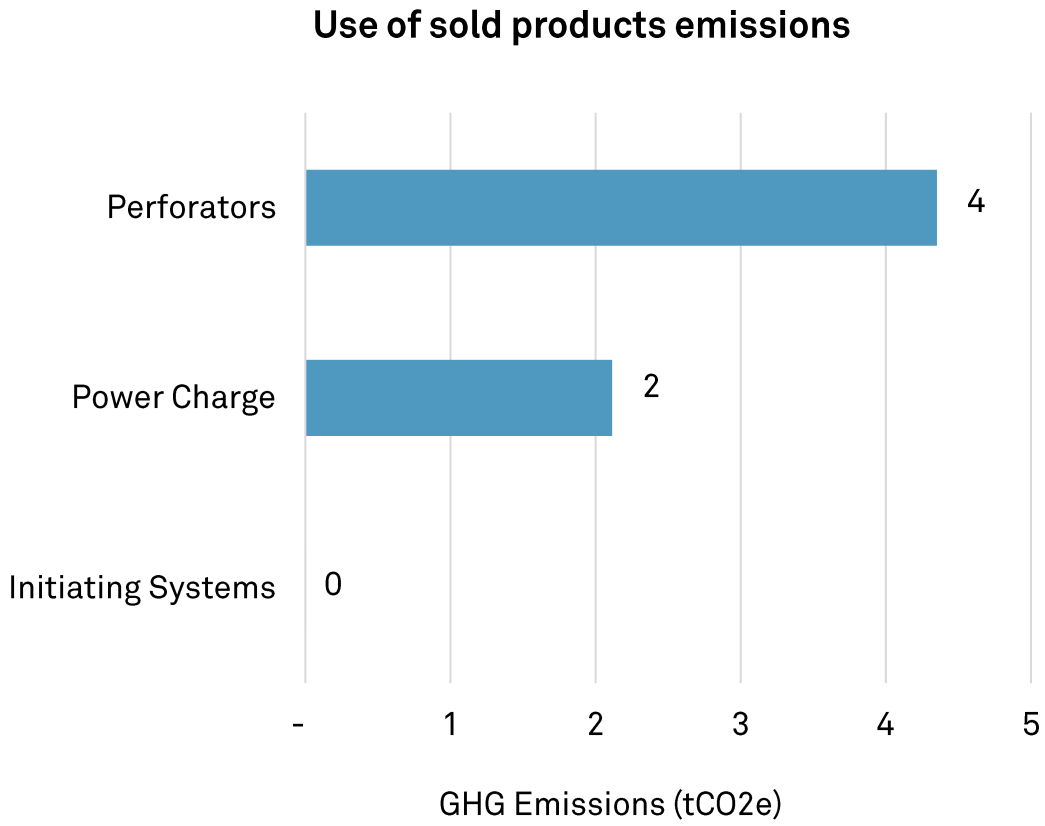
Core Lab provided product specification, quantity and total expenditure for all products

Methodology

Sustainable1 calculated emissions based on estimated use and type of explosive

Final Activity Data

Overall emissions from all products is minimal, with perforators accounting for about 67% of total emissions and power charges being the vast majority of the remaining share



Scope 3 Category 12 – End of Life Treatment of Sold Products

Total Product Disposal emissions: 2,236 tCO_2e

Data sources

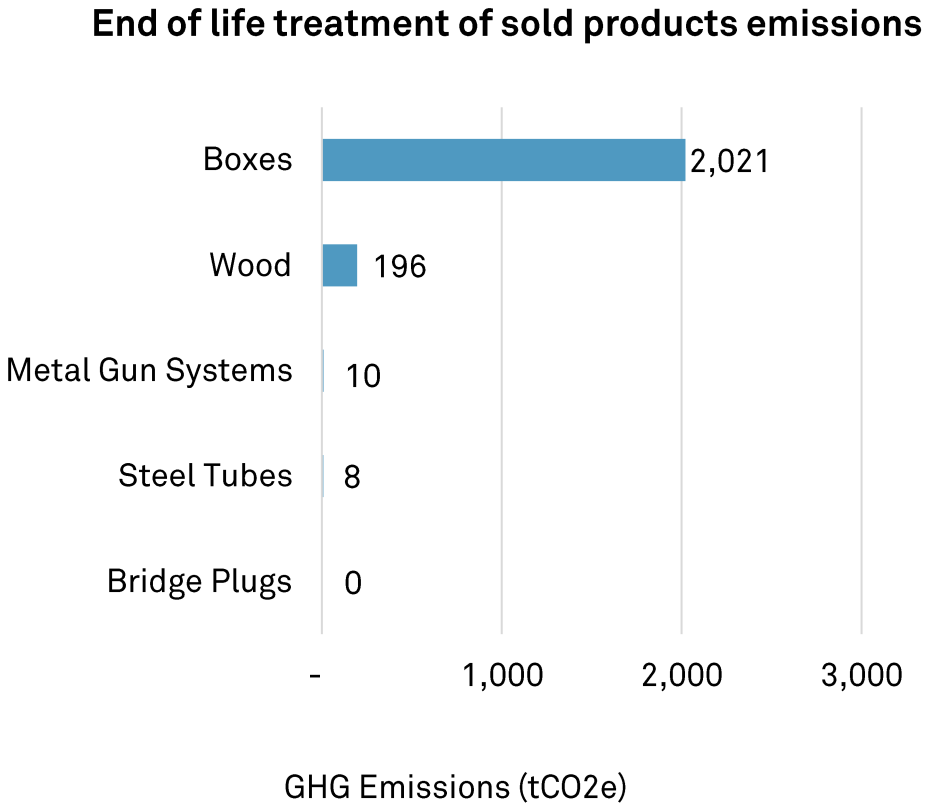
Core Lab provided product specification, quantity and total expenditure for Metal Gun Systems and Bridge Plugs. For all other products Core Lab provided weight of materials and disposal route

Methodology

Sustainable1 calculated emissions based on disposal route and waste type

Final Activity Data

The majority of emissions, or 90%, came from the disposal of cardboard boxes, followed by the disposal of wood at 9% and minimal quantities from the disposal of steel tubes and bridge plugs



Scope 3 Category 13 – Downstream Leased Assets

Total Downstream Leased Assets emissions: 13 tCO_2e

Data sources

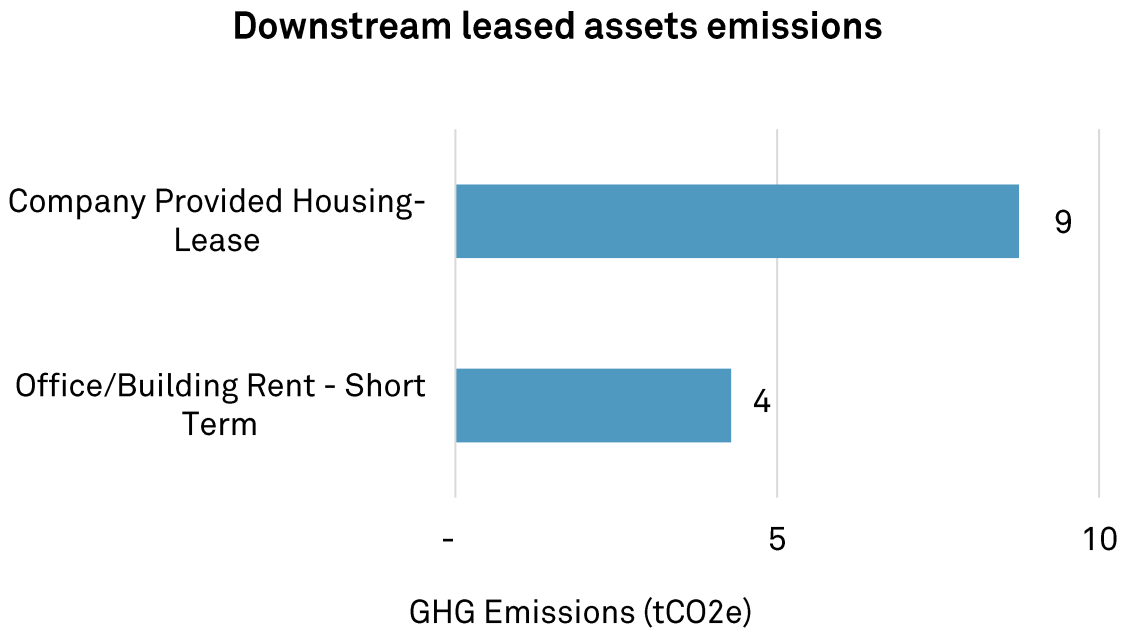
Sustainable1 received expenditure data for all leased assets

Methodology

Sustainable1 used Core Lab spend data and emission factors (tCO2e/$mn) specific to each asset type from the EEI-O model to calculate the downstream leased assets GHG emissions for all locations

Final Activity Data

Overall emissions from all leased assets is minimal, with company provided housing accounting for about 69% of total emissions and office/building rent covering the remaining share



Industry Best Practices

Future Reporting and Disclosure Considerations

Sustainable1

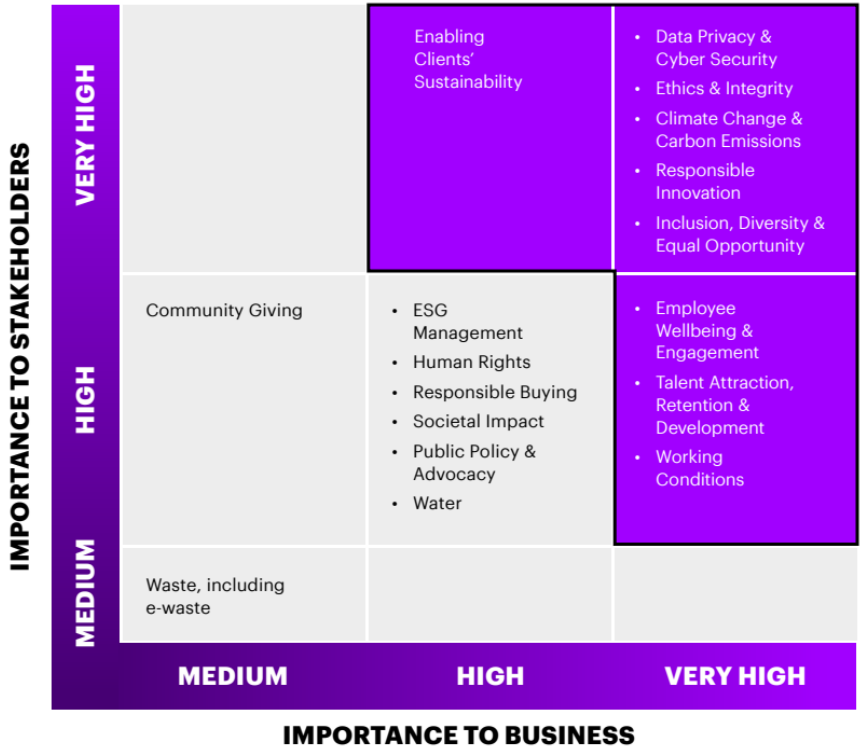
Best practice considerations for setting base for environmental reporting

ESG Report

Reporting ESG performance data in the public domain helps a reporting entity convey its alignment with climate change adaptation and mitigation. It also enables reporting entities to connect with like-minded organizations for collaborative partnerships and foster synergy.

1. Identify Material Aspects

Material aspects are topics that are critical for an organization and its stakeholders (employees, community, government, media). Identifying and reporting on material aspects strengthens an organization's social license to operate.



Accenture Corporate Citizenship Report 2019

2. Create Vision & Policy

After determining material aspects, a reporting entity creates a vision for the future and develops policies on the material aspects that clarifies its position and approach towards creating value under each material aspect.

Future Reporting and Disclosure Considerations

Sustainable1

Best practice considerations for data backed reporting and decision making

Data

A number of quantification approaches are used to assess GHG inventory for an organization. Approaches leveraging on primary data (e.g. fuel and energy consumption, waste disposal tonnage by category and disposal route) are considered to generate emissions data of higher quality compared to methodologies that use secondary data (e.g. spend on upstream transportation or headcount per country to estimate emissions from commuting). To improve the data quality of the inventory, a reporting entity should focus on collecting primary data from all its business sites, suppliers, and other partners.

Data Owners

Assigning data owners at a site level enables easy collection of data at periodic intervals. Consistent data owners are well-versed with the methodology/SOPs and help address any anomaly in data collection right at the source.

Itemized bill

The reporting entity should request its supply chain partners such as lessors of sites, recycling partners, and building management to provide itemized bill instead of an aggregate bill.

Data Assurance

Assurance/internal audit of ESG data builds credibility and accuracy of the reported environmental indicators.

Supplier Engagement

The reporting entity may engage with its suppliers to encourage them to disclose their emissions and implement programs to reduce GHG emissions.

Environmental Indicators

The reporting entity may extend the scope of its reporting to other environmental indicators such as water, waste and biodiversity.

Future Reporting and Disclosure Considerations

Sustainable1

Best practice considerations for managing scope 1 and 2 emissions

Managing Scope 1,2 Emissions

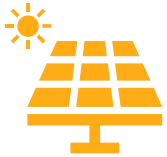
Scope 1 and Scope 2 emissions are in direct control of the reporting entity as the emissions are generated within the its own offices/sites. Some of the best practices adopted by organizations around the world are detailed below:

Fuel Use

- ✓ Implementing an Energy Management System
- ✓ Electricity based heating system instead of Natural Gas based system
- ✓ Periodic maintenance of the HVAC System
- ✓ Comprehensive Insulation (glass wool, double/triple glazed windows)
- ✓ Review use of refrigerant

Electricity Use

- ✓ LED lighting
- ✓ Occupancy sensor-based lighting
- ✓ Centrally controlled heating/cooling
- ✓ Ventilation management
- ✓ ENERGY STAR-certified equipment
- ✓ Programmable thermostats
- ✓ Lease office space in a Green certified building



Renewable Energy

- ✓ Procurement of solar/wind-based energy
- ✓ Procurement of power from low emission suppliers
- ✓ Installation of solar panels on rooftop

Behavioral Change

- ✓ Employee sensitization on responsible use of resources and energy

Future Reporting and Disclosure Considerations

Sustainable1

Best practice considerations for managing Scope 3 emissions

Managing Scope 3 Emissions

An organization has relatively lower control over Scope 3 emissions. Some of the best practices adopted by organizations around the world are detailed below:

Scope 3 Category	Contribution (%)	Best Practices
Purchased Goods and Services and Capital Goods	25%	✓ Procurement from suppliers with lower emission profile ✓ Encourage suppliers to disclose environmental performance
Employee Commuting	20%	✓ Regular employee survey to collect data on mode of transport and distance travelled to office ✓ Generate employee travel reports in accordance with the overall working days ✓ Utilization of Public transport
Fuel and Energy related Services	17%	✓ Source Renewable Energy ✓ Procurement of electricity from suppliers with lower emission factor
Upstream and Downstream Transportation	9+13%	✓ Use of electric vehicles ✓ Request suppliers and customers to share distance travelled and mode of transport, and track weight of shipment
Use of Sold Products	9%	✓ Innovation in product design ✓ Greater use of low-carbon or recyclable materials

Appendices

Appendix I – Primary information provided by Core Lab for emission calculations by company division
Appendix II – Scope 1 & 2 Glossary
Appendix III – Scope 3 Methodology

Appendix I

Primary information provided by Core Lab for emission calculations by company division

Scope 1

Sustainable1

	Operational Fuel							
	Natural gas		Diesel	Gas oil	Petrol	Propane		Kerosene
	m3	kWh	Litre	kWh	Litre	Litre	Tonnes	Litre
Administration	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Advanced Technology Centers	46,091.00	3,372,428.69	0.00	0.00	0.00	0.00	0.00	0.00
Field Services	126,579.66	817,805.50	0.00	0.00	0.00	0.00	0.00	2,786.00
Franchise	0.00	0.00	0.00	0.00	38,501.43	0.00	0.00	0.00
Inspection Services	25,578.80	418,888.39	64,630.46	0.00	97,621.29	11,222.10	0.12	0.00
Manufacturing	0.00	977,441.82	0.00	134,990.93	0.00	0.00	0.00	0.00
Regional Specialty Centers	0.00	6,352,814.81	150.00	0.00	0.00	0.00	0.00	0.00
Warehouse Distribution	3,095.38	1,191,311.02	273.59	0.00	0.00	0.00	0.00	3,771.00
Total	**201,344.84**	**13,130,690.23**	**65,054.05**	**134,990.93**	**136,122.72**	**11,222.10**	**0.12**	**6,557.00**

	Vehicle Fuel					
	Diesel		LPG	Petrol	Plug-in HEV	
	km	Litre	Tonnes	Litres	kWh	miles
Administration	0	0	0.00	450	0	0
Advanced Technology Centers	0	15,107	0.00	379,760	0	0
Field Services	0	0	0.00	397,471	0	0
Franchise	0	0	0.00	0	0	0
Inspection Services	770,387	444,632	0.00	750,991	49,483	3,640
Manufacturing	0	11,320	0.00	95,008	0	0
Regional Specialty Centers	0	8,569	0.00	269,004	0	0
Warehouse Distribution	0	8,711	0.03	256,323	0	0
Total	**770,387**	**488,339**	**0.03**	**2,149,007**	**49,483**	**3,640**

Scope 1 – continued, Scope 2

Sustainable1

	Refrigerants				
	HCFC-22/R22 = chlorodifluoromethane	R407C		R410A	
	KG	KG	Pounds	KG	Pounds
Administration	0	0	0	0	0
Advanced Technology Centers	136	8	56	41	38
Field Services	0	0	0	0	0
Franchise	0	0	0	0	0
Inspection Services	0	0	0	0	0
Manufacturing	0	0	0	0	0
Regional Specialty Centers	0	0	0	0	0
Warehouse Distribution	0	0	0	0	0
Total	**136**	**8**	**56**	**41**	**38**

	Electricity		
	Grid	Grid	Grid
	kWh	RUB	kWh from RUB
Administration	0	0	0
Advanced Technology Centers	7,504,663	0	0
Field Services	5,026,875	0	0
Franchise	64,342	0	0
Inspection Services	8,226,886	9,821,035	2,377,497
Manufacturing	4,614,385	0	0
Regional Specialty Centers	1,066,375	3,573,187	865,005
Warehouse Distribution	1,906,455	0	0
Total	**28,409,981**	**13,394,222**	**3,242,501**

Scope 3

Sustainable1

	Categories 1 and 2		
	Expenditure ($m)	Cat 1 Expenditure ($m)	Cat 2 Expenditure ($m)
Administration	0.00	0.00	0.00
Advanced Technology Centers	16.09	15.73	0.35
Field Services	5.60	5.08	0.51
Franchise	0.00	0.00	0.00
Inspection Services	26.34	25.50	0.84
Manufacturing	12.98	9.03	3.95
Regional Specialty Centers	9.24	6.01	3.23
Warehouse Distribution	2.13	1.87	0.25

	Category 3												
	Diesel		Electricity	Gas oil	LPG	Natural Gas		Kerosene	Petrol	Plug-in HEV		Propane	
	km	Litre	kWh	kWh	Tonnes	m3	kWh	Litre	Litre	kWh	miles	Litres	Tonnes
Administration	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	450.00	0.00	0.00	0.00	0.00
Advanced Technology Centers	0.00	15,106.92	7,504,663.25	0.00	0.00	46,091.00	3,372,428.69	0.00	379,760.46	0.00	0.00	0.00	0.00
Field Services	0.00	0.00	5,077,877.20	0.00	0.00	126,579.66	817,805.50	2,786.00	397,470.68	0.00	0.00	0.00	0.00
Franchise	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	38,501.43	0.00	0.00	0.00	0.00
Inspection Services	770,386.50	509,262.69	10,604,381.84	0.00	0.00	25,578.80	418,888.39	0.00	848,611.98	49,482.61	3,640.00	11,222.10	0.12
Manufacturing	0.00	11,319.65	4,614,385.00	134,990.93	0.00	0.00	977,441.82	0.00	95,008.33	0.00	0.00	0.00	0.00
Regional Specialty Centers	0.00	8,718.51	1,931,379.81	0.00	0.00	0.00	6,352,814.81	0.00	269,003.53	0.00	0.00	0.00	0.00
Warehouse Distribution	0.00	8,984.99	1,919,794.61	0.00	0.03	3,095.38	1,191,311.02	3,771.00	256,322.83	0.00	0.00	0.00	0.00

	Category 4							
	Air Transportation	Bus/car service	Check for Use	Courier and messangers	Logistics	Mixed Transportation	Sea Freight	Truck Transportation
	USD	USD	USD	USD	USD	USD	USD	USD
Administration	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Advanced Technology Centers	270,066.62	0.00	0.00	237,126.78	279,363.80	87.26	18,233.03	133,790.03
Field Services	151,776.98	0.00	0.00	6,535.79	329,030.46	102,199.94	0.00	73,919.31
Franchise	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Inspection Services	217,115.38	0.00	0.00	105,651.35	14,512.31	987,951.24	0.00	304,664.25
Manufacturing	56,359.98	0.00	2,326,945.00	298.18	1,170,656.87	17,450.18	0.00	243,036.29
Regional Specialty Centers	176,203.56	2,477.27	0.00	19,208.50	96,810.20	254,168.07	0.00	202,945.07
Warehouse Distribution	148,497.54	0.00	0.00	563.34	88,724.29	57.53	49,630.58	355,277.41

Scope 3 - continued

Sustainable1

	Category 5	
	Waste	Waste
	USD	tonnes
Administration	0.00	0.00
Advanced Technology Centers	201,582.32	43.84
Field Services	49,571.63	1.62
Franchise	0.00	124.40
Inspection Services	1,151,275.89	199.60
Manufacturing	378,240.37	49.40
Regional Specialty Centers	10,026.95	2,462.06
Warehouse Distribution	4,373.43	1,461.91

	Category 6												
	Hotel	Air	Air - Domestic	Air - Domestic	Air – Short Haul	Air - Short Haul	Air – Long Haul	Air - Long Haul	Car Rental	Milead Reimbursed	Public Transport	Taxi	Train/Bus
	room per night	USD	passenger miles	USD	passenger miles	USD	passenger miles	USD	USD	USD	USD	USD	USD
Administration	0.00	2,459.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Advanced Technology Centers	2,762.00	149,363.63	462,404.85	3,102.50	130,561.68	386.60	1,119,630.22	100.00	48,804.38	68,910.65	0.00	41,231.96	1,592.41
Field Services	1,391.00	5,176.79	305,972.24	0.00	62,623.84	0.00	273,748.32	0.00	12,174.37	35,718.83	0.00	9,304.37	553.97
Franchise	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Inspection Services	4,868.00	99,001.63	273,520.32	267.80	42,215.90	0.00	106,876.73	0.00	32,380.19	59,422.40	874.41	44,140.30	16,354.25
Manufacturing	1,045.00	43,910.68	116,753.71	313.00	104,162.74	0.00	537,587.66	1,926.29	17,889.77	66,606.71	0.00	8,388.50	1,098.08
Regional Specialty Centers	799.00	115,797.84	102,949.74	0.00	6,317.98	0.00	239,952.40	0.00	4,844.33	20,981.71	212.51	28,976.07	3,291.17
Warehouse Distribution	291.00	9,132.56	15,234.96	0.00	25,740.94	0.00	30,073.93	0.00	183.90	0.00	0.00	3,787.25	335.24

	Category 7			
	Car / Motorbike	Bus, public transport	Taxi	WFH
	km	km	km	employees
Administration	73.67	21.21	0.00	0.00
Advanced Technology Centers	22,834.54	2,961.29	0.00	0.00
Field Services	10,158.68	959.16	0.36	0.00
Franchise	0.00	0.00	0.00	0.00
Inspection Services	66,846.10	20,570.69	5.35	1.00
Manufacturing	15,291.65	1,065.09	0.00	0.00
Regional Specialty Centers	12,671.27	4,921.39	0.00	0.00
Warehouse Distribution	2,194.36	377.08	0.36	0.00

Scope 3 - continued

Sustainable1

	Category 8						
	Vehicle - Petrol	Vehicle	Vehicle - Diesel		Equipment contract maintenance	Office space and warehouse	
	liters	USD	km	liters	USD	USD	sq.ft.
Administration	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Advanced Technology Centers	0.00	65,616.79	0.00	0.00	36,819.22	81,673.87	0.00
Field Services	6,204.00	17,149.63	0.00	0.00	48,016.53	34,299.25	0.00
Franchise	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Inspection Services	79,561.00	109,658.00	189,486.00	79,763.00	213,359.15	16,550.66	15,155.59
Manufacturing	0.00	0.00	0.00	0.00	15,879.30	0.00	0.00
Regional Specialty Centers	10,346.00	0.00	0.00	0.00	4,563.34	55,579.86	0.00
Warehouse Distribution	0.00	0.00	0.00	0.00	19.21	0.00	0.00

	Category 9			
	Air	Courier	Sea Freight / Launch services	Truck
	USD	USD	USD	USD
Administration	0.00	0.00	0.00	0.00
Advanced Technology Centers	0.00	0.00	0.00	0.00
Field Services	0.00	0.00	0.00	0.00
Franchise	0.00	0.00	0.00	0.00
Inspection Services	0.00	24,745.64	196,350.00	0.00
Manufacturing	1,830,074.07	0.00	523,220.59	1,959,564.03
Regional Specialty Centers	0.00	0.00	0.00	0.00
Warehouse Distribution	0.00	0.00	0.00	0.00

	Category 11		
	Initiating Systems	Perforators	Power Charge
	USD	USD	USD
Administration	0.00	0.00	0.00
Advanced Technology Centers	0.00	0.00	0.00
Field Services	0.00	0.00	0.00
Franchise	0.00	0.00	0.00
Inspection Services	0.00	0.00	0.00
Manufacturing	5,560,611.08	22,047,709.26	334,670.60
Regional Specialty Centers	0.00	0.00	0.00
Warehouse Distribution	5,434,704.12	27,047,139.86	1,565,562.31

Scope 3 - continued

Sustainable1

	Category 12							
	Boxes - Landfill	Boxes - Recycling	Bridge Plugs	Metal Gun Systems	Steel Tubes - Recycling	Wood - Landfill	Wood - Recycling	Wood - Reuse
	units	units	USD	USD	units	Pounds	Pounds	Pounds
Administration	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Advanced Technology Centers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Field Services	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Franchise	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Inspection Services	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Manufacturing	851,165.60	212,791.40	1,495,045.21	33,627,062.03	76,824.00	520,456.34	65,057.04	65,057.04
Regional Specialty Centers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Warehouse Distribution	0.00	0.00	569,166.19	6,181,231.43	0.00	0.00	0.00	0.00

	Category 13	
	Company Provided Housing-Lease	Office/Building Rent - Short Term
	USD	USD
Administration	0.00	0.00
Advanced Technology Centers	0.00	9,310.05
Field Services	0.00	0.00
Franchise	0.00	0.00
Inspection Services	207,496.85	103,342.32
Manufacturing	0.00	11,533.24
Regional Specialty Centers	74,145.90	329.60
Warehouse Distribution	0.00	0.00

Water usage

Sustainable1

	Water							
	Water abstracted	Water supplied				Water treated	Water supplied	
	Litre	m3	Litre	USD (Panama)	RUR	Litre	m3 from USD	m3 from RUR
Administration	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Advanced Technology Centers	0.00	6,685.74	30,226,513.06	0.00	0.00	0.00	0.00	0.00
Field Services	0.00	294.31	14,494,995.42	0.00	0.00	0.00	0.00	0.00
Franchise	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Inspection Services	0.00	10,171.83	5,818,661.92	1,339.79	426,927.41	468,000.00	2,389.47	6,308.03
Manufacturing	4,352,800.00	511.53	919,755.00	0.00	0.00	0.00	0.00	0.00
Regional Specialty Centers	0.00	2,012.00	3,891,051.08	0.00	0.00	0.00	0.00	0.00
Warehouse Distribution	0.00	886.70	2,171,494.41	0.00	0.00	0.00	0.00	0.00
Total	**4,352,800.00**	**20,562.11**	**57,522,470.89**	**1,339.79**	**426,927.41**	**468,000.00**	**2,389.47**	**6,308.03**

Appendix II

Scope 1 & 2 Glossary

Glossary

Sustainable1

Term	Description
Carbon footprint	The total amount of greenhouse gases produced by direct or indirect human activities, usually expressed in equivalent tons of carbon dioxide.
Dual reporting	According to the GHG Protocol Scope 2 Guidance released in January 2015, companies are required to report two Scope 2 emission totals – location-based and market-based, known as 'dual reporting
Emission intensity	Emission intensity is the level of GHG emissions per unit of economic activity.
Global warming potential (GWP)	GWP is the ratio of the warming of the atmosphere caused by one substance to that caused by a similar mass of carbon dioxide, which is assigned a reference value of 1.
Greenhouse gases	Gases that trap heat in the atmosphere are called greenhouse gases.
Location based	A location-based method reflects the average emissions intensity of grids on which energy consumption occurs (using mostly grid-average emission factor data).
Market based	A market-based method reflects emissions from electricity that companies have purposefully chosen (or their lack of choice). It derives emission factors from contractual instruments, which include any type of contract between two parties for the sale and purchase of energy bundled with attributes about the energy generation, or for unbundled attribute claims. Markets differ as to what contractual instruments are commonly available or used by companies to purchase energy or claim specific attributes about it, but they can include energy attribute certificates (RECs, GOs, etc.), direct contracts (for both low-carbon, renewable, or fossil fuel generation), supplier-specific emission rates, and other default emission factors representing the untracked or unclaimed energy and emissions (termed the residual mix)

Glossary

Sustainable1

Term	Description
Residual Emission Factor	A residual mix emission factor represents the emissions and generation that remain after certificates, contracts, and supplier-specific factors have been claimed and removed from the calculation. A residual mix emission factor can be a regional or national factor.
Scope 1	Scope 1 includes direct emissions from sources, which a company owns, or controls. This includes direct emissions from fuel combustion and industrial processes.
Scope 2	Scope 2 covers indirect emissions relating solely to the consumption of electricity that is purchased by the owned or controlled equipment or operations of the company. Scope 2 emissions are reported in both location-based and market-based approach in alignment with the latest GHG Protocol guidance.
Scope 3	Scope 3 covers other indirect emissions including third-party provided business travel and purchased goods and services.
Scope 1 - Stationary Combustion Emissions	These emissions result from combustion of fuels in stationary sources, e.g., boilers, furnaces, turbines
Scope 1 Fugitive Emissions	Emissions not caught by a capture system which are often due to equipment leaks, evaporative processes and windblown disturbances. For example, emission from refrigerants
Scope 1 Mobile Emissions	These emissions result from the combustion of fuels in company owned/controlled mobile combustion sources (e.g., trucks, trains, ships, airplanes, buses, and cars). These vehicles can be used for transportation of materials, products, waste, and employees.

Appendix III

Scope 3 Methodology

Methodology

Sustainable1

SOURCE OF SCOPE 3 EMISSIONS	EMISSIONS CALCULATION METHODOLOGY
1) Purchased goods and services	Sustainable1 used Core Lab's FY2022 supplier spend data, combined with supplier disclosed emissions data from Sustainable1 Environmental Register and the Sustainable1 EEI-O model, to calculate the supply chain GHG emissions through all tiers up to and including raw material extraction.
2) Capital goods	
3) Fuel- and energy-related activities	For fuel-and energy related activities, emissions were calculated based on Core Lab's actual electricity and fuel usage data. Energy consumption data was combined with Transmission & Distribution and Well To Tank Defra emission factors.
5) Waste generated in operations	Sustainable1 calculated emissions using Core Lab's waste data and emission factors from Defra (2022) – UK Government GHG Conversion Factors for Company Reporting.
6) Business travel	Sustainable1 used Core Lab's spend data by mode of transport and distance travelled combined with Sustainable1 EEI-O model, to calculate GHG emissions related to business travel. Sustainable1 also used number of room nights for hotel stay and combined it with DEFRA hotel stay factors to estimate emissions from hotel stay.
7) Employee commuting	Sustainable1 used Core Lab's global employee head count by country, combined with OECD's published country averages for commuting time, transportation mode and distance, to calculate GHG emissions from employee commuting.
8) Upstream leased assets	Core Lab provided Sustainable1 with fuel data or expenditure for its leased vehicles and occupied floor space or expenditure for rented facilities and equipment contract maintenance and DEFRA conversion factors were used to estimate emissions
9) Downstream transportation and distribution	Sustainable1 used Core Lab's expenditure by various modes of transportation along with the EEI-O model to calculate emissions for FY2022

Methodology

Sustainable1

SOURCE OF SCOPE 3 EMISSIONS	EMISSIONS CALCULATION METHODOLOGY
10) Processing of sold products	N/A
11) Use of sold products	Sustainable1 used Core Lab's spend data on downstream transportation combined with Sustainable1 EEI-O model, to calculate GHG emissions related to downstream transportation
12) End-of-life treatment of sold products	Sustainable1 used Core Lab's product specification, quantity and spend data for Metal Gun Systems and Bridge Plugs, and weight of materials and disposal route for all other products to calculate GHG emissions related to end-of-life treatment of sold products
13) Downstream leased assets	Sustainable1 used Core Lab's spend data combined with Sustainable1 EEI-O model, to calculate GHG emissions related to downstream transportation
14) Franchises	N/A
15) Investments	N/A

The Sustainable1 EEI-O Model

Sustainable1

Since its founding in 2000, Sustainable1 developed an environmental economic input output (EEI-O) life cycle based model for quantifying environmental impacts. The EEI-O model uses an economic modelling technique based on extensive government census data to analyze the products used and produced by over 464 business activities or sectors. The model also describes the economic interactions between each sector. Sustainable1 is able to assess the environmental impacts of companies across their own operations and their entire supply chains, including primary resource extraction secondary processing and final product assembly.

Sustainable1 has improved upon standard EEI-O models in several ways, resulting in what we believe is a best in class model for analyzing environmental performance. These improvements include the following:

- Sustainable1 has integrated the use and emissions of over 700 environmental resources. By applying a price to each environmental resource, based on the environmental value of that resource, the model is able to analyze, in financial terms, the economic and environmental performance of each sector. This environmental performance measure incorporates the indirect, supply chain impacts by using the information on the interactions between sectors.

- Sustainable1 maintains and updates its model annually to reflect market commodity flows. We annually update our sector revenue for all sectors, producer prices and annual production quantities for all primary sectors in our model.

- Sustainable1 reviews the environmental intensities for all sectors annually against companies' public disclosures from our annual engagement programs. Sustainable1 engages with more than 15,000 companies directly to obtain environmental performance metrics and considers them against the specific sector's environmental intensity. As a result, we are able to test this model against many years of data on quantitative environmental disclosures from thousands of companies.

The EEI-O methodology extends the analysis of corporate environmental performance by using the segmental revenue data contained in company accounts to map each company to a set of sectors. Sustainable1 has modeled the environmental impacts of over 464 different sectors and proportionally allocated these impacts to the company by calculating the company's market share of that sector. This provides a baseline of environmental resource use that Sustainable1 can improve by adding company-specific environmental information, either from public disclosure in the company's annual or environmental reports, or from direct communication with the company itself.

References

Carbon Disclosure Project (2018). CDP Climate Change Questionnaire.

Department for Business, Energy & Industrial Strategy (2018). Conversion factors 2018 - Full set. Retrieved from: https://www.gov.uk/government/publications/greenhouse-gas-reporting-conversion-factors-2018

GHG Protocol (n.d.). Corporate Value Chain (Scope 3) Accounting and Reporting Standard. Supplement to the GHG Protocol Corporate Accounting and Reporting Standard. Retrieved from: https://ghgprotocol.org/sites/default/files/standards/Corporate-Value-Chain-Accounting-Reporing-Standard_041613_2.pdf

IOTA (n.d.). Energy Benchmarking Report. Retrieved from: https://resources.iotacommunications.com/energy-benchmarking-report

Partnership for Carbon Accounting Financials (2020). The Global GHG Accounting and Reporting Standard for the Financial Industry. Retrieved from: https://carbonaccountingfinancials.com/files/downloads/PCAF-Global-GHG-Standard.pdf

SBTi Criteria and Recommendations (October 2021). Retrieved from: https://sciencebasedtargets.org/resources/files/SBTi-criteria.pdf

US Census Bureau (2018). American Community Survey (ACS). Retrieved from: https://www.census.gov/programs-surveys/acs/data.html

US EPA (2018). The Emissions & Generation Resource Integrated Database (eGRID). Retrieved from: https://www.epa.gov/egrid/download-data

US EPA (2020). Emission Factors for Greenhouse Gas Inventories. Retrieved from: https://www.epa.gov/sites/production/files/2020-04/documents/ghg-emission-factors-hub.pdf

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