AI Sustainable Future — Sample Inc.

Carbon Emissions Inventory

Scope 1 & 2 GHG Inventory

Reporting Period: FY 2025

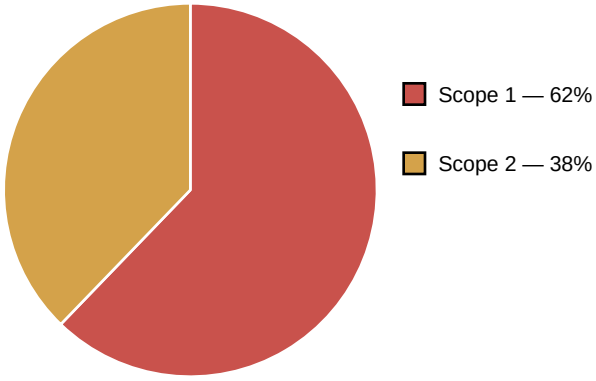
Report ID: c0905ed3

Metric	Value
Scope 1 Emissions (Direct)	11633.12 tCO2e
Scope 2 Emissions (Indirect)	7064.96 tCO2e
Total Emissions	18698.08 tCO2e
Report Type	Scope 1 & 2 Draft
Methodology	GHG Protocol — Spend-Based
Report Date	April 16, 2026

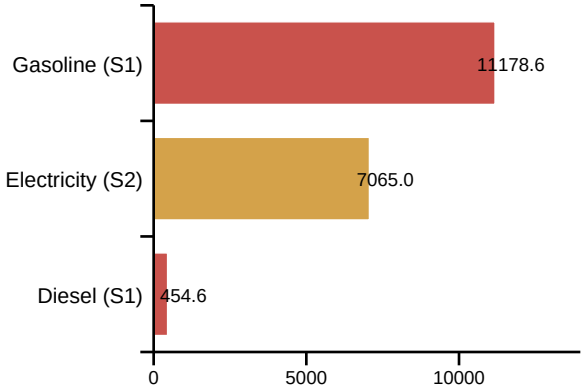
Executive Summary

Your FY 2025 carbon footprint was 18,698.1 tCO2e across 2 emission scope(s) and 3 spend categories. Scope 1 (direct combustion) is the largest contributor at 62%, driven primarily by Gasoline (11,178.6 tCO2e).

Emissions by Scope



Top 5 Emission Categories



Emissions Intensity: 1,379 tCO2e per $1M classified spend

Lower intensity means less carbon per dollar of activity — useful for year-over-year comparison when revenue or spend changes.

Scope 1 Emissions Breakdown (Direct)

Category	Emissions (tCO2e)
Gasoline	11178.56
Diesel	454.56

Scope 2 Emissions Breakdown (Indirect)

Category	Emissions (tCO2e)
Electricity	7064.96

Spend Data Processed

Category	Scope	GHG Protocol Class	Spend	Factor	tCO2e
Gasoline	Scope 1	Direct Emissions	$4,383,749	2.5500	11178.56
Diesel	Scope 1	Direct Emissions	$168,354	2.7000	454.56
Electricity	Scope 2	Indirect Emissions	$2,738,355	2.5800	7064.96
TOTAL			**$13,558,473**		**18698.08**

Methodology & Standards

Framework: GHG Protocol Corporate Accounting and Reporting Standard (Revised Edition) + Scope 3 Standard (Corporate Value Chain). Hybrid methodology per §7.3.2 data hierarchy: Tier 2 (activity-based) where customer supplied physical quantities; Tier 3 (spend-based screening) for remaining spend.

Spend-based emission factors: EPA USEEIO v2.2 supply-chain GHG factors at 2022 producer prices (commodity codes mapped to NAICS 6-digit). Factor file version: 2.1-naics-expanded-2026-04-16. Spend-based factors carry an industry-standard uncertainty band of ±25–40% per GHG Protocol Scope 3 Standard §7.3.2.

Activity-based emission factors (where used): EPA GHG Emission Factors Hub Table C-1 (Mobile Combustion CO2, 40 CFR Part 98) for liquid fuels; EPA Stationary Combustion factors for natural gas and propane; eGRID 2022 grid intensity for electricity (subregion-specific when state is supplied); IPCC AR5 100-year GWP for refrigerant fugitive emissions. Activity factor file version: 1.0-activity-2026-04-15. Activity-based accuracy: ±5–10%.

Data source mix in this report: 0 of 3265 classified rows used activity factors (0.0%); 3265 used spend-based factors. Activity rows take precedence over spend rows for the same emission category — no double-counting.

Scope 1 includes direct emissions from owned or controlled sources (fuel combustion, refrigerant fugitive emissions). Where activity data is supplied, calculation is direct from physical quantity × per-unit factor. Where only spend data is supplied, the spend-proxy method is applied — disclosed as such.

Scope 2 includes indirect emissions from purchased electricity. Grid factor used for spend-based calculation: 2.58 kg CO2e per USD spent (US).

Currency Handling: Multiple currencies detected (USD, INR, CAD, EUR, GBP). All non-USD amounts were automatically converted to USD using static FX rates (vintage: February 2026) before emission factor application. Conversion details are shown in the Transaction Ledger below.

Calculation formulas:
Spend-based: tCO2e = (Spend in USD) × (USEEIO factor in kg/USD) ÷ 1000
Activity-based: tCO2e = (Quantity in physical units) × (per-unit factor in kg/unit) ÷ 1000
Refrigerant fugitive: tCO2e = (Refrigerant kg) × (GWP) ÷ 1000

Classification engine: Claude AI (claude-sonnet-4-20250514) with deterministic keyword fallback per EEIO commodity-code mappings. Vendor name takes precedence over expense_category when both are present (vendor identity is the stronger signal).

Report Generated: April 16, 2026

This draft is intended for screening, supplier-disclosure response (CDP, supplier portals), and management decision support. For formal regulatory filings (SEC, CSRD, California SB 253) or third-party assurance review, supplement with primary activity data across material categories and engage an ISO 14064-3 reviewer.

Sensitivity. Spend-based accounting carries an industry-standard uncertainty band of ±25–40% per GHG Protocol §7.3.2. Applied to your total, the best-estimate footprint is **18,698.1 tCO2e**, with a plausible range of **11,218.8 to 26,177.3 tCO2e** at the conservative ±40% envelope. Substituting activity data (kWh, litres, kg of refrigerant) for spend in high-impact categories tightens this band toward the ±5–10% activity-based accuracy.

SCOPE BOUNDARY STATEMENT

This draft includes **Scope 1** (direct fuel combustion) and **Scope 2** (purchased electricity) emissions ONLY.

Excluded from this report: Cloud services, logistics, travel, office supplies, professional services, and other indirect categories are classified as **Scope 3** and are not included in this draft.

Processing Summary: 3265 of 3500 line items were classified as Scope 1 or 2. 235 items were excluded (Scope 3 or non-emission categories).

Credits and Refunds: 105 negative-amount rows (credit memos, returns, billing adjustments) were netted against purchases in the same emission category before applying factors, per GHG Protocol §7.3.2 (economic-value method) and consistent with GAAP/IFRS return accounting.

Data Intake Decisions

Before parsing your file, the engine inspected its structure and auto-detected the following settings. Every decision here is applied to normalize your data to a consistent internal format (UTF-8, US-convention decimals, hyphen-prefix negatives) before emission factors are applied. This preserves the ability to reconcile each line against your general ledger.

Setting	Auto-detected Value
File encoding	UTF-8
Decimal convention	US (1,234.56)
Negative amount format	Hyphen (–1234.56)
Date convention	YYYY-MM-DD (ISO)

Additional notes: Detected date format: YYYY-MM-DD (based on 439 date cells with majority-vote convention)

Row-Level Inference Decisions (Top 20 by Spend)

Row	Original Gap	Inferred Value	Signal Source
R-1428	Missing currency	inferred GBP	region 'UK'
R-1781	Missing currency	inferred GBP	region 'UK'
R-635	Missing currency	inferred GBP	region 'UK'
R-2348	Missing currency	inferred GBP	region 'UK'
R-697	Missing currency	inferred GBP	region 'London'
R-711	Missing currency	inferred GBP	region 'London'
R-1260	Missing currency	inferred GBP	region 'London'
R-78	Missing currency	inferred GBP	region 'UK'
R-2322	Missing currency	inferred GBP	region 'London'
R-3476	Missing currency	inferred GBP	region 'London'
R-2480	Missing currency	inferred GBP	region 'London'
R-1106	Missing currency	inferred GBP	region 'London'
R-88	Missing currency	inferred GBP	region 'UK'
R-140	Missing currency	inferred GBP	region 'London'
R-1018	Missing currency	inferred GBP	region 'London'
R-2399	Missing currency	inferred GBP	region 'London'
R-2940	Missing currency	inferred GBP	region 'UK'
R-1323	Missing currency	inferred GBP	region 'London'
R-617	Missing currency	inferred GBP	region 'London'
R-1765	Missing currency	inferred GBP	region 'UK'

Full inference log available in the classified_transactions record for deeper audit.

Data Quality Summary

The engine recovered 830 data points that would otherwise have been excluded or left blank: 79 via notes-column inference, 396 via region/notes-based currency detection, 355 via adjacent-row date estimation. Each recovered item is flagged in the Transaction Ledger with its inference source.

84% of your emissions came from high-confidence classifications (vendor or category matched with ≥0.8 confidence). The remaining 16% sits in medium- or low-confidence rows — inspect those in the Transaction Ledger if you plan to cite specific numbers.

Top 3 vendors represent 98% of Scope 1 spend (4 distinct vendors total). Reduction effort concentrated on those three accounts has the highest leverage.

Metric	Value
Classification Method	GHG Protocol Spend-Based (Automated)
Emission Factor Source	EPA USEEIO v2.2 supply-chain factors + EPA GHG Emission Factors Hub Table C-1 (for activity-based fuel & electricity) — v2.1-naics-expanded-2026-04-16
High-Confidence Mappings	2947
Items for Review	553
Total Transactions Flagged	486
- Missing Vendor Name	381
- Negative Amounts (Credits)	105

Methodology Note: Industry-standard estimation aligned with GHG Protocol Corporate Standard (2015 Revised Edition). Spend items were classified using automated mapping with keyword and vendor recognition. For higher accuracy, supplement with actual activity data (kWh, liters, km) where available.

Audit Trail Sample (Top 20 Transactions by Spend)

Ref	Vendor	Canon.	Category	Match	Source	Original	USD Amt
R-1428	Bp	Bp	Gasoline	Strong	Spend	GBP 9,970	$12,662
R-635	MSFT AZURE	Msft Azure	Cloud Servic	Strong	Spend	GBP 9,888	$12,558
R-2348	MSFT AZURE	Msft Azure	Cloud Servic	Strong	Spend	GBP 9,885	$12,553
R-697	FedEx	Fedex	Courier Deli	Strong	Spend	GBP 9,848	$12,507
R-711	Shell	Shell	Gasoline	Strong	Spend	GBP 9,811	$12,460
R-2322	* Unknown	—	Electricity	Inferred	Spend	GBP 9,299	$11,810
R-3476	Shell	Shell	Gasoline	Strong	Spend	GBP 9,295	$11,805
R-2480	SHELL-OIL	Shell	Gasoline	Strong	Spend	GBP 9,245	$11,742
R-1106	ConEd	Coned	Electricity	Strong	Spend	GBP 9,226	$11,717
R-88	ConEd Elec	Coned	Electricity	Strong	Spend	GBP 9,225	$11,715
R-140	* Unknown	—	Gasoline	Inferred	Spend	GBP 9,089	$11,543
R-1018	ConEd	Coned	Electricity	Strong	Spend	GBP 9,082	$11,534
R-2399	FEDEX CORP	Fedex	Courier Deli	Strong	Spend	GBP 8,908	$11,314
R-2940	Bp	Bp	Gasoline	Strong	Spend	GBP 8,880	$11,278
R-1323	ConEd Elec	Coned	Electricity	Strong	Spend	GBP 8,876	$11,273
R-617	SHELL-OIL	Shell	Gasoline	Strong	Spend	GBP 8,642	$10,975
R-1237	ConEd	Coned	Electricity	Strong	Spend	EUR 9,963	$10,760
R-582	* Unknown	—	Cloud Servic	Inferred	Spend	EUR 9,959	$10,756
R-1765	SHELL-OIL	Shell	Gasoline	Strong	Spend	GBP 8,436	$10,713
R-197	MSFT AZURE	Msft Azure	Cloud Servic	Strong	Spend	EUR 9,918	$10,712

[v13-nosplit]

* = Outlier or missing vendor | Inferred = Category-only match | Source: Activity = EPA per-unit factor (±5-10%) | Spend = USEEIO per-USD factor (±25-40%) | FX: Static rates (February 2026)