



Aire Valley Precision Ltd

Basic · Scope 1 & 2 Inventory

JAN-DEC 2025 · REPORT ID 066c8e95

Factor Pack v2.6.15 · USEEIO Supply Chain v1.3 (USD 2022) · EPA Hub 2025 · eGRID 2023 · EPA WARM v16 · EIA CBECS 2018 · EEA 2024 (EU grids) · DESNZ 2026 (UK) · SEAI 2025 (IE) · CO2emissiefactoren 2026 (NL) · NGA 2026 (AU) · IVL 2025 (SE) · EEA 2024 (BE) · Defra/Leeds 2023 (UK Scope 3) · CEDA by Watershed 2024/2025 (Scope 3 outside the US and UK)

Prepared by aisustainablefuture.com carbon engine 2.5 on behalf of Aire Valley Precision Ltd.

Organizational boundary: Operational control · Base year: 2025

This inventory has not been subject to third-party verification.

Sample report: the company, its ledger and its figures are fictional.

§ 0 EDITOR'S NOTE ON THE JAN-DEC 2025 INVENTORY

auditor brief

This report documents a footprint of **137.4 tCO₂e** across the Jan-Dec 2025 reporting period, decomposed and cited line by line in the pages that follow. Scope 1 (direct combustion) accounts for **72%** of the total, driven principally by Diesel at **54.8 tCO₂e**. Of **202** classified rows, **0%** used activity-based factors (±5-10% accuracy) and the balance used spend-based factors (±25-40%, an engineering estimate for the method - §7.3.2 sanctions economic-value data and does not quantify its error); spend-weighted, **70%** of the total came from high-confidence vendor or category matches. The pages that follow carry the full factor provenance, the transaction-level ledger and the methodology - the material an assurance engagement would start from, not a substitute for one.

§ 0.1 EMISSIONS BALANCE · FISCAL YEAR SUMMARY

tCO₂e

S1	Scope 1 STATIONARY + MOBILE COMBUSTION, OWNED & CONTROLLED SOURCES	98.33	72%
S2	Scope 2 PURCHASED GRID ELECTRICITY, LOCATION-BASED FACTOR APPLIED	39.09	28%

CLOSING BALANCE · FY TCO₂E

137.4 tCO₂e

§ 1.1 SCOPE 1 · DIRECT COMBUSTION

tCO2e by type

	CATEGORY	T CO ₂ E	SHARE
S1	Diesel DESNZ 2026 KG CO2E/L · PRICED AT THE OFFICIAL PRICE FOR THE PERIOD	54.77	56%
S1	Natural Gas DESNZ 2026 KG CO2E/KWH · PRICED AT THE OFFICIAL PRICE FOR THE PERIOD	41.56	42%
S1	Gasoline DESNZ 2026 KG CO2E/L · PRICED AT THE OFFICIAL PRICE FOR THE PERIOD	2.00	2%

§ 1.2 SCOPE 2 · PURCHASED ENERGY

tCO2e by type

	CATEGORY	T CO ₂ E	SHARE
S2	Electricity DESNZ 2026 · GRID ELECTRICITY, PRICED AT THE OFFICIAL PRICE FOR THE PERIOD	39.09	100%

§ 1.4 SPEND DATA PROCESSED · FACTOR × \$ = EMISSIONS

kg CO2e per USD

	CATEGORY	SPEND (USD)	FACTOR	T CO ₂ E
S1	Natural Gas	\$23,305	1.7832	41.56
S1	Diesel	\$32,048	1.7091	54.77
S1	Gasoline	\$1,377	1.4506	2.00
S2	Electricity	\$110,061	0.3552	39.09
TOTAL · CLASSIFIED SPEND		\$166,792		137.42

§ 2 METHODOLOGY & STANDARDS

per GHG Protocol

This inventory is compiled under the GHG Protocol Corporate Accounting and Reporting Standard (Revised Edition) and the Corporate Value Chain (Scope 3) Standard. The hybrid methodology follows the §7.3.2 data hierarchy: Tier 2 activity-based factors where customer activity data was supplied; Tier 3 spend-based screening for the remainder.

Factor file version: **2.6.15-2026-10-05**. Spend-based factors carry an uncertainty band this report takes as $\pm 25\text{--}40\%$. That band is an engineering estimate for spend-based screening, not a figure published by the GHG Protocol: §7.3.2 sanctions the economic-value METHOD and does not quantify its error. Activity-based factors use EPA Emission Factors Hub Table C-1 for liquid fuels, EPA Stationary Combustion factors for natural gas and propane, DESNZ 2026 · UK electricity generation 0.13096 kg CO₂e/kWh grid intensity for electricity, and IPCC AR5 100-year GWP for refrigerant fugitive emissions. Activity factor file version: **1.8-be-eea2024-2026-09-30**. Activity-based accuracy: $\pm 5\text{--}10\%$.

For this report, **0 of 202** classified rows (0%) used activity factors; **202** used spend-based factors. Activity rows take precedence over spend rows for the same emission category - no double-counting.

Scope 1 captures direct emissions from owned or controlled sources; activity data supplants spend where supplied, else the spend-proxy method applies and is disclosed as such. Scope 2 captures purchased electricity. Scope 2 electricity is converted to kWh at the official price for the period and multiplied by DESNZ 2026 · UK electricity generation 0.13096 kg CO₂e/kWh.

Energy is priced where and when it was bought. Each electricity, natural gas and road fuel purchase is converted to a quantity (litres, gallons, therms or kWh) at the official price for your country in the period of the transaction (DESNZ Quarterly Energy Prices table 3.4.2 and DESNZ Weekly road fuel prices (ULSP/ULSD pump price)), net of any VAT or GST the business recovers. The quantity is then multiplied by the physical emission factor or the grid intensity. The quantity and price used are printed against each row of the transaction ledger.

Boundary, base year and recalculation. Organizational boundary: **Operational control**. Base year: **2025**. Where either is unstated the customer did not supply it, and this report makes no assumption on their behalf; both are required for a conforming inventory and both are collected at upload. Recalculation policy: the base year is restated when a structural change (acquisition, divestment, outsourcing), a methodology change, or a discovered error alters base-year Scope 1 + 2 by more than 5%. That threshold is this report's declared significance threshold per GHG Protocol Chapter 5; a screening inventory has no prior period to restate, so the policy governs from this year forward.

Gross figures, biogenic carbon and per-gas reporting. Every total in this report is GROSS: no purchased offsets, renewable energy certificates or allowances have been deducted, and the engine

has no field in which to enter them. Biogenic CO₂ is not separately quantified – a spend-based screening cannot distinguish the biogenic fraction of a fuel or material purchase from its fossil fraction, so no biogenic figure is claimed either way. Per-gas: Scope 1 combustion is reported as CO₂ and non-CO₂ (CH₄ and N₂O combined) because the EPA Hub publishes the combustion factor as CO₂ with a single non-CO₂ uplift; splitting CH₄ from N₂O would require per-gas factors this engine does not carry, and inventing the split would be worse than declining it. Spend-based rows are blended CO₂e by construction and cannot be decomposed at all. No PFC or SF₆ sources were identified.

Amounts were in GBP. Non-USD amounts were converted to USD using static FX rates (vintage: **February 2026**) before emission factors were applied. Conversion details appear in the Transaction Ledger.

Calculation. For spend-based rows: $\text{tCO}_2\text{e} = (\text{spend USD}) \times (\text{factor kg/USD}) \div 1,000$.
 For activity-based rows: $\text{tCO}_2\text{e} = (\text{physical quantity}) \times (\text{per-unit factor}) \div 1,000$.
 Refrigerant fugitive emissions: $\text{tCO}_2\text{e} = (\text{refrigerant kg}) \times (\text{GWP}_{100}) \div 1,000$.

Rows were classified on the deterministic keyword path (vendor names, account names and descriptions mapped to EEIO commodity codes); Claude was not used for this upload. Vendor name takes precedence over expense_category when both are present. This report was generated on **05 October 2026**.

Sensitivity. The range below is asymmetric because the two error sources are. Factor uncertainty for spend-based screening is taken as $\pm 25\text{-}40\%$ and cuts both ways; incomplete coverage only ever understates. Applied to the inventory total (**137.4 tCO₂e**), the range is **82.5-192.4 tCO₂e**. **What this range does NOT cover:** misclassification. A row assigned to the wrong category moves by the RATIO of two factors, not by a percentage, and the factors in this pack span roughly two orders of magnitude – so a single misrouted row can exceed the whole band. The per-row factor and mapping logic in the transaction ledger are there to make that checkable. Substituting activity data for spend in high-impact categories tightens the factor half toward $\pm 5\text{-}10\%$.

This draft is intended for screening, supplier-disclosure response (CDP, Walmart Project Gigaton, Microsoft Supplier Sustainability), and management decision support. For formal regulatory filings or third-party assurance, supplement with primary activity data across material categories and engage an ISO 14064-3 reviewer.

§ 2.1 SCOPE BOUNDARY STATEMENT

This inventory declares **Scope 1** and **Scope 2** emissions only. Cloud services, logistics, travel, office supplies, professional services, and other indirect categories are Scope 3 and are not included in this draft. Of **274** line items, **48** were classified as Scope 1 or 2. Those rows carry **26.7%** of the **\$625,431** of spend this draft was able to classify. A further **154** line items were recognized as Scope 3 and are not priced in this draft. **72** were excluded as non-emission (payroll, tax, rent and similar). Of the spend

uploaded, 25.2% carries an emission factor, 74.8% is non-emitting and was deliberately excluded (payroll, tax, rent and similar), and 0.0% could not be identified. Only the last of those three understates your footprint.

§ 2.2 DATA INTAKE DECISIONS · STRUCTURAL

auto-detected

Before parsing the upload, the engine inspected its structure and auto-detected the settings below. Each decision normalizes the data to a consistent internal format before emission factors are applied, preserving the ability to reconcile each line against your general ledger.

File encoding	UTF-8
Decimal convention	US (1,234.56)
Negative amount format	Hyphen (-1234.56)
Date convention	DD/MM/YYYY (day-first)
Localized column headers mapped	Date→date, Contact→vendor, Account Name→category

Additional notes. Mapped localized column headers: 'Date'→date, 'Contact'→vendor, 'Account Name'→category; Detected date format: DD/MM/YYYY (based on 274 date cells with majority-vote convention)

§ 2.3 ROW-LEVEL INFERENCE DECISIONS · TOP 20 BY SPEND

rescued rows

ROW	ORIGINAL GAP	INFERRED VALUE	SIGNAL SOURCE
R-105	Missing category	inferred chemical_manufacturing (scope3)	Notes field
R-14	Missing category	inferred chemical_manufacturing (scope3)	Notes field
R-242	Missing category	inferred chemical_manufacturing (scope3)	Notes field
R-69	Missing category	inferred textile_manufacturing (scope3)	Notes field
R-194	Missing category	inferred chemical_manufacturing (scope3)	Notes field
R-151	Missing category	inferred chemical_manufacturing (scope3)	Notes field
R-57	Missing category	inferred chemical_manufacturing (scope3)	Notes field
R-266	Missing category	inferred gasoline (scope1)	Notes field
R-15	Missing category	inferred gasoline (scope1)	Notes field
R-36	Missing category	inferred gasoline (scope1)	Notes field
R-244	Missing category	inferred gasoline (scope1)	Notes field
R-107	Missing category	inferred gasoline (scope1)	Notes field
R-220	Missing category	inferred gasoline (scope1)	Notes field
R-197	Missing category	inferred gasoline (scope1)	Notes field
R-83	Missing category	inferred gasoline (scope1)	Notes field
R-129	Missing category	inferred gasoline (scope1)	Notes field
R-59	Missing category	inferred gasoline (scope1)	Notes field
R-173	Missing category	inferred gasoline (scope1)	Notes field
R-152	Missing category	inferred gasoline (scope1)	Notes field

§ 3 DATA QUALITY · CONFIDENCE & PROVENANCE

rows classified

70% of total emissions came from rows classified at high confidence (vendor or category matched at ≥ 0.8). The balance sits in medium- or low-confidence rows - review those in the Transaction Ledger if citing specific line items. Top 3 vendors represent 100% of Scope 1 spend (3 distinct vendors total) - reduction effort concentrated on those three accounts has the highest leverage.

The engine recovered 19 data points that would otherwise have been excluded or left blank: 19 via notes-column inference. Each recovered row is flagged in the Transaction Ledger with its inference source.

Classification method	GHG Protocol spend-based (automated)
Emission-factor source	Scope 1 and 2: DESNZ 2026, priced at DESNZ Quarterly Energy Prices table 3.4.2 and DESNZ Weekly road fuel prices (ULSP/ULSD pump price); Scope 3: Defra / University of Leeds spend-based multipliers (OGL v3); factor pack v2.6.15-2026-10-05
Rows uploaded	274
Rows priced into the totals	202
High-confidence mappings	171
Items for review	31
Total transactions flagged	0

Industry-standard estimation per GHG Protocol Corporate Standard (2015 Revised). Spend items were classified via automated mapping with keyword and vendor recognition. For tighter accuracy, supply actual activity data (kWh, litres, km) where available.

§ 5 AUDIT TRAIL · SAMPLE

top 20 by spend

REF	VENDOR	CATEGORY	CONF.	USD
R-17	Kloeckner Metals UK CANONICAL · KLOECKNER	Primary Metals [S3] · SPEND f=0.6097 · 13.099 tCO2e · Defra SIC 24.1-3 2023 Exact keyword: 'kloeckner' → primary_metals	Strong	\$21,486 GBP 16,918
R-38	Kloeckner Metals UK CANONICAL · KLOECKNER	Primary Metals [S3] · SPEND f=0.6097 · 13.061 tCO2e · Defra SIC 24.1-3 2023 Exact keyword: 'kloeckner' → primary_metals	Strong	\$21,424 GBP 16,869
R-222	Kloeckner Metals UK CANONICAL · KLOECKNER	Primary Metals [S3] · SPEND f=0.6097 · 12.794 tCO2e · Defra SIC 24.1-3 2023 Exact keyword: 'kloeckner' → primary_metals	Strong	\$20,985 GBP 16,523
R-131	Kloeckner Metals UK CANONICAL · KLOECKNER	Primary Metals [S3] · SPEND f=0.6097 · 12.322 tCO2e · Defra SIC 24.1-3 2023 Exact keyword: 'kloeckner' → primary_metals	Strong	\$20,211 GBP 15,914
R-109	Kloeckner Metals UK CANONICAL · KLOECKNER	Primary Metals [S3] · SPEND f=0.6097 · 12.192 tCO2e · Defra SIC 24.1-3 2023 Exact keyword: 'kloeckner' → primary_metals	Strong	\$19,998 GBP 15,746
R-268	Kloeckner Metals UK CANONICAL · KLOECKNER	Primary Metals [S3] · SPEND f=0.6097 · 11.995 tCO2e · Defra SIC 24.1-3 2023 Exact keyword: 'kloeckner' → primary_metals	Strong	\$19,674 GBP 15,492
R-85	Kloeckner Metals UK CANONICAL · KLOECKNER	Primary Metals [S3] · SPEND f=0.6097 · 10.496 tCO2e · Defra SIC 24.1-3 2023 Exact keyword: 'kloeckner' → primary_metals	Strong	\$17,215 GBP 13,555
R-154	Kloeckner Metals UK CANONICAL · KLOECKNER	Primary Metals [S3] · SPEND f=0.6097 · 10.450 tCO2e · Defra SIC 24.1-3 2023 Exact keyword: 'kloeckner' → primary_metals	Strong	\$17,141 GBP 13,497
R-175	Kloeckner Metals UK CANONICAL · KLOECKNER	Primary Metals [S3] · SPEND f=0.6097 · 9.553 tCO2e · Defra SIC 24.1-3 2023 Exact keyword: 'kloeckner' → primary_metals	Strong	\$15,668 GBP 12,337

R-199	Kloeckner Metals UK CANONICAL · KLOECKNER	Primary Metals [S3] · SPEND f=0.6097 · 9.487 tCO2e · Defra SIC 24.1-3 2023 Exact keyword: 'kloeckner' → primary_metals	Strong	\$15,560 GBP 12,252
R-246	Kloeckner Metals UK CANONICAL · KLOECKNER	Primary Metals [S3] · SPEND f=0.6097 · 9.285 tCO2e · Defra SIC 24.1-3 2023 Exact keyword: 'kloeckner' → primary_metals	Strong	\$15,230 GBP 11,992
R-61	Kloeckner Metals UK CANONICAL · KLOECKNER	Primary Metals [S3] · SPEND f=0.6097 · 8.900 tCO2e · Defra SIC 24.1-3 2023 Exact keyword: 'kloeckner' → primary_metals	Strong	\$14,599 GBP 11,495
R-203	Aalco Metals Leeds CANONICAL · AALCO	Primary Metals [S3] · SPEND f=0.6097 · 6.273 tCO2e · Defra SIC 24.1-3 2023 Substring-match → 'aalco' (score 95): Metals stockholder (aluminium, sta	Strong	\$10,290 GBP 8,102
R-94	Octopus Energy for Bus	Electricity [S2] · SPEND f=0.3602 · 3.620 tCO2e · 27,642 kWh @ 0.286 GBP/kWh 2025-05 Partial keyword: 'electricity' → electricity	Good	\$10,049 GBP 7,912
R-183	Octopus Energy for Bus	Electricity [S2] · SPEND f=0.361 · 3.608 tCO2e · 27,554 kWh @ 0.286 GBP/kWh 2025-09 Partial keyword: 'electricity' → electricity	Good	\$9,995 GBP 7,870
R-39	Aalco Metals Leeds CANONICAL · AALCO	Primary Metals [S3] · SPEND f=0.6097 · 6.089 tCO2e · Defra SIC 24.1-3 2023 Substring-match → 'aalco' (score 95): Metals stockholder (aluminium, sta	Strong	\$9,987 GBP 7,864
R-163	Octopus Energy for Bus	Electricity [S2] · SPEND f=0.361 · 3.562 tCO2e · 27,202 kWh @ 0.286 GBP/kWh 2025-08 Partial keyword: 'electricity' → electricity	Good	\$9,868 GBP 7,770
R-118	Octopus Energy for Bus	Electricity [S2] · SPEND f=0.3602 · 3.543 tCO2e · 27,057 kWh @ 0.286 GBP/kWh 2025-06 Partial keyword: 'electricity' → electricity	Good	\$9,836 GBP 7,745

R-26	Octopus Energy for Bus	Electricity [S2] · SPEND f=0.3502 · 3.366 tCO2e · 25,700 kWh @ 0.294 GBP/kWh 2025-02 Partial keyword: 'electricity' → electricity	Good	\$9,610 GBP 7,567
R-176	Aalco Metals Leeds CANONICAL · AALCO	Primary Metals [S3] · SPEND f=0.6097 · 5.779 tCO2e · Defra SIC 24.1-3 2023 Substring-match → 'aalco' (score 95): Metals stockholder (aluminium, sta	Strong	\$9,479 GBP 7,464

* = outlier or missing vendor · Strong/Good/Review = vendor-match confidence · [S1/S2/S3] = scope tag · ACTIVITY / SPEND = factor class · FX rates: static (February 2026) · f= = emission factor applied · Resolved = identified by you, not by the engine