



Hunter Valley Fabrication Pty Ltd

Basic · Scope 1 & 2 Inventory

JAN-DEC 2025 · REPORT ID de22e8fd

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 Hunter Valley Fabrication Pty 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 400.9 tCO₂e across the Jan-Dec 2025 reporting period, decomposed and cited line by line in the pages that follow. Scope 2 (purchased energy) accounts for 65% of the total, driven principally by Electricity at 259.1 tCO₂e. Of 168 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, 65% 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	141.80	35%
S2	Scope 2 PURCHASED GRID ELECTRICITY, LOCATION-BASED FACTOR APPLIED	259.13	65%

CLOSING BALANCE · FY TCO₂E

400.9 tCO₂e

§ 1.1 SCOPE 1 · DIRECT COMBUSTION

tCO₂e by type

	CATEGORY	T CO ₂ E	SHARE
S1	Diesel NGA 2026 TABLE 9 KG CO ₂ E/L · PRICED AT THE OFFICIAL PRICE FOR THE PERIOD	98.49	69%
S1	Natural Gas NAICS 221210 · STATIONARY COMBUSTION	41.27	29%
S1	Gasoline NGA 2026 TABLE 9 KG CO ₂ E/L · PRICED AT THE OFFICIAL PRICE FOR THE PERIOD	2.04	1%

§ 1.2 SCOPE 2 · PURCHASED ENERGY

tCO₂e by type

	CATEGORY	T CO ₂ E	SHARE
S2	Electricity NGA 2026 (DCCEEW) · GRID ELECTRICITY, PER DOLLAR AT AN ASSUMED PRICE	259.13	100%

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

kg CO₂e per USD

	CATEGORY	SPEND (USD)	FACTOR	T CO ₂ E
S1	Natural Gas	\$7,770	5.3110	41.27
S1	Diesel	\$35,951	2.7394	98.49
S1	Gasoline	\$848	2.4002	2.04
S2	Electricity	\$75,327	3.4400	259.13
TOTAL · CLASSIFIED SPEND		\$119,897		400.93

§ 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, NGA 2026 (DCCEEW) · New South Wales and ACT 0.6 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 168** classified rows (**0%**) used activity factors; **168** 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. Grid factor applied for Scope 2: **3.44** kg CO₂e per USD (AU · New South Wales and ACT), from NGA 2026 (DCCEEW) · New South Wales and ACT 0.6 kg CO₂e/kWh over an assumed electricity price.

Energy is priced where and when it was bought. Each 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 (Australian Institute of Petroleum terminal gate prices (national average)), 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.

Part of Scope 1 (natural gas, 29% of it) is still anchored to US fuel prices. The spend-based Scope 1 factors in this pack are kg CO₂e per dollar, derived as a published physical factor divided by a US retail price - \$3.50 a gallon for motor gasoline, \$4.00 for diesel, \$1.00 a therm for natural gas. Applying them to spend in a country with different fuel prices implies a quantity of fuel that is wrong by the ratio of the two prices, and the error runs the same way for every affected row. Where local fuel is dearer than in the US - which is most of Europe - this **OVERSTATES** your Scope 1, materially and outside the uncertainty band quoted above. The fix is exact and takes one number off your fuel invoice: enter litres, gallons, kWh or therms of fuel purchased rather than what you paid. The physical factors are combustion chemistry and do not vary by country, so a quantity gives a correct answer everywhere. Until then, treat that part of Scope 1 as an upper bound; the rest is priced at your country's official

prices for the period.

Your Scope 2 was priced through an assumed electricity price. The per-dollar grid factors are not measured tariffs: each one is a published per-kWh grid intensity divided by an assumed price for electricity in that country. Across the countries in this pack those assumed prices sit mostly between \$0.12 and \$0.18 per kWh, which is a much narrower spread than real commercial tariffs, and real tariffs run from roughly \$0.05 in the Gulf to \$0.35 in Germany and Ireland. Where the assumed price is higher than what you actually pay, this UNDERSTATES your Scope 2; where it is lower, it overstates. **The fix takes one number off your electricity bill.** Give us the kWh you consumed and the assumed price drops out of the calculation entirely, because the per-kWh intensity is measured rather than derived. That is the single highest-value number you can supply for this report.

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 AUD. 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 (**400.9 tCO₂e**), the range is **240.6–757.7 tCO₂e**. The upper bound includes **140.3 tCO₂e** for spend this report could not identify, priced at the average intensity of the spend it could – an ASSUMPTION, not a measurement, and the true figure is unknown by construction. **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 **239** line items, **48** were classified as Scope 1 or 2. Those rows carry **23.9%** of the **\$501,621** of spend this draft was able to classify. A further **120** line items were recognized as Scope 3 and are not priced in this draft. **67** were excluded as non-emission (payroll, tax, rent and similar). Of the spend uploaded, **26.2%** carries an emission factor, **69.5%** is non-emitting and was deliberately excluded (payroll, tax, rent and similar), and **4.2%** could not be identified. Only the last of those three understates your footprint. **A further 4 rows could not be recognized**, carrying **\$80,600** of the **\$1,911,935** uploaded. They contribute nothing to the totals above, so this footprint is understated. If those rows emit at the same average intensity as the spend that did price, they would add roughly **140.3 tCO₂e (+16.1%)**. That is an assumption and not a measurement – the true intensity of an unidentified row is unknown, which is why it is unidentified – but it is the size of the question, and it is not small. The unrecognized rows are listed in the appendix; naming those vendors more explicitly in your ledger is the fastest way to bring them in.

§ 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 239 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-99	Other	No currency in the file; read	Engine
R-60	Other	No currency in the file; read	Engine
R-122	Other	No currency in the file; read	Engine
R-18	Other	No currency in the file; read	Engine
R-138	Other	No currency in the file; read	Engine
R-217	Other	No currency in the file; read	Engine
R-199	Other	No currency in the file; read	Engine
R-157	Other	No currency in the file; read	Engine
R-2	Other	No currency in the file; read	Engine
R-180	Other	No currency in the file; read	Engine
R-81	Other	No currency in the file; read	Engine
R-37	Other	No currency in the file; read	Engine
R-172	Other	No currency in the file; read	Engine
R-93	Other	No currency in the file; read	Engine
R-114	Other	No currency in the file; read	Engine
R-52	Other	No currency in the file; read	Engine
R-13	Other	No currency in the file; read	Engine
R-133	Other	No currency in the file; read	Engine
R-151	Other	No currency in the file; read	Engine
R-31	Other	No currency in the file; read	Engine

§ 3 DATA QUALITY · CONFIDENCE & PROVENANCE

rows classified

65% 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. **Note.** 44 of the 168 rows that carry a factor (26%) were matched on weaker evidence than a direct vendor hit (< 0.8). Common causes: partial vendor names, ambiguous expense categories, or contradictory vendor/category pairs. Cleaner vendor names or activity-data overrides would tighten these rows. Rows that could not be matched at all are a separate figure and are reported in § 2.1 as uncovered spend.

The engine recovered 20 data points that would otherwise have been excluded or left blank: 20 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: NGA 2026 Table 9, priced at Australian Institute of Petroleum terminal gate prices (national average); NGA 2026, per dollar at an assumed electricity price; US EPA factors at US prices for natural gas, which has no price series here; Scope 3: CEDA by Watershed (Open CEDA 2025, CC BY-SA 4.0, adapted); factor pack v2.6.15-2026-10-05
Rows uploaded	239
Rows priced into the totals	168
High-confidence mappings	124
Items for review	44
Total transactions flagged	4
· unrecognized, not priced	4

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-172	BlueScope Distribution CANONICAL · BLUESCOPE	Primary Metals [S3] · SPEND f=1.437 · 39.215 tC02e · CEDA by Watershed 2025 AU Substring-match → 'bluescope' (score 95): Steel maker and distributor	Strong	\$27,290 AUD 41,985
R-93	BlueScope Distribution CANONICAL · BLUESCOPE	Primary Metals [S3] · SPEND f=1.403 · 37.223 tC02e · CEDA by Watershed 2025 AU Substring-match → 'bluescope' (score 95): Steel maker and distributor	Strong	\$26,534 AUD 40,821
R-114	BlueScope Distribution CANONICAL · BLUESCOPE	Primary Metals [S3] · SPEND f=1.416 · 37.224 tC02e · CEDA by Watershed 2025 AU Substring-match → 'bluescope' (score 95): Steel maker and distributor	Strong	\$26,284 AUD 40,437
R-52	BlueScope Distribution CANONICAL · BLUESCOPE	Primary Metals [S3] · SPEND f=1.373 · 34.774 tC02e · CEDA by Watershed 2025 AU Substring-match → 'bluescope' (score 95): Steel maker and distributor	Strong	\$25,333 AUD 38,974
R-13	BlueScope Distribution CANONICAL · BLUESCOPE	Primary Metals [S3] · SPEND f=1.357 · 33.693 tC02e · CEDA by Watershed 2025 AU Substring-match → 'bluescope' (score 95): Steel maker and distributor	Strong	\$24,824 AUD 38,191
R-133	BlueScope Distribution CANONICAL · BLUESCOPE	Primary Metals [S3] · SPEND f=1.425 · 33.824 tC02e · CEDA by Watershed 2025 AU Substring-match → 'bluescope' (score 95): Steel maker and distributor	Strong	\$23,740 AUD 36,523
R-151	BlueScope Distribution CANONICAL · BLUESCOPE	Primary Metals [S3] · SPEND f=1.415 · 32.709 tC02e · CEDA by Watershed 2025 AU Substring-match → 'bluescope' (score 95): Steel maker and distributor	Strong	\$23,122 AUD 35,572
R-31	BlueScope Distribution CANONICAL · BLUESCOPE	Primary Metals [S3] · SPEND f=1.373 · 30.318 tC02e · CEDA by Watershed 2025 AU Substring-match → 'bluescope' (score 95): Steel maker and distributor	Strong	\$22,080 AUD 33,969

R-74	BlueScope Distribution CANONICAL · BLUESCOPE	Primary Metals [S3] · SPEND f=1.37 · 29.098 tCO2e · CEDA by Watershed 2025 AU Substring-match → 'bluescope' (score 95): Steel maker and distributor	Strong	\$21,240 AUD 32,678
R-211	BlueScope Distribution CANONICAL · BLUESCOPE	Primary Metals [S3] · SPEND f=1.418 · 29.698 tCO2e · CEDA by Watershed 2025 AU Substring-match → 'bluescope' (score 95): Steel maker and distributor	Strong	\$20,948 AUD 32,227
R-233	BlueScope Distribution CANONICAL · BLUESCOPE	Primary Metals [S3] · SPEND f=1.447 · 29.269 tCO2e · CEDA by Watershed 2025 AU Substring-match → 'bluescope' (score 95): Steel maker and distributor	Strong	\$20,225 AUD 31,115
R-193	BlueScope Distribution CANONICAL · BLUESCOPE	Primary Metals [S3] · SPEND f=1.426 · 28.328 tCO2e · CEDA by Watershed 2025 AU Substring-match → 'bluescope' (score 95): Steel maker and distributor	Strong	\$19,870 AUD 30,569
R-220	AGL Energy	Electricity [S2] · SPEND f=3.44 · 23.795 tCO2e Substring-match → 'agl energy' (score 95): Australian electric utility	Strong	\$6,917 AUD 10,642
R-183	AGL Energy	Electricity [S2] · SPEND f=3.44 · 22.853 tCO2e Substring-match → 'agl energy' (score 95): Australian electric utility	Strong	\$6,643 AUD 10,221
R-141	AGL Energy	Electricity [S2] · SPEND f=3.44 · 22.758 tCO2e Substring-match → 'agl energy' (score 95): Australian electric utility	Strong	\$6,616 AUD 10,178
R-40	AGL Energy	Electricity [S2] · SPEND f=3.44 · 22.660 tCO2e Substring-match → 'agl energy' (score 95): Australian electric utility	Strong	\$6,587 AUD 10,134
R-21	AGL Energy	Electricity [S2] · SPEND f=3.44 · 22.568 tCO2e Substring-match → 'agl energy' (score 95): Australian electric utility	Strong	\$6,560 AUD 10,093

R-160	AGL Energy	Electricity [S2] · SPEND f=3.44 · 22.213 tCO2e Substring-match → 'agl energy' (score 95): Australian electric utility	Strong	\$6,457 AUD 9,934
R-72	Lincoln Electric Austr	Equipment Purchases [S3] · SPEND f=0.443 · 2.764 tCO2e · CEDA by Watershed 2025 AU Exact keyword: 'equipment' → equipment_purchases	Strong	\$6,240 AUD 9,600
R-202	AGL Energy	Electricity [S2] · SPEND f=3.44 · 21.001 tCO2e Substring-match → 'agl energy' (score 95): Australian electric utility	Strong	\$6,105 AUD 9,392

* = 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

§ 5b UNRECOGNIZED ROWS

4 rows · \$80,600

These carry no emission factor and contribute nothing to any total above, so the inventory is understated by whatever they represent. They are the fastest thing to fix: tell us what these vendors are, or name them more fully in your ledger, and they price on the next run.

REF	VENDOR	CATEGORY	CONF.	USD
R-54	ATO	N/A · SPEND	Review	\$20,150 AUD 31,000
R-117	ATO	N/A · SPEND	Review	\$20,150 AUD 31,000
R-174	ATO	N/A · SPEND	Review	\$20,150 AUD 31,000
R-236	ATO	N/A · SPEND	Review	\$20,150 AUD 31,000