

ISO 14064-1:2018 · GHG PROTOCOL CORPORATE STANDARD

Greenhouse Gas Inventory Report

Metro Factor Textile · Karachi Main Facility

REPORTING PERIOD

2025-01-01 — 2025-12-31 Karachi, Pakistan

LOCATION

REPORT ID

CRP-2026-B44AE3

BOUNDARY

Single facility

113.9

tCO₂e · operational (S1+S2)
OPERATIONAL EMISSIONS

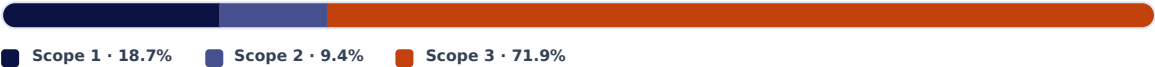
405.8

tCO₂e · total inventory
TOTAL GHG INVENTORY

2.28

kgCO₂e / kg
OPERATIONAL CARBON INTENSITY

EMISSIONS BY SCOPE



ISO 14064-1:2018

GHG PROTOCOL

IPCC AR6

CSRD-READY

SBTI 1.5°C

Prepared by CarbonReport Pro. This report is prepared as an ISO 14064-1:2018 / GHG Protocol Corporate Standard-aligned greenhouse gas inventory. CarbonReport Pro internal verification levels indicate data confidence and evidence-review status. They do not replace independent third-party assurance under ISO 14064-3 unless an accredited verifier is engaged.
Confidential — prepared for Metro Factor Textile. Generated 2026-07-04.

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What this report contains

A complete organisation-level greenhouse gas inventory prepared on an ISO 14064-1 / GHG Protocol basis, with methodology, results, benchmarking, decarbonisation planning, data-quality assessment and a buyer-ready disclosure summary.

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01 · EXECUTIVE SUMMARY

Operational footprint & buyer readiness

This greenhouse gas inventory reports Metro Factor Textile's emissions for 2025-01-01 — 2025-12-31, prepared on an ISO 14064-1 / GHG Protocol basis for buyer disclosure and decarbonisation planning.

Operational emissions (Scope 1 direct combustion plus Scope 2 purchased electricity) total **113.9 tCO₂e** for the period. Including reported Scope 3 value-chain emissions, the total GHG inventory is **405.8 tCO₂e**, of which Scope 3 represents 72%.

Operational Carbon Intensity (OCI) is **2.28 kgCO₂e/kg**, classified as **Above-average intensity — improvement priority** against mixed-process textile benchmarks (lower intensity is better; the mixed-process average is 2.1 kgCO₂e/kg). Versus the 2023 base year, total emissions have fallen 8.9%.

Data is reported at confidence **Level 3 — Evidence-Matched (Automated)**. Uploaded documents matched against reported figures by the platform (automated OCR cross-check). Not a third-party verification. These are platform data-confidence levels and do not constitute third-party assurance unless an accredited verifier is engaged.

The highest-return next steps are summarised below and detailed in the Decarbonisation Roadmap (§12).

BUYER SUMMARY — AT A GLANCE

Scope 1 — Direct	75.9 t
Scope 2 — Electricity	38.0 t
Scope 3 — Value chain	291.9 t
Operational (S1+S2)	113.9 t
Total GHG inventory	405.8 t
OCI	2.28 kgCO ₂ e/kg
Performance score	57/100 · Developing
Data confidence	L3 · Evidence-Matched (Automated)
Buyer readiness	Buyer-Ready (93)
Boundary	Single facility

TOP PRIORITY ACTIONS

ACTION	CATEGORY	EST. ABATEMENT	PAYBACK
Rooftop Solar PV	Energy	17.1 tCO ₂ e/yr	4.5 yrs
Renewable Energy Tariff / PPA	Energy Sourcing	15.2 tCO ₂ e/yr	—
Steam & Boiler Optimisation	Fuel Efficiency	15.2 tCO ₂ e/yr	3 yrs

KEY SIGNALS

HYPOTHETICAL CBAM-STYLE COST

€7,404

/yr — forward-looking only; textiles not in CBAM Phase 1

OCI VS GLOBAL AVERAGE

+0.18

kgCO₂e/kg vs 2.1 mixed-process average

MODELLED SAVINGS POTENTIAL

€6,851

/yr from the priority actions

02 · ABOUT THIS REPORT

Scope, standards & statement of conformance

REPORT PARTICULARS

Reporting organisation	Metro Factor Textile
Facility / site	Karachi Main Facility
Reporting period	2025-01-01 — 2025-12-31
Base year	2023
Intended use	Buyer disclosure
Report ID	CRP-2026-B44AE3
Date issued	2026-07-04
Contact	sustainability@metrofactor.com

STANDARDS & FRAMEWORKS APPLIED

Quantification standard	ISO 14064-1:2018
Accounting standard	GHG Protocol Corporate
Global warming potentials	IPCC AR6 (100-yr)
Combustion factors	IPCC AR6 / DEFRA 2024
Grid factor	IEA / national (PA)
Materials (Scope 3)	Ecoinvent 3.9
Target framework	SBTi 1.5°C pathway

Statement of conformance

This greenhouse gas inventory has been prepared in accordance with the principles of **ISO 14064-1:2018** (relevance, completeness, consistency, accuracy and transparency) and the **GHG Protocol Corporate Accounting and Reporting Standard**. Emissions are quantified from activity data supplied by Metro Factor Textile multiplied by published reference emission factors.

Responsibilities. The reporting organisation is responsible for the completeness and accuracy of the activity data and supporting evidence. CarbonReport Pro is responsible for applying the methodology and emission factors and for the data-confidence review described in §15. This document is a self-prepared inventory at data-confidence Level 3; it is **not** an independent assurance statement under ISO 14064-3 unless an accredited verifier is separately engaged.

Prepared by — CarbonReport Pro

Approved by — Metro Factor Textile

03 · ORGANISATIONAL PROFILE

The reporting facility

Metro Factor Textile is a Textile Manufacturing operation located in Karachi, Pakistan. This inventory covers the operations and processes described below for the stated reporting period.

FACILITY OVERVIEW	
Industry type	Textile Manufacturing
Main product	Shirts
Annual production	50,000 kg
Main export market	EU
Reporting boundary	Single facility
Control approach	Operational control

PROCESS SCOPE & CERTIFICATIONS	
Process types	Knitting, Dyeing, Washing, Stitching, Finishing
Certifications (declared)	OEKO-TEX, GOTS, Higg FEM, ISO 14001
Certification evidence	Self-declared — not verified
Effluent treatment (ETP)	Yes
Contact email	sustainability@metrofactor.com
Contact phone	+92 300 1234567

- Why this matters to buyers.** EU/UK brands increasingly request supplier-level emissions data to populate their own CSRD Scope 3 inventories. A clear organisational profile — process scope, certifications, production volume and control approach — lets a buyer place these emissions in context and compare suppliers on a like-for-like intensity basis.
- Production basis.** All intensity metrics in this report are normalised to 50,000 kg of production for the period. Where production output is not provided, intensity metrics are reported as “not computable” rather than estimated.
- Certifications are self-declared.** OEKO-TEX, GOTS, Higg FEM, ISO 14001 were stated by the facility, but no certificate documents were uploaded for this report. They are shown for context only and are **not** verified by CarbonReport Pro — buyers should request the underlying certificates directly.

04 · REPORTING BOUNDARY & METHODOLOGY

Basis of preparation

The inventory is built from facility activity data and published reference emission factors. Boundaries and consolidation follow the GHG Protocol; quantification follows ISO 14064-1.

Organisational boundary

This inventory is consolidated on a **Operational control** basis covering **Single facility**. Emission sources within this boundary are included in full for the reporting period.

Operational boundary

Scope 1 (direct combustion), Scope 2 (purchased electricity, location-based) and, where reported, Scope 3 (value-chain) are included. The operational scope reflects the facility processes: Knitting, Dyeing, Washing, Stitching, Finishing.

Base year & recalculation

Base year is **2023** (125.0 tCO₂e). Operational emissions have fallen **8.9%** versus the base year (113.9 tCO₂e this period). A structural-change recalculation policy applies if the boundary, methodology or emission factors change materially, or to correct a material error (greater than 5% of total emissions).

Reason for change vs base year: Energy-efficiency improvements — Installed VFDs on key motors, recovered boiler condensate, and shifted part of the grid load to on-site solar..

EMISSION FACTORS APPLIED	
Diesel	2.68 kgCO ₂ e/L
Natural gas	1.90 kgCO ₂ e/m³
LPG	3.00 kgCO ₂ e/kg
Grid electricity (PA)	0.475 kgCO ₂ e/kWh
Sea freight (as applied)	0.01600 /t-km
Air freight (as applied)	0.60 /t-km
Road freight (as applied)	0.120 /t-km
Cotton (Scope 3 material, as applied)	1.80 kgCO ₂ e/kg
Polyester/synthetic (Scope 3 material, as applied)	3.10 kgCO ₂ e/kg
GWP basis	IPCC AR6, 100-yr

Quantification approach

STEP	METHOD
Activity data collection	Utility bills, fuel invoices, meter readings and production records supplied by the facility (see data-quality assessment, §14).
Emission factors	Published reference factors (IPCC AR6, DEFRA 2024, IEA national grid, Ecoinvent 3.9). No facility-specific factors unless provided.
Calculation	Emissions = activity data × emission factor, summed by scope. Scope 2 reported both location-based and market-based; on-site solar treated as zero-emission own generation (not a deduction). Each Scope 3 line shows its own factor and source.
Intensity	OCI = (Scope 1 + Scope 2) ÷ production output. PCF (cradle-to-gate) adds upstream materials where reported.

05 · SCOPE 1 — DIRECT EMISSIONS

On-site fuel combustion

Scope 1 covers direct greenhouse gas emissions from sources owned or controlled by the facility — principally fuel combustion in boilers, generators and process heat.

SCOPE 1 EMISSIONS BY SOURCE

SOURCE	ACTIVITY	FACTOR	KGCO ₂ E	% OF S1
Stationary/mobile — Diesel	5,000 L	2.68	13,400	18%
Stationary — Natural gas	25,000 m³	1.90	47,500	63%
Stationary — LPG	5,000 kg	3.00	15,000	20%
Scope 1 Total			75,900	100%

SCOPE 1 TOTAL

75.9

tCO₂e direct combustion

SHARE OF OPERATIONAL

67%

of Scope 1 + 2

S1 INTENSITY

1.52

kgCO₂e / kg

Reduction levers for Scope 1. Thermal energy is usually the largest Scope 1 driver in textile processing. Boiler tune-ups, steam-trap surveys, condensate recovery and low-liquor-ratio dyeing typically cut Scope 1 by 15–30% with short paybacks — quantified in the Decarbonisation Roadmap (§12).

Location-based & market-based

Scope 2 covers indirect emissions from purchased grid electricity. Both GHG Protocol Scope 2 methods are reported — location-based (national grid average) and market-based (contractual instruments). On-site solar is treated as zero-emission own generation, never as a deduction from reported emissions.

LOCATION-BASED METHOD

SOURCE	ACTIVITY	FACTOR	KGCO ₂ E
Grid electricity purchased	80,000 kWh	0.475	38,000
On-site solar (self-consumed)	40,000 kWh	0.000	0
Location-based Scope 2			38,000

MARKET-BASED METHOD

SOURCE	ACTIVITY	FACTOR	KGCO ₂ E
Grid electricity (residual)	80,000 kWh	0.475	38,000
Contracted renewables (REC/PPA)	none	—	—
Market-based Scope 2			38,000

ELECTRICITY PROFILE	
Total electricity consumed	120,000 kWh
— grid purchased	80,000 kWh
— on-site solar	40,000 kWh
Renewable share	33.3%
Grid factor (PA)	0.475 kgCO ₂ e/kWh · IEA 2024
S2 share of operational	33%

Method note. No contractual renewable instruments (RECs, PPAs or green tariffs) were provided, so the market-based figure equals the location-based figure. On-site solar reduces the volume of grid electricity purchased, so it is already reflected in the grid figure above — it is not double-counted as a separate deduction.

On-site solar — memo. Self-generated solar (40,000 kWh) avoids ≈ 19,000 kgCO₂e versus drawing the same electricity from the PA grid. This is an informational avoided-emissions figure and is **not** subtracted from reported Scope 2.

15-category relevance assessment

Per the GHG Protocol Scope 3 Standard, all 15 categories are screened for relevance. Reported categories are quantified below; others are marked relevant (to estimate next cycle) or not relevant to this facility.

GHG PROTOCOL SCOPE 3 CATEGORY SCREENING

#	CATEGORY	STREAM	STATUS
1	Purchased goods & services	Upstream	Reported & quantified
2	Capital goods	Upstream	Reported & quantified
3	Fuel- & energy-related activities	Upstream	Reported & quantified
4	Upstream transportation & distribution	Upstream	Reported & quantified
5	Waste generated in operations	Upstream	Reported & quantified
6	Business travel	Upstream	Reported & quantified
7	Employee commuting	Upstream	Reported & quantified
8	Upstream leased assets	Upstream	Reported & quantified
9	Downstream transportation & distribution	Downstream	Reported & quantified
10	Processing of sold products	Downstream	Screened — not material
11	Use of sold products	Downstream	Screened — not material
12	End-of-life treatment of sold products	Downstream	Reported & quantified
13	Downstream leased assets	Downstream	Screened — not material
14	Franchises	Downstream	Screened — not material

#	CATEGORY	STREAM	STATUS
15	Investments	Downstream	Screened — not material

REPORTED SCOPE 3 EMISSIONS — ACTIVITY × FACTOR (FULL TRACEABILITY)

CAT	ACTIVITY / SOURCE	QUANTITY	FACTOR	FACTOR SOURCE	KGCO ₂ E	DATA
1	Raw Materials — Cotton & Natural Fibers	60,000 kg	1.8	Ecoinvent 3.9 / Higg MSI — raw cotton fibre, farm-gate to ginning	108,000	Secondary
1	Raw Materials — Synthetic Fibers	18,000 kg	3.1	Ecoinvent 3.9 polyester staple fibre; corroborated against independent 2025/2026 LCA re-estimates converging ~3.1 kgCO ₂ e/kg cradle-to-gate	55,800	Secondary
1	Dyes, Chemicals & Auxiliaries	9,000 kg	2.4	blended textile chemicals (GHG Protocol)	21,600	Secondary
2	Capital Goods (spend-based)	80,000 € spend	0.4	spend-based EEIO (EXIOBASE machinery & equipment), GHG Protocol Scope 3 Cat 2	32,000	Secondary
3	Fuel & Energy — T&D Losses	6,000 kWh	0.038	Pakistan grid T&D loss (NEPRA)	228	Secondary
4	Inbound Transport & Distribution	25,000 tonne-km	0.12	DEFRA 2024 all-HGV average (≈0.127 kgCO ₂ e/tonne-km) — the previous form.html default of 0.11 was a stale/unsourced figure and has been retired	3,000	Secondary
4	Inbound Air Freight	400 tonne-km	0.602	DEFRA 2024/2025 air freight, long-haul average	241	Secondary
5	Solid Waste to Landfill	2,000 kg	0.44	IPCC mixed waste landfill	880	Secondary
5	Wastewater Treatment (ETP)	7,000 m³	0.78	Ecoinvent textile wastewater treatment	5,460	Secondary
6	Business Travel (Air & Road)	50 km	0.115	DEFRA combined air+road	6	Secondary
7	Employee Commuting	250,000 km	0.089	DEFRA commuting average	22,250	Secondary
9	Outbound Export Transport (Sea)	25,000 tonne-km	0.016	DEFRA 2024/2025 container-ship average	400	Secondary
12	End-of-Life Treatment of Sold Products	45,000 kg	0.18	EU average textile end-of-life (JRC)	8,100	Secondary
1	Packaging Materials	5,000 kg	0.28	Ecoinvent average packaging	1,400	Secondary
8	Worker Housing / Leased Assets	1,200 kWh	0.442	Pakistan grid average (NEPRA 2024)	530	Secondary
8	Upstream Leased Assets (warehouse / off-site)	800 m²	40	floor-area energy proxy for leased commercial/warehouse space (GHG Protocol Cat 8)	32,000	Secondary
Scope 3 Total					291,895	

Every line ties out. Emissions = quantity × factor for each category; the factor and its published source are shown on each line above, so the factor displayed is exactly the factor used in the calculation.

08 · TOTAL INVENTORY & EMISSIONS INTENSITY

Headline results

Operational and total figures are reported separately and never conflated. Intensity is normalised to production output.





Scope 1 · 18.7% Scope 2 · 9.4% Scope 3 · 71.9%

Scope 1 — Direct combustion	75,900 kg	75.9 t
Scope 2 — Purchased electricity	38,000 kg	38.0 t
Scope 3 — Value chain	291,895 kg	291.9 t
Operational (S1+S2)	113,900 kg	113.9 t
Total GHG inventory	405,795 kg	405.8 t

OPERATIONAL CARBON INTENSITY (OCI)

2.28

kgCO₂e/kg — (S1+S2) ÷ 50,000 kg

PRODUCT CARBON FOOTPRINT (CRADLE-TO-GATE)

6.01

kgCO₂e/kg — facility-level estimate: (S1 + S2 + upstream Cat 1 materials) ÷ production. This is a facility average, not a product-specific ISO 14067 PCF.

CHANGE VS 2023

–8.9%

absolute change in total emissions

Operational vs total. Operational emissions (Scope 1 + 2) are what the facility directly controls and what energy actions improve. The total GHG inventory adds value-chain (Scope 3) emissions, which here represent the majority of the footprint and are addressed through material choice and supplier engagement. The two figures are never combined into a single “grand total intensity”.

09 · PERFORMANCE & BENCHMARKING

How this facility compares

Operational Carbon Intensity is the metric EU/UK buyers most often use to compare suppliers. Benchmarks are drawn from Textile Exchange 2024, Higg FEM v3 and the SBTi apparel pathway.

THIS FACILITY — OCI

2.28 kgCO₂e/kg



Benchmarked against **Mixed / vertically integrated (wet + dry)** peers. Wet processing (dyeing, finishing, washing) is far more energy- and water-intensive than dry processing, so this facility is compared within its own process category rather than a blended textile average.

Carbon Performance Score — 57/100 · Developing

This rates how clean the operation actually is. It is a different measure from the **Buyer Readiness** score (how complete and verifiable the report is) — the two are summarised side by side below and should not be conflated.

Carbon Intensity Performance — OCI 2.28 kgCO ₂ e/unit vs tiered textile benchmarks	12/35
Data Quality & Verification — Verification Level 3 · 5/5 evidence categories	21/25
Decarbonisation Action — Renewables 33.3% of electricity	11/20
Reporting Maturity — S3 reported · production-unit normalised · YoY –8.9% vs 2023	13/20

CARBON PERFORMANCE SCORE

57/100

Developing. How clean the operation is — emissions intensity, data quality, decarbonisation action, reporting maturity. Does **not** measure evidence completeness.

BUYER READINESS SCORE

93/100

Buyer-Ready. How ready this report is for EU procurement — verification level, evidence and completeness. A clean factory can still need more evidence to be buyer-ready.

What this means for buyers. A lower OCI and a higher data-quality score reduce a supplier's exposure to future carbon-cost mechanisms and to internal shadow carbon prices some EU brands already apply when scoring suppliers. Moving OCI toward the 1.5 “Good performer” band strengthens this facility's commercial position.

10 · WATER, CHEMICALS & WASTE

Textile environmental indicators

Beyond greenhouse gases, EU buyers and ESG questionnaires assess water, chemical and waste performance — particularly for wet processes (dyeing, washing, finishing).

WATER CONSUMPTION

8,000

m³ for the period

WATER INTENSITY

160

L / kg (= 0.160 m³/kg)

EFFLUENT TREATMENT

Yes

on-site ETP status

INDICATOR	VALUE	NOTES
Process water	8,000 m³	Total intake for the period
Chemical consumption	2,000 kg	Dyes, auxiliaries & process chemicals
Sludge / solid waste	7,000 kg	ETP sludge & process waste
Effluent treatment plant	Yes	Compliance-relevant for ZDHC / buyer programs

Linkage to carbon. Low-liquor-ratio dyeing and heat/water recovery reduce both water use and the thermal energy behind Scope 1 — so water efficiency and carbon reduction reinforce each other.

11 · REGULATORY LANDSCAPE & CARBON-COST SENSITIVITY

What applies today, and what to prepare for

A clear-eyed view of the EU carbon rules that affect textile suppliers — and a forward-looking sensitivity, not a current liability.

CSRD — the real pressure today

The EU Corporate Sustainability Reporting Directive requires large EU brands to report value-chain (Scope 3) emissions. Their obligation becomes **your data request**: buyers increasingly ask suppliers for facility-level emissions to populate their disclosures. A buyer-ready inventory like this is the deliverable that answers it.

CBAM — not a textile obligation

CBAM Phase 1 (2023–2025, reporting only) covers cement, iron & steel, aluminium, fertilisers, electricity and hydrogen. **Textiles are not included**, and there is no confirmed legislation extending CBAM to textile goods. The figures opposite are therefore **forward-looking sensitivities**, useful for planning and buyer shadow-pricing — not a current charge.

Not a current liability. Textiles are not currently included in CBAM Phase 1 (cement, iron & steel, aluminium, fertilisers, electricity, hydrogen). These are forward-looking sensitivity estimates, not a current regulatory liability.

FORWARD-LOOKING CARBON-COST SCENARIOS (ILLUSTRATIVE)

SCENARIO	PRICE	ANNUAL COST
EU ETS reference (today)	€65/t	€7,404
IEA 2030 pathway	€100/t	€11,390
High-ambition	€150/t	€17,085
Applied to operational emissions (113.9 tCO ₂ e). Illustrative only.		

EU ETS REFERENCE PRICE

€65

per tCO₂e (illustrative)

HYPOTHETICAL CBAM-STYLE COST

€7,404

/yr — forward-looking only

SENSITIVITY LEVEL

Medium

scenario rating, 2026–28 review

Prioritised reduction actions

Actions are modelled from reported energy and production data and ranked by abatement potential. Cost and payback are planning estimates for prioritisation, not quotations.

#	ACTION	CATEGORY	ABATEMENT	% OF TOTAL	PAYBACK	PRIORITY
1	Rooftop Solar PV 30% electricity coverage via on-site solar; LCOE €0.04–0.06/kWh for South Asia installations.	Energy	17.1 t	15.0%	4.5 yrs	High
2	Renewable Energy Tariff / PPA Market-based Scope 2 — green tariff or PPA covering ~40% of remaining grid electricity.	Energy Sourcing	15.2 t	13.3%	—	Medium
3	Steam & Boiler Optimisation Steam trap survey, insulation, condensate recovery, and burner tune-up.	Fuel Efficiency	15.2 t	13.3%	3 yrs	Medium
4	LED Lighting + Motor VFDs LED retrofit + VFDs on compressors and pumps. Fastest payback in the portfolio.	Efficiency	9.7 t	8.5%	2.2 yrs	High
5	Low-Liquor Ratio Dyeing LLR reduces water consumption 30–50% and cuts thermal energy by 20%. ZDHC aligned.	Process	7.6 t	6.7%	5.5 yrs	Medium
Total modelled abatement			64.8 t	57%		

Trajectory. The actions above deliver an estimated **64.8 tCO₂e/yr** (57% of operational emissions). An SBTi 1.5°C-aligned near-term target implies a 42% absolute reduction by 2030 (to ≈72.5 tCO₂e) — this roadmap is the first step toward that pathway.

First 90 days. Lock the baseline and assign owners (energy, production, evidence); run a boiler/steam audit and a lighting+motor (LED/VFD) survey; and open supplier requests for the largest Scope 3 inputs. Re-run the report quarterly to show buyers movement in intensity and verification level.

SBTi 1.5°C trajectory

A science-based target gives buyers confidence that reductions are aligned with the Paris Agreement. The pathway below applies the SBTi near-term ambition to the operational footprint reported in this inventory.

BASE YEAR 2023 125.0 tCO ₂ e baseline	NEAR-TERM TARGET (2030) 72.5 tCO ₂ e — 42% absolute reduction	ANNUAL REDUCTION REQUIRED 7.5 tCO ₂ e per year to stay on pathway
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MILESTONE	TARGET EMISSIONS	BASIS
Base year (2023)	125.0 tCO ₂ e	Disclosed baseline — same base year used in §04/§05
Near-term (2030)	72.5 tCO ₂ e	SBTi 1.5°C: 42% absolute reduction
Long-term (2050)	12.5 tCO ₂ e	Net-zero ambition: ~90% reduction + residual offsets

SBTi Corporate Near-Term Target (1.5°C pathway): 42% absolute reduction by 2030. This pathway is derived from the same disclosed base year and baseline emissions used in §04/§05 of this report — the base year is never restated differently between sections.

ISO 14064-1 data-quality assessment

ISO 14064-1 requires a transparent assessment of data quality and uncertainty. Ratings below reflect the data source declared for each major activity stream and the evidence-review level.

DATA-QUALITY MATRIX

ACTIVITY STREAM	DECLARED DATA SOURCE	QUALITY	UNCERTAINTY
Scope 1 — Fuel combustion	Actual bill / invoice	High	Low — matched to source evidence
Scope 2 — Electricity	Actual bill / invoice	High	Low — matched to source evidence
Production output	Meter reading	High	Low — matched to source evidence
Emission factors	Published reference (IPCC/DEFRA/IEA)	High	Standard published uncertainty
Scope 3 (if reported)	Activity-based estimates	Indicative	Secondary data; higher uncertainty

Overall data confidence. This inventory is reported at **Level 3 — Evidence-Matched (Automated)**. Uploaded documents matched against reported figures by the platform (automated OCR cross-check). Not a third-party verification.

Improving accuracy. Replacing estimates with metered/billed data and uploading the supporting evidence raises the data-quality rating and the verification level — both of which strengthen buyer acceptance.

Uncertainty note. Scope 1 and Scope 2 emissions calculated from billed/metered activity data and published factors typically carry low quantification uncertainty (single-digit %). Scope 3 and any estimated streams carry higher uncertainty and are labelled accordingly. No quantitative Monte-Carlo uncertainty has been performed for this inventory.

15 · VERIFICATION & ASSURANCE STATUS

What has been checked

CarbonReport Pro applies a four-level data-confidence ladder. This is an evidence-review status — it is not, by itself, independent third-party assurance.

THIS REPORT — LEVEL 3

L3 · Evidence-Matched (Automated)

Uploaded documents matched against reported figures by the platform (automated OCR cross-check). Not a third-party verification.

L1 Self-reported

L2 Evidence submitted

L3 Evidence-matched

L4 Human Evidence Check

Third-party assured (ISO 14064-3)

On engagement

LEVEL	WHAT IT MEANS
L1 · Self-Reported	Activity data entered by the facility; no documents reviewed.
L2 · Evidence Submitted	Supporting documents uploaded and referenced.
L3 · Evidence-Matched (Automated)	Documents matched to figures (automated OCR cross-check).
L4 · Human Evidence Check	Manually reviewed by a CarbonReport Pro team member with documented sign-off — an internal check, not an independent audit.
Third-party assured	Independent ISO 14064-3 assurance — engaged separately on request.

Disclaimer & assurance status

Verification & assurance. This report is prepared as an ISO 14064-1:2018 / GHG Protocol Corporate Standard-aligned greenhouse gas inventory. CarbonReport Pro internal verification levels indicate data confidence and evidence-review status. They do not replace independent third-party assurance under ISO 14064-3 unless an accredited verifier is engaged.

Carbon-cost figures. Textiles are not currently included in CBAM Phase 1 (cement, iron & steel, aluminium, fertilisers, electricity, hydrogen). These are forward-looking sensitivity estimates, not a current regulatory liability.

16 · BUYER DISCLOSURE SUMMARY

One-page supplier sheet

A self-contained summary your EU/UK buyer can drop into their CSRD Scope 3 supplier inventory.

METRO FACTOR TEXTILE — CARBON DISCLOSURE (2025-01-01-2025-12-31)			
Facility / site	Karachi Main Facility	Operational (S1+S2)	113.9 tCO ₂ e
Location	Karachi, Pakistan	Total GHG inventory	405.8 tCO ₂ e
Boundary	Single facility	OCI	2.28 kgCO ₂ e/kg
Control approach	Operational control	Data confidence	L3 · Evidence-Matched (Automated)
Scope 1	75.9 tCO ₂ e	Certifications	OEKO-TEX, GOTS, Higg FEM, ISO 14001 (self-declared)
Scope 2 (location-based)	38.0 tCO ₂ e	Methodology	ISO 14064-1 / GHG Protocol
Scope 3 (reported)	291.9 tCO ₂ e	Verify	carbonreportpro.com/verify · CRP-2026-B44AE3

Top 3 improvement actions

1. Rooftop Solar PV	17.1 tCO ₂ e/yr	4.5 yrs
2. Renewable Energy Tariff / PPA	15.2 tCO ₂ e/yr	—
3. Steam & Boiler Optimisation	15.2 tCO ₂ e/yr	3 yrs

Disclaimer. This report is prepared as an ISO 14064-1:2018 / GHG Protocol Corporate Standard-aligned greenhouse gas inventory. CarbonReport Pro internal verification levels indicate data confidence and evidence-review status. They do not replace independent third-party assurance under ISO 14064-3 unless an accredited verifier is engaged. Textiles are not currently included in CBAM Phase 1 (cement, iron & steel, aluminium, fertilisers, electricity, hydrogen). These are forward-looking sensitivity estimates, not a current regulatory liability.

17 · ENERGY PROFILE & EFFICIENCY

Where the energy goes

Energy use is the dominant driver of operational emissions. This section profiles purchased and combusted energy and the resulting energy intensity.

ENERGY CONSUMPTION BY SOURCE

SOURCE	QUANTITY	EMISSIONS (KGCO ₂ E)	SCOPE
Grid electricity purchased	80,000 kWh	38,000	Scope 2
On-site solar (self-consumed)	40,000 kWh	0	Zero-emission · avoids ≈19,000
Diesel	5,000 L	13,400	Scope 1
Natural gas	25,000 m ³	47,500	Scope 1
LPG	5,000 kg	15,000	Scope 1

RENEWABLE ELECTRICITY SHARE

33.3%

of total electricity

ELECTRICITY INTENSITY

2.40

kWh / kg

SCOPE SPLIT (S1 : S2)

67 : 33

% of operational emissions

Efficiency priorities. The largest energy levers are renewable electricity (solar PV + green tariff/PPA) on Scope 2 and steam/boiler efficiency on Scope 1. Both are quantified in the Decarbonisation Roadmap (§12), and together they move Operational Carbon Intensity toward the “Good performer” band.

Transparency on scope and boundaries

ISO 14064-1 requires a clear statement of what is and is not included, the assumptions made, and the policy for recalculating the inventory.

Inclusions

All Scope 1 fuel combustion and Scope 2 purchased electricity within the **Single facility** boundary are included for the reporting period. Reported Scope 3 categories are included as listed in §07.

Exclusions & de minimis

ITEM	TREATMENT
Refrigerants / fugitive emissions	Excluded — not reported this cycle; typically <1% of total for textile sites.
Unreported Scope 3 categories	Screened in §07; estimated in future cycles as supplier data becomes available.
Biogenic CO ₂	Reported separately from fossil CO ₂ e where biomass is used (none reported this cycle).

Key assumptions

Emission factors	Published reference values applied where site-specific factors were not provided.
Scope 2 method	Location-based national grid factor; market-based reported additionally on contract provision.
Production normalisation	Intensity uses the production output declared for the period (50,000 kg).

Recalculation policy

The base year and prior periods are recalculated where there is a structural change (acquisition or divestment), a change in methodology or emission factors, or correction of a material error (greater than 5% of total emissions).

Supporting documentation

A buyer-ready inventory is backed by source documents. The register below lists the expected evidence categories and their status for this report (data confidence Level 3).

EVIDENCE REGISTER

CATEGORY	SUPPORTS	STATUS
Electricity bills	Scope 2 activity data	On file
Fuel invoices (diesel)	Scope 1 diesel	On file
Natural gas bills	Scope 1 gas	On file
Production records	Intensity normalisation	On file
Water / ETP records	Environmental indicators	Provided

Provenance. Activity data originates from the facility's utility bills, fuel invoices, meter readings and production records. At Level 3, uploaded documents were OCR-matched against the reported figures.

Retention. Source documents are retained and available to an accredited verifier on engagement, supporting a future ISO 14064-3 assurance.

From self-reported to independently assured

A clear path to strengthen credibility over successive reporting cycles — the journey EU buyers want to see.

PATH TO HIGHER ASSURANCE

STAGE	WHAT IT REQUIRES	BUYER VALUE
L1 → L2	Upload utility bills, fuel invoices and production records.	Evidence visible to buyers
L2 → L3	OCR match of documents to reported figures (±10% tolerance).	Data integrity confirmed
L3 → L4	Analyst review with a documented sign-off.	Expert-checked inventory
L4 → Assured	Independent ISO 14064-3 verification by an accredited body.	Statutory-grade assurance

CURRENT LEVEL L3 Evidence-Matched (Automated)	NEXT MILESTONE L4 within one reporting cycle	RECOMMENDED CADENCE Quarterly re-run to show buyers progress
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Why it matters. Each step up the ladder increases buyer confidence and reduces the discount applied to self-reported data. Reaching L4 / independent assurance positions this facility for tier-1 EU brand sustainability programmes.

APP. A · EMISSION-FACTOR REGISTER

Factors applied in this report

This register shows the exact factor applied on each Scope 3 line above — never a disconnected default. Where a facility-specific factor was supplied, it is shown here with its boundary and source; otherwise the value shown is this engine's single-source-of-truth default for the declared material/transport boundary.

FUEL COMBUSTION (IPCC AR6 / DEFRA 2024)

FUEL	FACTOR	UNIT
Diesel	2.68	kgCO ₂ e/litre
Natural gas	1.90	kgCO ₂ e/m ³
LPG	3.00	kgCO ₂ e/kg
Heavy fuel oil	3.18	kgCO ₂ e/litre
Coal	2.42	kgCO ₂ e/kg

GRID ELECTRICITY (IEA / NATIONAL)

COUNTRY	KGCO ₂ E/KWH
Pakistan (PK)	0.475
Bangladesh (BD)	0.639
India (IN)	0.708
Türkiye (TR)	0.389
Vietnam (VN)	0.520
EU-27	0.233

FREIGHT & MATERIALS — FACTOR AS APPLIED (BOUNDARY + SOURCE)

ITEM	FACTOR	BOUNDARY	SOURCE
Sea freight (as applied)	0.01600 /t-km	Sea — container ship, average (the near-universal mode for containerised textile/garment export)	DEFRA 2024/2025 container-ship average
Road freight (as applied)	0.120 /t-km	Road — articulated HGV, average	DEFRA 2024 all-HGV average (≈0.127 kgCO ₂ e/tonne-km) — the previous form.html default of 0.11 was a stale/unsourced figure and has been retired
Air freight (as applied)	0.60 /t-km	Air — long-haul average (matches South Asia/MENA → EU intercontinental routes, this product's actual customer base)	DEFRA 2024/2025 air freight, long-haul average

ITEM	FACTOR	BOUNDARY	SOURCE
Cotton fibre (as applied)	1.80 /kg	Raw fibre / greige — ginning only, wet-processing (dyeing/finishing) NOT included — Raw-fibre boundary inferred from in-house wet-processing (dyeing/washing/finishing already captured in this facility's Scope 1+2); confirm purchase form.	Ecoinvent 3.9 / Higg MSI — raw cotton fibre, farm-gate to ginning
Polyester / synthetic fibre (as applied)	3.10 /kg	Raw fibre / staple — melt-spinning only, wet-processing NOT included — Raw-fibre boundary inferred from in-house wet-processing (dyeing/washing/finishing already captured in this facility's Scope 1+2); confirm purchase form.	Ecoinvent 3.9 polyester staple fibre; corroborated against independent 2025/2026 LCA re-estimates converging ~3.1 kgCO ₂ e/kg cradle-to-gate
Recycled PET	3.80 /kg	Processed / finished, cradle-to-gate	Ecoinvent 3.9

Benchmark reference (OCI bands): World-class ≤ 0.9 · Good ≤ 1.5 · Global average 2.1 · Regional 2.8 kgCO₂e/kg. **Carbon price reference:** €65/tCO₂e (EU ETS).

APP. B · GLOSSARY & REFERENCES

Terms and standards

KEY TERMS

Scope 1	Direct emissions from owned/controlled sources (fuel combustion).
Scope 2	Indirect emissions from purchased electricity.
Scope 3	All other value-chain emissions (materials, freight, waste).
OCI	Operational Carbon Intensity = (S1+S2) ÷ production output.
PCF	Product Carbon Footprint, cradle-to-gate (incl. upstream materials).
tCO ₂ e	Tonnes of carbon-dioxide equivalent (1,000 kgCO ₂ e).
GWP	Global Warming Potential (IPCC AR6, 100-year basis).
CBAM	EU Carbon Border Adjustment Mechanism (textiles not in Phase 1).
CSRD	EU Corporate Sustainability Reporting Directive (drives buyer data requests).

STANDARDS & DATA SOURCES

ISO 14064-1:2018	Organisation-level GHG inventories
GHG Protocol	Corporate Accounting & Reporting Standard
GHG Protocol Scope 3	Value-chain (15-category) standard
IPCC AR6	Combustion factors & GWP values
DEFRA 2024	UK conversion factors (fuel, freight)
IEA 2024	National grid electricity factors
Ecoinvent 3.9	Upstream material factors
SBTi	Science-Based Targets initiative (1.5°C)
Textile Exchange / Higg FEM	Industry intensity benchmarks

End of report. This report is prepared as an ISO 14064-1:2018 / GHG Protocol Corporate Standard-aligned greenhouse gas inventory. CarbonReport Pro internal verification levels indicate data confidence and evidence-review status. They do not replace independent third-party assurance under ISO 14064-3 unless an accredited verifier is engaged. Prepared by CarbonReport Pro for Metro Factor Textile, 2026-07-04. Verify authenticity at carbonreportpro.com/verify using report ID CRP-2026-B44AE3.

How every figure was derived

For full transparency, the core calculations are shown step by step. The rule is always: emissions = activity data × emission factor.

SCOPE 1 — DIRECT COMBUSTION

CALCULATION	RESULT (KGCO ₂ E)
Diesel: 5,000 L × 2.68 kgCO ₂ e/L	13,400
Natural gas: 25,000 m ³ × 1.90 kgCO ₂ e/m ³	47,500
LPG: 5,000 kg × 3.00 kgCO ₂ e/kg	15,000
Scope 1 total	75,900

SCOPE 2 — PURCHASED ELECTRICITY

CALCULATION	RESULT (KGCO ₂ E)
Grid purchased: 80,000 kWh × 0.475 kgCO ₂ e/kWh	38,000
On-site solar: 40,000 kWh × 0 (own generation, not purchased)	0
Scope 2 (location-based)	38,000

SCOPE 3 — VALUE CHAIN (EACH LINE = QUANTITY × FACTOR)

CALCULATION	RESULT (KGCO ₂ E)
Cat 1 Raw Materials — Cotton & Natural Fibers: 60,000 kg × 1.8 (Ecoinvent 3.9 / Higg MSI — raw cotton fibre, farm-gate to ginning)	108,000
Cat 1 Raw Materials — Synthetic Fibers: 18,000 kg × 3.1 (Ecoinvent 3.9 polyester staple fibre; corroborated against independent 2025/2026 LCA re-estimates converging ~3.1 kgCO ₂ e/kg cradle-to-gate)	55,800
Cat 1 Dyes, Chemicals & Auxiliaries: 9,000 kg × 2.4 (blended textile chemicals (GHG Protocol))	21,600
Cat 2 Capital Goods (spend-based): 80,000 € spend × 0.4 (spend-based EEIO (EXIOBASE machinery & equipment), GHG Protocol Scope 3 Cat 2)	32,000
Cat 3 Fuel & Energy — T&D Losses: 6,000 kWh × 0.038 (Pakistan grid T&D loss (NEPRA))	228
Cat 4 Inbound Transport & Distribution: 25,000 tonne-km × 0.12 (DEFRA 2024 all-HGV average (≈0.127 kgCO ₂ e/tonne-km) — the previous form.html default of 0.11 was a stale/unsourced figure and has been retired)	3,000
Cat 4 Inbound Air Freight: 400 tonne-km × 0.602 (DEFRA 2024/2025 air freight, long-haul average)	241
Cat 5 Solid Waste to Landfill: 2,000 kg × 0.44 (IPCC mixed waste landfill)	880
Cat 5 Wastewater Treatment (ETP): 7,000 m ³ × 0.78 (Ecoinvent textile wastewater treatment)	5,460
Cat 6 Business Travel (Air & Road): 50 km × 0.115 (DEFRA combined air+road)	6
Cat 7 Employee Commuting: 250,000 km × 0.089 (DEFRA commuting average)	22,250
Cat 9 Outbound Export Transport (Sea): 25,000 tonne-km × 0.016 (DEFRA 2024/2025 container-ship average)	400
Cat 12 End-of-Life Treatment of Sold Products: 45,000 kg × 0.18 (EU average textile end-of-life (JRC))	8,100
Cat 1 Packaging Materials: 5,000 kg × 0.28 (Ecoinvent average packaging)	1,400
Cat 8 Worker Housing / Leased Assets: 1,200 kWh × 0.442 (Pakistan grid average (NEPRA 2024))	530
Cat 8 Upstream Leased Assets (warehouse / off-site): 800 m ² × 40 (floor-area energy proxy for leased commercial/warehouse space (GHG Protocol Cat 8))	32,000
Scope 3 total	291,895

TOTALS & INTENSITY

CALCULATION	RESULT
Operational = Scope 1 + Scope 2 = 75,900 + 38,000	113,900 kgCO ₂ e

CALCULATION	RESULT
Operational in tonnes = $113,900 \div 1,000$	113.9 tCO ₂ e
Total inventory = $S1 + S2 + S3 = 75,900 + 38,000 + 291,895$	405,795 kgCO ₂ e
OCI = Operational $\div$ production = $113,900 \div 50,000$	2.28 kgCO ₂ e/kg
CBAM-style sensitivity = $113.9 \text{ t} \times \text{€}65/\text{t}$ (hypothetical)	€7,404

Reconciliation. All figures are produced by a single integrity-checked engine that hard-fails if the scope totals, the operational/total split, the intensity or the carbon-cost line are internally inconsistent, if any Scope 3 line's applied factor does not match this report's Emission-Factor Register (Appendix A), or if the base year used for the SBTi pathway (§13) does not match the base year used in §04/§05 — so every number in this report ties out.