GHG EMISSION REPORT

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Revision History:

Rev. No.	Date	Description of Major Changes and Reference
00	06.01.2026	Original Issue

1. Executive Summary

1.1 Overview of the organization and reporting period

EMCORE ELECTROMECHANICAL CONTRACTING L.L.C. is a UAE-based electromechanical contracting company headquartered in Al Quoz Industrial Area 4, Dubai. The company provides Design, Supply, Installation, Testing, Commissioning and Maintenance of HVAC, Refrigeration and Mechanical, Electrical and Plumbing (MEP) systems. Its activities involve engineering and technical planning, procurement of equipment and materials, warehouse operations, transportation, project-site installation, system testing, commissioning and maintenance. These activities generate greenhouse gas emissions through fuel consumption, electricity use, refrigerant management, transportation, business travel, employee commuting and waste management.

Emission category	Emissions (tCO_2 e)
Scope 1 – Direct	286.399
Scope 2 – Electricity(location based)	21.456
Scope 2 – Electricity(Market based)	21.456
Scope 3 – Upstream	706.417
Scope 3 – Downstream	570.276
Total	**1,584.548**

1.2 Highlights and reduction opportunities

- Upstream transportation and distribution is the largest identified emission source.
- Downstream transportation is another significant contributor.
- Direct fuel combustion contributes 286.399 tCO_2 e.
- Purchased electricity contributes 21.456 tCO_2 e.
- Waste-related emissions are comparatively low in the current estimate.
- Freight optimization, vehicle efficiency, supplier coordination, energy-efficient HVAC equipment and refrigerant leakage management offer significant reduction opportunities.

The inventory represents a preliminary quantified footprint. The current calculation report does not establish verified year-on-year reductions or independently verified emission savings.

2. Introduction

2.1 Purpose of the report

The purpose of this GHG Emissions Inventory Report is to identify, quantify, document and evaluate greenhouse gas emissions associated with EMCORE's business activities. The assessment covers direct emissions from fuel combustion, indirect emissions from purchased electricity and other indirect emissions arising throughout the company's procurement, transportation, project execution, employee commuting and waste-management activities. The report establishes a documented emissions baseline to assist EMCORE in identifying significant emission sources and developing practical carbon-reduction measures.

2.2 Intended users

This report is intended for:

- EMCORE management and department heads.
- ESG, QHSE and environmental management personnel.
- Project management and engineering teams.
- Procurement, logistics and warehouse departments.
- Customers and business partners.
- Suppliers and subcontractors.
- Auditors, certification bodies and other relevant stakeholders.

2.3 Reporting objectives

The objectives are:

- Establish an organizational GHG emissions inventory.
- Identify significant direct and indirect emission sources.
- Calculate emissions using documented activity data and emission factors.
- Establish 2025 as the proposed baseline year, subject to period reconciliation.
- Identify carbon-reduction opportunities in engineering, procurement, logistics and site operations.
- Improve transparency in environmental reporting.
- Provide information for customer ESG questionnaires and sustainability assessments.
- Establish a consistent process for annual GHG monitoring.

3. Organization Description

3.1 Company profile

EMCORE's website describes its engineering and contracting activities across residential, commercial, industrial, hospitality and infrastructure projects. Its services include HVAC, electrical, plumbing, refrigeration, BMS integration, metal fabrication, insulation, cladding and civil refurbishment works.

3.2 Organizational structure

Based on the publicly available company team information, the following leadership positions are identified:

Position	Responsibility relevant to GHG management
Chief Executive Officer	Overall approval and strategic direction
General Manager	Operational coordination and resource allocation
Director of Operations	Operational performance and implementation
Head of Projects	Project-site activity and resource monitoring
Engineering Manager	Technical efficiency and equipment selection
QA/QC Manager	Quality control and documentation
Business Development Manager	Customer sustainability requirements
ESG/QHSE responsible personnel	GHG data collection, monitoring and reporting

The listed positions are based on the company's published team information. The detailed internal organization chart was not included among the uploaded documents; therefore, reporting relationships and additional designations should be confirmed against EMCORE's approved organization chart.

3.3 Operations, facilities and boundaries

The organizational activities considered in this inventory include:

- Engineering design and technical calculations.
- HVAC and refrigeration equipment procurement.
- Mechanical and electrical material handling.
- Warehouse and storage activities.
- Ducting and metal fabrication.
- Insulation and cladding activities.
- Electrical panel and cable installation.
- Plumbing and piping installation.
- Project-site transportation and installation.
- Equipment testing and commissioning.
- Preventive and corrective maintenance.
- Office administration and employee commuting.

The principal operating address identified in the inventory is Al Quoz Industrial Area 4, Dubai. Project sites and customer premises are relevant to the company's value-chain emissions, but their inclusion as organizationally controlled facilities has not been established.

4. Reporting Boundary

4.1 Organizational boundary

EMCORE shall apply the operational control approach for organizational GHG accounting. Under this approach, the company accounts for emissions from operations over which it has authority to introduce and implement operating policies.

The reporting boundary includes:

- Company-controlled business operations.
- Company-controlled vehicles and equipment.
- Electricity consumed at controlled facilities.
- Relevant controlled warehouse and fabrication activities.
- Other activities falling under EMCORE's operational control.

The inclusion of leased facilities, jointly controlled operations and project-site equipment must be confirmed through asset ownership and operational-control records.

4.2 Operational boundary

The operational boundary is divided into three GHG Protocol scopes.

Scope	Description	EMCORE activities
Scope 1	Direct emissions	Diesel and petrol combustion in company vehicles and controlled equipment; refrigerant leakage where applicable
Scope 2	Purchased energy emissions	Purchased electricity consumed at company-controlled facilities
Scope 3	Other indirect emissions	Capital goods, upstream transportation, operational waste, business travel, employee commuting and downstream transportation

4.3 Entities and locations covered

Location/activity	Treatment
EMCORE principal facility, Dubai	Included subject to operational control
Office operations	Included where activity data is available
Warehouse activities	Included where activity data is available
Fabrication operations	Included where controlled and relevant data is available
Project sites	Relevant controlled fuel/electricity sources to be identified
Customer premises	Not automatically included as organizational facilities
Supplier transportation	Scope 3 upstream
Customer delivery transportation	Scope 3 downstream

5. Reporting Period

EMCORE shall prepare its GHG inventory annually.

Monthly or quarterly activity data should be collected for fuel, electricity, refrigerants, transportation, waste and business travel. Annual consolidation shall be completed by the designated ESG/QHSE personnel. The company should maintain the same reporting period in future inventories to support meaningful year-on-year comparison.

6. GHG Accounting Methodology

6.1 Standards followed

The inventory is structured with reference to:

- ISO 14064-1:2018 – Greenhouse gases: Specification with guidance at the organization level for quantification and reporting of greenhouse gas emissions and removals.
- GHG Protocol Corporate Accounting and Reporting Standard.
- GHG Protocol Corporate Value Chain (Scope 3) Accounting and Reporting Standard.
- 2025 UK Government Greenhouse Gas Conversion Factors.
- Dubai Electricity and Water Authority (DEWA) published electricity carbon intensity.

6.2 Calculation approach

The inventory uses the activity-data approach.

Examples:

- Diesel consumption × diesel emission factor.
- Petrol consumption × petrol emission factor.
- Electricity consumption × grid emission factor.
- Freight distance × freight emission factor.
- Waste quantity × waste-treatment emission factor.

6.3 Tools and software

The current inventory is based on spreadsheet-style activity data and calculation tables documented in the uploaded calculation report. No dedicated carbon accounting software was identified in the supplied records. EMCORE should maintain a controlled GHG calculation workbook with formula protection, version control, activity-data references, emission factor references and approval records.

7. Emission Sources Identification

7.1 Direct and indirect sources

Emission source	Potential activity	Scope
Diesel combustion	Company vehicles and diesel equipment	Scope 1
Petrol combustion	Company vehicles	Scope 1
Diesel generator sets	Backup electricity generation	Scope 1
Refrigerant leakage	HVAC and refrigeration maintenance	Scope 1
Purchased electricity	Office, warehouse and controlled facilities	Scope 2
Capital goods	Machinery and equipment purchases	Scope 3
Supplier transportation	Delivery of materials to EMCORE	Scope 3
Waste management	General, paper, plastic and electronic waste	Scope 3
Business travel	International flights	Scope 3
Employee commuting	Private vehicles and public transport	Scope 3
Customer delivery	Transportation of finished components and materials	Scope 3

7.2 Mapping of emission sources

Facility/activity	Identified source	Relevant scope
Office	Electricity, employee commuting	2 and 3
Warehouse	Electricity, equipment fuel, waste	1, 2 and 3
Fabrication	Electricity, fuel, material procurement	1, 2 and 3
HVAC maintenance	Refrigerant leakage, service vehicles	1
Project execution	Transportation, fuel and purchased materials	1 and 3
Procurement	Capital goods and purchased materials	3
Logistics	Inbound and outbound freight	3
Administration	Business travel and commuting	3

7.3 Source identification limitations

The current calculation report does not quantify every potential emission source. In particular, the following require further investigation:

- DG-set fuel consumption.
- Refrigerant top-ups and leakage by refrigerant type.
- Purchased materials and their embodied emissions.
- Packaging material consumption.
- Water supply and wastewater treatment.
- Subcontractor and outsourced project activities.
- Upstream fuel and energy-related emissions not otherwise included.
- Use-phase and end-of-life emissions from installed equipment, where relevant.

8. GHG Scope Classification

8.1 Scope 1 – Direct Emissions

Scope 1 includes emissions arising directly from sources owned or controlled by EMCORE.

8.1.1 Stationary combustion

Stationary combustion sources may include diesel generators and other fixed fuel-consuming equipment. The current calculation report does not separately quantify DG-set fuel or stationary combustion emissions.

8.1.2 Mobile combustion

Mobile combustion includes fuel consumption from vehicles owned or controlled by EMCORE. The inventory contains the following activity data:

Fuel	Activity data	Emission factor ($kgCO_2$ e/L)	Emissions (tCO_2 e)
Diesel	25,146.58 L	2.57082	64.647
Petrol	107,169.70 L	2.06916	221.751
Total	132,316.28 L	4.63998	**286.399**

8.1.3 Fugitive emissions

Potential fugitive emissions arise from leakage or servicing losses of refrigerants used in HVAC and refrigeration systems. EMCORE's operations involve refrigeration and HVAC systems, making refrigerant management a relevant GHG accounting area. However, the supplied inventory does not provide refrigerant type, quantity purchased, quantity topped up, recovered quantity or leakage records. Therefore, refrigerant emissions have not been quantified in the reported Scope 1 total.

Recommended records:

- Refrigerant type and GWP.
- Equipment identification and refrigerant capacity.
- Opening refrigerant stock.
- Refrigerant purchases.
- Refrigerant top-ups.
- Refrigerant recovery.
- Closing refrigerant stock.

8.1.4 Process emissions

No separate industrial process-emission source has been identified in the supplied calculation report. Process emissions are therefore not quantified.

8.1.5 Scope 1 gas-wise contribution

Greenhouse gas	Emissions
CO_2	To be confirmed
CH_4	To be confirmed
N_2 O	To be confirmed
HFCs	To be confirmed
PFCs	To be confirmed
SF_6	To be confirmed
NF_3	To be confirmed
Total	**286.399**

The available fuel results are expressed in aggregate CO_2 e. A gas-by-gas breakdown is not available in the calculation report. Scope 1 reported total: 286.399 tCO_2 e.

8.2 Scope 2 – Indirect Energy Emissions

Scope 2 covers indirect GHG emissions associated with the generation of purchased electricity consumed by EMCORE.

8.2.1 Purchased electricity

The inventory reports purchased electricity consumption of 55,975.80 kWh.

Parameter	Details
Purchased electricity	55,975.80 kWh
Emission factor	0.3833 kgCO_2 e/kWh
Calculation	55,975.80 × 0.3833 ÷ 1,000
Scope 2 emissions	**21.456 tCO_2 e**

8.2.2 Purchased steam, heat and cooling

No purchased steam, district heating or separately purchased cooling activity data has been identified in the submitted inventory. These sources are currently treated as not quantified, rather than assumed to have zero emissions.

8.2.3 Solar generation

The data collection checklist includes solar generation as a reporting parameter, but no solar generation quantity has been supplied. Consequently, no solar-related adjustment has been made to the reported electricity emissions.

8.2.4 Scope 2 gas-wise contribution

The supplied electricity emission factor provides an aggregate CO_2 e result. Separate CO_2 , CH_4 and N_2 O contributions have not been provided.

Total Scope 2: 21.456 tCO_2 e.

8.3 Scope 3 – Other Indirect Emissions

Scope 3 includes indirect emissions arising from EMCORE's value chain, including procurement, transportation, waste disposal, employee travel and delivery operations. The present inventory quantifies six GHG Protocol categories.

8.3.1 Category 2 – Capital Goods

Capital goods include equipment, machinery and other long-term assets purchased for EMCORE's business activities.

Parameter	Details
Capital goods expenditure	AED 129,081.44
Currency conversion	1 AED = 0.214 GBP
Converted expenditure	GBP 27,623.43
Emission factor	0.414 $kgCO_2$ e/GBP
Emissions	**11.436 tCO_2 e**

A spend-based machinery/equipment proxy has been applied because detailed asset-level carbon data was unavailable.

8.3.2 Category 4 – Upstream Transportation and Distribution

This category covers transportation of purchased materials and equipment from suppliers to EMCORE or its operating locations.

Parameter	Details
Transportation distance	608,400 km
Tank-to-wheel factor	0.89121 $kgCO_2$ e/km
Well-to-tank factor	0.21154 $kgCO_2$ e/km
Combined factor	1.10275 $kgCO_2$ e/km
Emissions	**670.913 tCO_2 e**

The calculation uses an average-laden diesel heavy goods vehicle factor because vehicle classification, payload and tonne-kilometre information were not supplied.

8.3.3 Category 5 – Waste Generated in Operations

The current inventory identifies the following waste streams:

Waste type	Quantity	Treatment assumption	Emissions (tCO_2 e)
General waste	1,440 kg	Recycling/recovery	0.00675
Paper and cartons	95 kg	Recycling	0.00045
Plastic	40 kg	Recycling	0.00019
Garden waste	8 tonnes	Composting	0.07186
Electronic waste	1 kg	Recycling/recovery	0.000005
Batteries	0.5 kg	Recycling/recovery	0.000002
Total			**0.07925**

The supplied calculation report assumes that all reported waste is recycled or recovered, with garden waste composted. These treatment routes should be verified using waste collection and recycling certificates.

8.3.4 Category 6 – Business Travel

International air travel undertaken for company business is included.

Parameter	Details
International flight distance	23,040 passenger-km
Assumed flight class	Economy
Emission factor	0.11704 kgCO_2 e/passenger-km
Emissions	**2.697 tCO_2 e**

The economy-class long-haul factor, including radiative forcing, is used as an estimate because actual cabin-class and route details were not supplied.

8.3.5 Category 7 – Employee Commuting

Employee commuting emissions are estimated from private vehicle and public transport activity.

Transport mode	Activity data	Emission factor	Emissions (tCO_2 e)
Employee commuting – car	94,320 km	0.16272 $kgCO_2$ e/km	15.348
Public bus/other public transport	57,240 passenger-km	0.10385 $kgCO_2$ e/passenger-km	5.944
Total			**21.292**

The inventory uses an average car factor and a local bus factor. Actual transport modes should be separately recorded to improve accuracy.

8.3.6 Category 9 – Downstream Transportation and Distribution

This category covers transportation of finished components, equipment and materials from EMCORE to customers or project locations where transportation is not controlled by EMCORE.

Parameter	Details
Downstream transportation distance	517,140 km
Emission factor	1.10275 $kgCO_2$ e/km
Calculation	517,140 × 1.10275 ÷ 1,000
Emissions	**570.276 tCO_2 e**

The current calculation report uses a downstream distance estimated as 15% lower than the upstream distance. This is an assumed value and should be replaced by actual delivery records.

8.3.7 Other relevant Scope 3 categories

The following categories are not quantified in the current inventory and require applicability assessment:

Category	Emission source	Current status
Category 1	Purchased goods and services	Not quantified
Category 3	Fuel- and energy-related activities not included in Scope 1 or 2	Not quantified
Category 8	Upstream leased assets	Applicability to be assessed
Category 10	Processing of sold products	Applicability to be assessed
Category 11	Use of sold products	Potentially relevant to installed HVAC/refrigeration equipment; assess control and product/service boundary
Category 12	End-of-life treatment of sold products	Applicability to be assessed
Category 13	Downstream leased assets	Applicability to be assessed
Category 14	Franchises	Applicability to be assessed
Category 15	Investments	Applicability to be assessed

For EMCORE, the use-phase energy consumption of installed HVAC and refrigeration systems may be significant. A screening assessment should establish whether relevant equipment is sold or transferred to customers, who controls its use, and whether the applicable Category 11 accounting requirements are met. No product sales quantity or product lifetime energy data was supplied. Accordingly, no product-use or end-of-life emissions are included in the current total.

Total Scope 3 upstream emissions: 706.417 tCO_2 e.

Total Scope 3 downstream emissions: 570.276 tCO_2 e.

Total Scope 3 emissions included: 1,276.693 tCO_2 e.

9. GHG Data Collection and Quality

9.1 Data sources and collection methods

Activity	Data source	Collection method	Responsible department
Diesel consumption	Fuel invoices and vehicle records	Monthly consumption register	Administration/Fleet
Petrol consumption	Fuel receipts and vehicle records	Monthly consumption register	Administration/Fleet
Electricity	DEWA bills and meter readings	Monthly kWh recording	Facilities
Refrigerants	Service and maintenance reports	Refrigerant top-up register	HVAC Maintenance
Capital goods	Purchase orders and invoices	Annual expenditure extraction	Procurement/Finance
Upstream freight	Supplier and transporter records	Distance and shipment register	Logistics
Waste	Waste collection documents	Monthly waste register	QHSE/Facilities
Business travel	Travel bookings and invoices	Passenger-kilometre register	HR/Administration
Employee commuting	Employee travel survey	Annual transport survey	HR
Downstream freight	Delivery notes and transporter records	Delivery distance register	Logistics

9.2 Data quality and reliability

The current inventory uses a mixture of supplied activity information and estimated values. The following limitations have been identified:

- Freight calculations rely on distance rather than actual tonne-kilometres.
- Vehicle types and load factors are not confirmed.
- Capital goods emissions use a spend-based proxy.
- Waste-treatment routes require documentary confirmation.
- Flight class and route information are assumed.

- Downstream transportation distance is estimated.
- Refrigerant emissions are not quantified.
- Purchased material quantities and embodied emissions are not included.

9.3 Data management and controls

EMCORE should establish the following controls:

- Maintain a centralized GHG data collection register.
- Collect source documents for each reported activity.
- Verify fuel and electricity quantities against invoices.
- Maintain approved emission factor references.
- Review calculations before annual consolidation.
- Record assumptions and estimation methods.
- Maintain revision history and calculation workbook versions.
- Obtain departmental confirmation of submitted activity data.
- Obtain management approval of the final GHG inventory.
- Retain records for future verification and trend analysis.

10. Emission Factors

10.1 Sources of emission factors

The calculation report identifies the following sources:

- UK Department for Energy Security and Net Zero – 2025 GHG Conversion Factors.
- DEWA – Published 2025 Dubai grid carbon intensity.
- Supporting 2025 freight, waste-treatment and business-travel factor references.

10.2 Emission factor register

Activity	Emission factor	Unit	Reference
Diesel combustion	2.57082	$kgCO_2$ e/L	UK Government 2025
Petrol combustion	2.06916	$kgCO_2$ e/L	UK Government 2025
Purchased electricity	0.3833	$kgCO_2$ e/kWh	DEWA 2025
International flights	0.11704	$kgCO_2$ e/passenger-km	UK Government 2025 proxy

Average car	0.16272	$kgCO_2$ e/km	UK Government 2025 proxy
Local bus	0.10385	$kgCO_2$ e/passenger-km	UK Government 2025 proxy
Diesel HGV – TTW	0.89121	$kgCO_2$ e/km	UK Government 2025
Diesel HGV – WTT	0.21154	$kgCO_2$ e/km	UK Government 2025
Machinery/equipment expenditure	0.414	$kgCO_2$ e/GBP	Spend-based proxy
Recycling/recovery	4.68568	$kgCO_2$ e/tonne	2025 waste factor proxy
Garden waste composting	8.98311	$kgCO_2$ e/tonne	2025 waste factor proxy

The UK factors are estimation proxies and are not necessarily representative of every UAE-specific fuel, vehicle, freight or waste-treatment pathway. Future inventories should prioritize applicable UAE-specific factors and supplier-specific data where available.

10.3 Justification of units

Activity data is maintained in litres, kWh, kilometres, passenger-kilometres, kilograms, tonnes or expenditure units depending on the activity. All emissions are converted to tonnes of carbon dioxide equivalent (tCO_2 e) to provide a common reporting unit.

11. Calculation Results

11.1 Total GHG emissions

The consolidated GHG inventory for EMCORE is presented below.

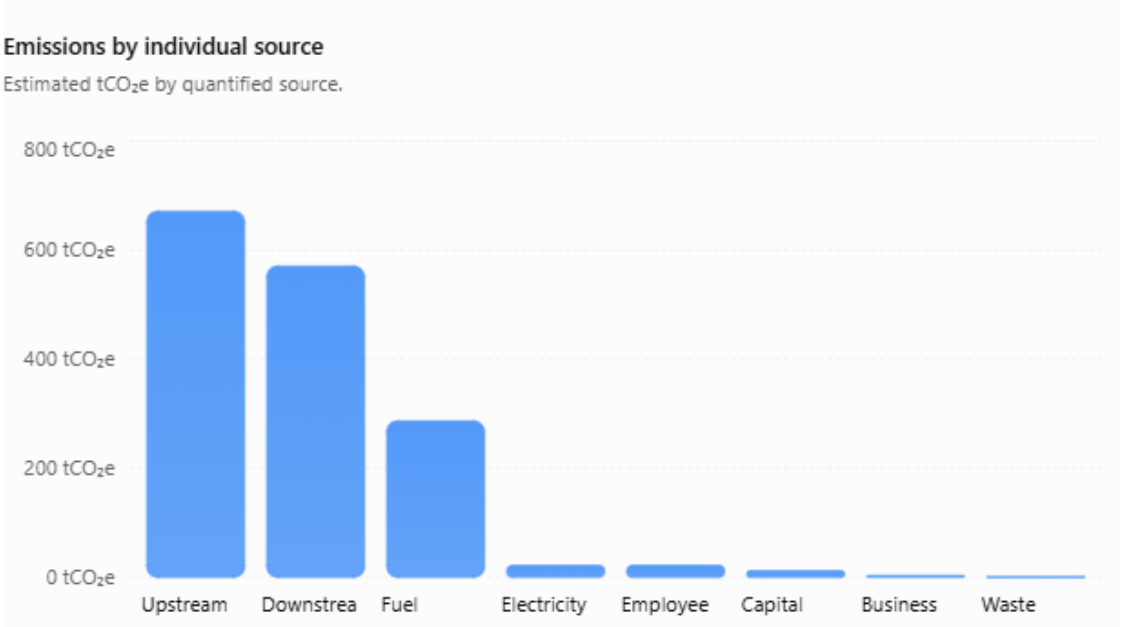
GHG inventory component	Emissions (tCO_2 e)
Scope 1 – Direct emissions	286.399
Scope 2 – Purchased electricity	21.456
Scope 3 – Upstream emissions	706.417
Scope 3 – Downstream emissions	570.276
TOTAL GHG EMISSIONS	**1,584.548**

11.2 Emission breakdown by source

Emission source	Emissions (tCO_2 e)	Percentage of total
Diesel and petrol combustion	286.399	18.07%
Purchased electricity	21.456	1.35%
Capital goods	11.436	0.72%
Upstream transportation	670.913	42.34%
Waste generated	0.079	0.01%
Business travel	2.697	0.17%
Employee commuting	21.292	1.34%
Downstream transportation	570.276	35.99%
Total	**1,584.548**	**100%**

Percentages are calculated from the reported inventory and rounded to two decimal places.

Graphical representation – emission sources



11.3 Emission intensity indicators

Emission intensity indicators help EMCORE understand its carbon footprint in relation to its workforce and business activities.

A. Emissions per employee

Particulars	Value
Total emissions	1,584.548 tCO_2 e
Employee count	238
Calculation	1,584.548 ÷ 238
Emissions per employee	**6.658 tCO_2 e/employee**

This is a preliminary workforce-normalized indicator using the supplied headcount. It is not a verified average because average annual headcount was not provided.

B. Other recommended intensity indicators

KPI	Unit	Current status
GHG emissions per employee	tCO_2 e/employee	6.658
GHG emissions per project	tCO_2 e/project	Data required
GHG emissions per AED revenue	tCO_2 e/AED million	Data required
GHG emissions per square metre	tCO_2 e/m²	Data required
Fuel emissions per vehicle-km	$kgCO_2$ e/km	Data required
Electricity emissions per facility area	$kgCO_2$ e/m²	Data required
Freight emissions per tonne-km	$kgCO_2$ e/tonne-km	Data required
GHG emissions per installation activity	tCO_2 e/installation	Data required

Recommendation: EMCORE should introduce project-wise carbon intensity monitoring because project execution, equipment transportation and site logistics are important sources of its reported emissions.

12. Base Year and Trend Analysis

12.1 Base year selection

The GHG data collection checklist identifies 2025 as the baseline year. For this inventory, the detailed calculation report covers 01 April 2025 to 31 March 2026. The company should formally approve the baseline period after resolving the reporting-period difference.

12.2 Historical comparison

Reporting year	Scope 1	Scope 2	Scope 3	Total
FY 2025–2026	286.399	21.456	1,276.693	1,584.548

A year-on-year reduction percentage cannot currently be calculated because a comparable historical inventory is not available.

12.3 Baseline adjustment procedure

EMCORE should review and recalculate the base-year inventory if there are significant changes such as:

- Acquisition or disposal of business operations.
- Addition or removal of controlled facilities.
- Significant changes in organizational boundaries.
- Identification of material calculation errors.
- Changes in emission factor methodology that materially affect comparability.
- Discovery of previously excluded significant emission sources.

All recalculations should be documented and approved by management.

13. Uncertainty Assessment

13.1 Sources of uncertainty

The inventory contains different levels of uncertainty depending on the availability and reliability of activity data.

Emission source	Main uncertainty	Assessment
Diesel and petrol	Fuel records and vehicle classification	Medium
Purchased electricity	Meter and invoice accuracy	Low
Capital goods	Spend-based estimation	High
Upstream freight	Vehicle type, payload and distance	High
Waste	Waste quantities and treatment routes	Medium
Business travel	Route and cabin-class assumptions	Medium
Employee commuting	Transport modes and distance assumptions	Medium
Downstream freight	Estimated transportation distance	High
Refrigerants	Missing leakage and top-up records	High

13.2 Method used to assess uncertainty

A qualitative uncertainty assessment is applied based on:

- Completeness of activity data.
- Reliability of supporting documents.
- Suitability of emission factors.
- Degree of estimation or assumption.
- Consistency of calculation methodology.
- Availability of independent verification.

The assessment uses three qualitative levels:

- Low uncertainty: Actual metered or documented information with suitable factors.
- Medium uncertainty: Actual activity information with some estimation or generic factors.
- High uncertainty: Missing information, proxy factors or significant assumptions.

13.3 Confidence level

The overall inventory is assigned a medium-to-low confidence assessment because the largest contributors, particularly freight transportation, use estimated vehicle and distance assumptions. A numerical uncertainty percentage and statistical confidence interval have not been calculated because the underlying uncertainty distributions and source-specific data were not supplied.

13.4 Uncertainty reduction actions

- Obtain transporter invoices and vehicle details.
- Record actual delivery distances and payloads.
- Obtain actual fuel invoices and fleet registers.
- Record refrigerant purchases and recovery.
- Obtain supplier-specific product carbon information.
- Verify waste quantities and treatment certificates.
- Collect actual flight routes and travel classes.
- Conduct employee commuting surveys annually.

14. Data Quality Assessment

14.1 Activity data and emission factor quality

Data category	Activity data quality	Emission factor quality	Improvement required
Diesel	Medium	Medium	Verify fuel records
Petrol	Medium	Medium	Verify vehicle-wise consumption
Electricity	Medium	Medium	Verify DEWA bills and meters
Capital goods	Low	Low	Obtain asset-specific information
Upstream freight	Low	Low	Obtain tonne-kilometre data
Waste	Medium	Low	Obtain treatment evidence
Business travel	Medium	Medium	Record actual flight routes
Employee commuting	Medium	Medium	Conduct transport surveys
Downstream freight	Low	Low to medium	Obtain actual delivery data
Refrigerants	Not available	Not assessed	Establish refrigerant register

14.2 Cross-checks and validations

The following checks should be performed before final approval:

Sl. No.	Validation activity	Responsible department
1	Verify diesel and petrol consumption against invoices	Administration
2	Reconcile electricity consumption against DEWA bills	Facilities
3	Verify freight distances against delivery records	Logistics
4	Check waste quantities against collection documents	QHSE
5	Reconcile business travel with booking records	HR
6	Check capital goods expenditure against financial records	Finance
7	Verify employee headcount against HR records	HR
8	Review calculation formulas and emission factors	ESG/QHSE
9	Review scope classification and exclusions	ESG/QHSE
10	Obtain final management approval	General Manager

15. GHG Reduction Initiatives

EMCORE's GHG reduction programme should focus on the significant emission sources identified in the inventory, particularly transportation, fuel consumption, electricity and refrigerant management.

15.1 Energy efficiency programs

Sl. No.	Initiative	Implementation activity	Monitoring KPI
1	Energy-efficient HVAC systems	Select high-efficiency chillers, AHUs, FCUs and VRF systems	Electricity consumption
2	Equipment optimization	Select correctly sized motors, pumps and cooling equipment	Equipment energy use
3	Lighting efficiency	Replace conventional lighting with LED systems	Monthly electricity consumption
4	Energy monitoring	Install or use sub-metering for major loads	kWh consumption
5	Equipment maintenance	Clean filters, coils and heat exchangers periodically	Energy efficiency
6	Solar energy assessment	Evaluate rooftop solar feasibility	Renewable electricity generated
7	Warehouse energy management	Control lighting and cooling during non-operational periods	kWh/m²

15.2 Transportation and logistics reduction

Sl. No.	Initiative	Implementation activity	Monitoring KPI
1	Route optimization	Plan efficient supplier and customer delivery routes	Freight km
2	Vehicle maintenance	Conduct regular servicing and tyre-pressure checks	Fuel consumption
3	Transport consolidation	Combine material deliveries where practical	Number of trips
4	Supplier coordination	Prioritize suppliers with efficient delivery arrangements	Freight emissions
5	Fleet efficiency	Evaluate fuel-efficient and lower-emission vehicles	Fuel per km
6	Logistics planning	Improve material scheduling to avoid urgent deliveries	Emergency trips

15.3 Refrigerant management

- Maintain a refrigerant inventory for HVAC and refrigeration equipment.
- Record refrigerant type, quantity and GWP.
- Conduct regular leakage inspections.
- Use qualified technicians for refrigerant handling.
- Recover refrigerants during equipment replacement and maintenance.
- Evaluate lower-GWP alternatives where technically and legally suitable.
- Track refrigerant consumption and leakage annually.

15.4 Waste and material reduction

- Segregate metal, cardboard, plastic and general waste.
- Improve material cutting and fabrication efficiency.
- Reduce ducting and sheet-metal offcuts.
- Reuse suitable packaging materials.
- Maintain authorized e-waste and battery disposal records.
- Improve procurement planning to minimize damaged and unused materials.
- Monitor waste generation by project and facility.

15.5 Future sustainability goals

The following are proposed management targets, not achieved results.

Sl. No.	Sustainability objective	Proposed target	Target period
1	Reduce electricity consumption intensity	5% reduction	Within 2 years
2	Reduce vehicle fuel consumption intensity	5% reduction	Within 2 years
3	Improve freight efficiency	10% reduction in freight emissions intensity	Within 3 years
4	Improve refrigerant monitoring	100% of controlled HVAC equipment covered by register	Within 1 year
5	Improve waste segregation	100% of identified operational waste streams covered by records	Within 1 year
6	Improve GHG data quality	100% of significant emission sources supported by records or documented estimates	Next reporting cycle
7	Increase renewable electricity	Complete solar feasibility assessment	Within 1 year

15.6 GHG reduction responsibility

Department	Main responsibility
Top Management	Approve GHG reduction objectives and resources
ESG/QHSE	Prepare inventory and monitor performance
Engineering	Select energy-efficient systems
Projects	Monitor site fuel, electricity and transportation
Procurement	Consider lower-carbon materials and suppliers
Logistics	Optimize transportation and deliveries
Maintenance	Monitor fuel consumption and refrigerant leakage
HR	Monitor employee commuting and business travel
Finance	Maintain expenditure and invoice records
Warehouse	Monitor electricity and waste generation

16. Conclusions

16.1 Summary of GHG performance

EMCORE ELECTROMECHANICAL CONTRACTING L.L.C. has prepared a preliminary organizational GHG inventory

The estimated total GHG emissions are **1,584.548 tCO_2 e**.

The inventory identifies:

- Scope 1 emissions of 286.399 tCO_2 e.
- Scope 2 emissions of 21.456 tCO_2 e.
- Scope 3 upstream emissions of 706.417 tCO_2 e.
- Scope 3 downstream emissions of 570.276 tCO_2 e.

Transportation and distribution represent the largest quantified emission sources. These emissions are associated with supplier deliveries and transportation of equipment and components to customers. The findings indicate that logistics optimization, efficient fuel management, energy-efficient engineering solutions and refrigerant monitoring should be prioritized in EMCORE's environmental management programme.

16.2 Successes and opportunities

The inventory provides EMCORE with:

- An initial quantified organizational GHG footprint.
- Identification of significant emission-generating activities.
- A documented calculation methodology.
- A starting point for annual carbon monitoring.
- A basis for customer sustainability reporting.
- Opportunities to improve project and transportation efficiency.

16.3 Plan for the next reporting period

During the next reporting cycle, EMCORE will focus on:

- Reconciling the reporting and baseline periods.
- Establishing a controlled GHG data collection procedure.
- Obtaining actual freight and delivery information.
- Quantifying refrigerant leakage emissions.

- Improving fuel and electricity records.
- Screening all applicable Scope 3 categories.
- Introducing project-wise carbon monitoring.
- Reviewing carbon reduction targets annually.
- Conducting internal GHG inventory verification.
- Obtaining management approval of the annual inventory.

The inventory shall be reviewed annually and updated whenever significant organizational or operational changes occur.

17. Appendices

Appendix A – Consolidated activity data

Sl. No.	Activity	Quantity	Unit
1	Diesel consumption	25,146.58	Litres
2	Petrol consumption	107,169.70	Litres
3	Purchased electricity	55,975.80	kWh
4	Capital goods expenditure	129,081.44	AED
5	Upstream freight	608,400	km
6	General waste	1,440	kg
7	Paper waste	95	kg
8	Plastic waste	40	kg
9	Garden waste	8	Tonnes
10	Electronic waste	1	kg
11	Batteries	0.5	kg
12	International flights	23,040	Passenger-km
13	Employee car commuting	94,320	Vehicle-km
14	Public transport commuting	57,240	Passenger-km
15	Downstream freight	517,140	km
16	Employee count	238	Employees

Appendix B – Scope-wise calculation summary

Scope/category	Calculation result (tCO_2 e)
Scope 1 – Fuel combustion	286.399
Scope 2 – Purchased electricity	21.456
Scope 3 Category 2 – Capital goods	11.436
Scope 3 Category 4 – Upstream freight	670.913
Scope 3 Category 5 – Waste	0.079
Scope 3 Category 6 – Business travel	2.697
Scope 3 Category 7 – Employee commuting	21.292
Scope 3 Category 9 – Downstream freight	570.276
Total GHG emissions	**1,584.548**

Appendix C – Definitions and abbreviations

Term	Definition
GHG	Greenhouse Gas
CO_2	Carbon Dioxide
CH_4	Methane
N_2 O	Nitrous Oxide
HFC	Hydrofluorocarbon
PFC	Per fluorocarbon
SF_6	Sulphur Hexafluoride
NF_3	Nitrogen Trifluoride
CO_2 e	Carbon Dioxide Equivalent
tCO_2 e	Tonnes of Carbon Dioxide Equivalent
GWP	Global Warming Potential
Scope 1	Direct GHG emissions
Scope 2	Indirect emissions from purchased energy
Scope 3	Other indirect value-chain emissions

TTW	Tank-to-Wheel
WTT	Well-to-Tank
HGV	Heavy Goods Vehicle
DEWA	Dubai Electricity and Water Authority
ESG	Environmental, Social and Governance
QHSE	Quality, Health, Safety and Environment
ISO	International Organization for Standardization

Appendix D – Reference standards and documents

- ISO 14064-1:2018 – Greenhouse gases – Specification with guidance at the organization level for quantification and reporting of greenhouse gas emissions and removals.
- GHG Protocol Corporate Accounting and Reporting Standard.
- GHG Protocol Corporate Value Chain (Scope 3) Accounting and Reporting Standard.
- UK Department for Energy Security and Net Zero – Greenhouse Gas Reporting: Conversion Factors 2025.
- DEWA – Emissions and Climate Mitigation. DEWA reference.
- 2025 freight emission factor reference identified in the calculation report.
- 2025 waste-treatment emission factor reference identified in the calculation report.
- 2025 business-travel emission factor reference identified in the calculation report.
- EMCORE GHG Emission Data Collection Checklist.
- EMCORE GHG Inventory Calculation Report FY 2025–2026.