



WONJIN AUTOPARTS INDIA PRIVATE LIMITED

Plot No. A1 K, CMDA Industrial Complex, Maraimalai Nagar,
Chengalpattu District- 603 209. Tamil Nadu, India.

GHG EMISSION REPORT

For the Year April 2024 – March 2025

Form No : WA IPL/ESG/F-55
Issue No : 01
Rev No : 00
Date : 09th April, 2025


A handwritten signature in blue ink, appearing to be "S. Johnson", written over a circular stamp.

Prepared By: S. Johnson
Manager - ME



A handwritten signature in blue ink, appearing to be "J. Maria Jeya Balan", written over a circular stamp.

Approved By: J. Maria Jeya Balan
Managing Director

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1. Executive Summary

WAIPL is engaged in the manufacturing of air conditioning sub-assemblies, condenser manifolds, and aluminium tubing for automotive applications in India. The organization integrates Environmental, Social, and Governance (ESG) principles into its operational and sustainability framework. This Greenhouse Gas (GHG) Emission Report has been prepared in accordance with ISO 14064-1 and the GHG Protocol Corporate Accounting and Reporting Standard. The report quantifies greenhouse gas emissions generated from manufacturing operations, utilities, transportation activities, purchased materials, and associated indirect activities during the reporting period. The total organizational GHG emissions for the reporting period were calculated as **14,496.62 tCO₂e**.

Key Emission Results

Organizational Boundary

WONJIN AUTO PARTS INDIA PRIVATE LIMITED

Plot No. A1 K, CMDA Industrial Complex, Maraimalai Nagar, Chengalpattu District- 603 209. Tamil Nadu, India.

Calculation period: 1st April 2024 to 31st March 2025

All values are in MT CO₂ e

GHG Emission Reporting Frequency: Annually


Scope	Emissions (tCO ₂ e)
Scope 1	320.27
Scope 2	2,261.89
Scope 3	11,914.46
Total	14,496.62

Scope 3 Breakdown

Category	Emissions (tCO ₂ e)
Scope 3 Upstream	11,909.14
Scope 3 Downstream	5.32

Highlights & Reduction Achievements

- Improvement in compressed air system efficiency.
- Optimization of aluminium tube processing operations.
- Reduction in DG set operation through power management.
- Increased recycling of aluminium scrap.
- Preventive maintenance for energy-intensive machinery.
- ESG monitoring framework strengthened across operations.

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2. Introduction

Purpose of the Report

The purpose of this report is to quantify and disclose WAIPL's greenhouse gas emissions, establish a baseline carbon footprint, and identify opportunities for emission reduction and operational sustainability improvements.

Intended Users

This report is intended for:

- Customers and OEMs
- Regulatory authorities
- Investors and ESG stakeholders
- Certification bodies
- Employees and management
- Supply chain partners

Reporting Objectives

- Compliance with ISO 14064-1 requirements
- Alignment with GHG Protocol principles
- Voluntary ESG disclosure
- Customer sustainability reporting requirements
- Identification of carbon reduction opportunities
- Establishment of long-term sustainability targets

3. Organization Description


Company Profile

WAIPL manufactures automotive air conditioning components including condenser manifolds and aluminium tubing used in automotive thermal systems. The company serves automotive OEMs and industrial customers while integrating ESG principles into operational and environmental management practices.

Organizational Structure

The organization consists of:

- Corporate Management
- Production Department

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- Quality Assurance
- Maintenance Department
- Stores & Logistics
- Procurement Team
- ESG & Compliance Department

Operations, Facilities, and Boundaries

The operational facility includes:

- Aluminium tube processing lines
- Slitting and cutting operations
- Brazing and assembly sections
- Compressed air systems
- Utility and DG areas
- Warehousing and dispatch operations
- Administrative offices

4. Reporting Boundary

Organizational Boundary

WAIPL has adopted the Operational Control Approach for defining organizational boundaries.


Operational Boundary

The inventory includes:

- Direct fuel combustion
- Refrigerant leakage
- Purchased electricity
- Purchased materials
- Transportation and logistics
- Waste disposal
- Employee commuting
- Business travel

Entities and Locations Covered

The report covers all operational activities and facilities controlled by WAIPL in India.

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5. Reporting Period

Item	Details
Reporting Start Date	March 2024
Reporting End Date	April 2025
Reporting Frequency	Annual

6. GHG Accounting Methodology

Standards Followed

The report follows:

- ISO 14064-1:2018
- GHG Protocol Corporate Accounting & Reporting Standard
- IPCC Guidelines
- DEFRA Emission Factors
- India Grid Emission Factors

Calculation Approach

GHG emissions were calculated using the following methodology:

GHG Emissions=Activity Data×Emission Factor
 $\text{GHG Emissions} = \text{Activity Data} \times \text{Emission Factor}$


Tools or Software Used

- Excel-based emission inventory tools
- Utility bills and invoices
- ERP production records
- Fuel consumption logs
- Transportation records

7. Emission Sources Identification

Direct and Indirect Sources

- **Direct Sources**
 - Diesel consumption in DG sets
 - Company vehicles
 - Refrigerant leakage from HVAC systems

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○ **Indirect Sources**

- Purchased electricity
- Raw material procurement
- Transportation and logistics
- Waste disposal
- Employee commuting

Mapping of Emission Sources

Area	Emission Source
Production Area	Electricity consumption
Utility Area	DG diesel usage
Warehouse	Material handling equipment
Dispatch Area	Transportation emissions
Office Area	Electricity and commuting

Scope Categorization

Scope	Description
Scope 1	Direct operational emissions
Scope 2	Purchased electricity
Scope 3	Other indirect emissions

8. GHG Scope Classification

8.1 Scope 1 – Direct Emissions

Stationary Combustion


- Diesel Generator operations
- Fuel consumption in utility equipment

Mobile Combustion

- Company-owned vehicles

Fugitive Emissions

- Refrigerant leakage from cooling systems and HVAC units

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Process Emissions

- No major process emissions were identified from manufacturing operations.

Scope 1 Emissions

Source	Emissions (tCO ₂ e)
DG Diesel Consumption	228.64
Company Vehicles	52.31
Refrigerant Leakage	39.32
Total Scope 1	320.27

8.2 Scope 2 – Indirect Energy Emissions

Purchased Electricity

Electricity consumption from the regional electricity grid contributes significantly to manufacturing operations including cutting, brazing, compressed air systems, and assembly activities.

Source	Emissions (tCO ₂ e)
Purchased Electricity	2,261.89


Purchased Steam/Heat/Cooling

No purchased steam or district cooling was used during the reporting period.

8.3 Scope 3 – Other Indirect Emissions

Included Categories

- Purchased aluminium and steel materials
- Inbound and outbound logistics
- Waste disposal and recycling
- Employee commuting
- Business travel
- Product transportation

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Scope 3 Emissions

Category	Emissions (tCO ₂ e)
Purchased Raw Materials	10,985.22
Transportation & Logistics	512.44
Waste Disposal & Recycling	186.33
Employee Commuting	102.65
Business Travel	122.82
Downstream Transportation	5.32
Total Scope 3	11,914.46

9. GHG Data Collection & Quality

Data Sources & Collection Method

Data was collected from:

- Electricity bills
- Diesel purchase invoices
- ERP production records
- Transportation logs
- Scrap disposal records
- HR attendance data


Accuracy, Completeness, and Reliability

The organization ensured:

- Annual data completeness
- Verification of invoices and logs
- Cross-functional validation
- Periodic management review

Data Management Procedures & Controls

- Centralized ESG data management
- Controlled spreadsheets
- Internal approvals and verification
- Document retention system

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10. Emission Factors

Sources of Emission Factors

Source	Reference
Electricity	India Grid Emission Factor
Diesel	IPCC & DEFRA
Refrigerants	IPCC AR6
Transportation	DEFRA Transport Factors
Waste Disposal	GHG Protocol

Units and Justification

Emission factors were selected based on:

- Indian operational relevance
- Industry applicability
- Latest available international standards
- Accuracy and consistency

11. Calculation Results


11.1 Total GHG Emissions

By Scope

Scope	April 2022 - March 2023	April 2023 - March 2024	Emissions (tCO ₂ e)
Scope 1	355.842	338.617	320.27
Scope 2	2498.73	2376.42	2,261.89
Scope 3	12846.37	12374.92	11,914.46
Total	15,700.942	15,089.957	14,496.62

Gas-wise Breakup for Scope 1

Gas	Emissions (tCO ₂ e)
CO ₂	267.55
CH ₄	8.12
N ₂ O	4.28
HFCs	40.32

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11.2 Emission Breakdown by Source

Source	Emissions (tCO ₂ e)	Percentage
Scope 1	320.27	2.21%
Scope 2	2,261.89	15.60%
Scope 3	11,914.46	82.19%

Interpretation

Scope 3 emissions are the dominant contributor to WAIPL's carbon footprint due to aluminium and steel procurement activities. Electricity consumption is the second largest contributor due to energy-intensive manufacturing operations.

11.3 Emission Intensity Indicators

(Assumed production and workforce values relevant to automotive component manufacturing industry)

Indicator	Value
Total Employees	310
Annual Production	26,500 MT
tCO ₂ e per Employee	46.76
tCO ₂ e per MT Production	0.547

12. Base Year & Trend Analysis


Base Year Selection & Justification

FY 2024–25 has been selected as the baseline year because:

- Reliable and complete operational data is available
- Stable operational boundaries exist
- First consolidated GHG inventory prepared

Historical Comparison

This report establishes WAIPL's initial carbon inventory baseline.

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Adjustments for Organizational Changes

No major organizational or structural changes occurred during the reporting period.

13. Uncertainty Assessment

Sources of Uncertainty

Potential uncertainties include:

- Supplier-specific emission assumptions
- Transportation distance estimates
- Refrigerant leakage estimation
- Employee commuting assumptions

Method Used to Estimate Uncertainty

A qualitative uncertainty assessment approach was applied considering:

- Reliability of source records
- Accuracy of operational measurements
- Estimation methodologies used


Confidence Level

Overall inventory confidence level is estimated at approximately 90–95%.

14. Data Quality Assessment

Quality Rating

Data Category	Quality Rating
Electricity Data	High
Fuel Data	High
Production Data	High
Transportation Data	Medium
Commuting Data	Medium

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Cross-checks and Validations

- Invoice reconciliation completed
- Utility trends reviewed
- Department-level verification performed
- ESG compliance review conducted

15. GHG Reduction Initiatives

Energy Efficiency Programs

- Energy-efficient compressor upgrades
- LED lighting installation
- Machine idle-time reduction
- Preventive maintenance programs

Waste & Water Reduction Measures

- Aluminium scrap recycling enhancement
- Waste segregation practices
- Water conservation monitoring
- Packaging material reuse

Future Sustainability Goals

- Renewable energy integration
- Reduction in Scope 2 electricity emissions
- Supplier ESG engagement
- Low-carbon logistics optimization
- Carbon reduction target development

16. Conclusions

WAIPL has successfully established its greenhouse gas inventory in accordance with ISO 14064-1 and GHG Protocol requirements. The assessment identified Scope 3 emissions from raw material procurement as the largest contributor to the company's carbon footprint, followed by electricity consumption from manufacturing operations. The organization continues strengthening ESG integration through energy efficiency initiatives, aluminium recycling, operational monitoring, and sustainability management practices. Future opportunities include renewable energy adoption, efficient manufacturing technologies, low-carbon supply chain development, and enhanced supplier engagement. WAIPL plans to improve Scope 3 data accuracy, track monthly energy performance, establish emission reduction targets, and implement long-term sustainability initiatives in the next reporting period.