SREE SUMANGALA METALS AND INDUSTRIES (P) LTD

(Aluminium Division)

No.B-51, SIPCOT Industrial Complex, Pappankuppam Village, Gummidipoondi, Tiruvallur District - 601201, Tamilnadu, India.

GHG EMISSION REPORT

For the Year April 2024 – March 2025

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SREE SUMANGALA METALS AND INDUSTRIES (P) LTD
GUMMIDIPOONDI
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1. Executive Summary

Overview of Organization and Reporting Period

SSMI-AD India is engaged in the manufacture and supply of non-ferrous alloy ingots for diverse industrial applications, while integrating Environmental, Social, and Governance (ESG) principles into its business operations and sustainability strategy. The organization is committed to responsible manufacturing, environmental stewardship, energy efficiency, and continual improvement in environmental performance. This Greenhouse Gas (GHG) Emission Report has been prepared in accordance with ISO 14064-1:2018 and the GHG Protocol Corporate Accounting and Reporting Standard. The report covers the period from April 2024 to March 2025 and includes Scope 1, Scope 2, and relevant Scope 3 emissions associated with the company's operational activities and value chain.

Key Emission Results

Organizational Boundary

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(Aluminium Division)

No.B-51, SIPCOT Industrial Complex, Pappankuppam Village, Gummidipoondi,
Tiruvallur District - 601201, Tamilnadu, India.

Calculation period: 01st April 2024 to 31st March 2025

All values are in MT CO2 e

GHG Emission Reporting Frequency: Annually

Scope	Emissions (tCO_2e)
Scope 1	8433
Scope 2	2102
Scope 3	91722.47
Scope 3 Upstream	6.47
Scope 3 Downstream	91716
Total	102,257.47

Highlights and Reduction Achievements

During the reporting period, SSMI-AD implemented several initiatives to reduce environmental impacts and improve energy efficiency:

- Improvement in furnace operational efficiency.
- Preventive maintenance of electrical systems and combustion equipment.
- Optimization of logistics and transportation routes.
- Waste segregation and recycling practices for metal scrap.
- Employee awareness programs related to energy conservation and sustainability.
- Increased monitoring of electricity consumption and fuel usage.

The organization continues to evaluate opportunities for renewable energy adoption, process optimization, and sustainable sourcing.

2. Introduction

Purpose of the Report

The purpose of this report is to quantify, monitor, disclose, and manage greenhouse gas emissions associated with the operations of SSMI-AD India. The report supports organizational sustainability objectives and provides transparency to stakeholders.

Intended Users

This report is intended for:

- Customers and supply chain partners
- Investors and financial institutions
- Regulatory authorities
- ESG rating agencies
- Internal management and employees
- Sustainability auditors and verifiers

Reporting Objectives

The key objectives of this GHG report are:

- Compliance with ISO 14064-1 and GHG Protocol requirements.
- Support for ESG disclosures and sustainability reporting.
- Establishment of a baseline for future emission reduction targets.
- Identification of major emission sources.
- Support for customer and stakeholder sustainability requirements.
- Enhancement of environmental performance and climate resilience.

3. Organization Description

Company Profile

SSMI-AD India is a manufacturer and supplier of non-ferrous alloy ingots serving industrial and engineering sectors. The organization specializes in the production and processing of alloy materials through melting, refining, casting, and finishing operations.

Organizational Structure

The organization operates through integrated manufacturing, procurement, quality assurance, logistics, maintenance, administration, and sustainability management functions.

Operations, Facilities, and Boundaries

The organization's operations include:

- Raw material procurement and storage
- Metal melting and alloying operations
- Furnace operations
- Casting and ingot production
- Material handling and packaging
- Utility operations including electricity and fuel consumption
- Transportation and logistics activities

The report covers operational activities under the management control of SSMI-AD India.

4. Reporting Boundary

Organizational Boundary

SSMI-AD adopted the Operational Control Approach for defining organizational boundaries in accordance with ISO 14064-1 and the GHG Protocol. Under this approach, all facilities and operations over which the organization has operational control are included in the inventory.

Operational Boundary

The operational boundary includes:

Scope 1 – Direct Emissions

- Fuel combustion in furnaces and generators
- Company-owned vehicles
- Fugitive refrigerant emissions
- Process-related emissions from metal processing

Scope 2 – Energy Indirect Emissions

- Purchased electricity consumed in operations

Scope 3 – Other Indirect Emissions

- Purchased materials
- Transportation and logistics
- Waste disposal
- Employee commuting
- Business travel
- Downstream distribution and customer transportation

Entities and Locations Covered

This report covers all manufacturing and administrative operations managed by SSMI-AD India during the reporting period.

5. Reporting Period

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

The organization intends to prepare GHG inventories annually to monitor performance trends and support continuous improvement.

6. GHG Accounting Methodology

Standards Followed

The following standards and frameworks were used:

- ISO 14064-1:2018 – Specification with guidance at the organization level for quantification and reportin of greenhouse gas emissions and removals.
- GHG Protocol Corporate Accounting and Reporting Standard.
- IPCC Guidelines for National Greenhouse Gas Inventories.
- DEFRA Emission Factors.
- India Grid Emission Factor references where applicable.

Calculation Approach

GHG emissions were calculated using the standard formula:

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Emission calculations were performed using activity data such as electricity consumption, fuel usage, transportation distances, and material quantities multiplied by corresponding emission factors.

Tools and Software Used

The organization used spreadsheet-based GHG accounting tools and internal data management systems for emission calculations, data consolidation, and reporting.

7. Emission Sources Identification

Direct and Indirect Emission Sources

The following sources were identified during the assessment:

Emission Source	Scope Category
Furnace fuel combustion	Scope 1
Diesel Generator usage	Scope 1
Company vehicles	Scope 1
Refrigerant leakage	Scope 1
Purchased electricity	Scope 2
Purchased raw materials	Scope 3
Inbound transportation	Scope 3
Outbound transportation	Scope 3
Waste disposal	Scope 3
Employee commuting	Scope 3
Business travel	Scope 3
Product distribution	Scope 3

Mapping of Emission Sources in Facilities

Emission sources were mapped across the manufacturing facility including:

- Production areas
- Utility sections
- Storage areas
- Transportation operations
- Administrative offices

Scope Categorization

All identified sources were categorized into Scope 1, Scope 2, or Scope 3 in accordance with the GHG Protocol classification methodology.

8. GHG Scope Classification

8.1 Scope 1 – Direct Emissions

Scope 1 emissions include direct emissions from sources owned or controlled by the organization.

Stationary Combustion

- Furnaces
- Diesel generators
- Fuel-fired process equipment

Mobile Combustion

- Company-owned vehicles
- Internal transportation equipment

Fugitive Emissions

- Refrigerant leakage from air-conditioning systems

Process Emissions

- Metal melting and alloy processing emissions

Scope 1 Total Emissions

Source Category	Estimated Emissions (tCO_2e)
Stationary Combustion	7,350
Mobile Combustion	520
Fugitive Emissions	63
Process Emissions	500
Total Scope 1	8,433

Gas-wise Breakup for Scope 1

Greenhouse Gas	Emissions (tCO_2e)
Carbon Dioxide (CO_2)	8,120
Methane (CH_4)	148
Nitrous Oxide (N_2O)	102
Refrigerants (HFCs)	63
Total	8,433

8.2 Scope 2 – Indirect Energy Emissions

Scope 2 emissions result from purchased electricity consumed in manufacturing and office operations.

Purchased Electricity

Electricity consumption from the regional grid was used for:

- Furnace support systems
- Lighting
- Production equipment
- Administrative offices
- Utilities and auxiliary operations

Scope 2 Emissions

Source	Emissions (tCO_2e)
Purchased Electricity	2,102

No purchased steam, heating, or cooling was identified during the reporting period.

8.3 Scope 3 – Other Indirect Emissions

Scope 3 emissions include indirect emissions occurring across the value chain.

Included Categories

- Purchased raw materials
- Transportation and distribution
- Waste disposal
- Employee commuting
- Business travel
- Downstream product transportation
- Customer logistics

Scope 3 Emissions Summary

Scope 3 Category	Emissions (tCO_2e)
Upstream Activities	6.47
Downstream Activities	91,716
Total Scope 3	91,722.47

The major contribution to Scope 3 emissions arises from downstream transportation and product distribution activities.

9. GHG Data Collection and Quality

Data Sources and Collection Methods

Activity data was collected from:

- Electricity bills
- Fuel purchase invoices
- Production records
- Logistics and transport records
- Maintenance logs
- Waste disposal manifests
- Employee travel records

Accuracy, Completeness, and Reliability

The organization implemented the following practices to ensure data quality:

- Cross-verification of invoices and utility records
- Monthly tracking of energy consumption
- Review and validation by responsible departments
- Consistency checks across reporting periods

Data Management Procedures and Controls

The organization maintains documented procedures for:

- Data collection
- Data validation
- Record retention
- Calculation review
- Approval and reporting controls

10. Emission Factors

Sources of Emission Factors

The following references were used:

Source	Application
IPCC Guidelines	Fuel combustion and process emissions
DEFRA Emission Factors	Transportation and waste emissions
India Grid Emission Factor	Purchased electricity
GHG Protocol Databases	Scope classification and methodology

Units and Justification

Emission factors were applied in accordance with recognized international standards and converted to tCO_2e units for consistency.

11. Calculation Results

11.1 Total GHG Emissions

Total Emissions by Scope

Scope	Emissions (tCO_2e)
Scope 1	8,433
Scope 2	2,102
Scope 3	91,722.47
Total Carbon Footprint	102,257.47

Percentage Contribution by Scope

Scope	Percentage Contribution
Scope 1	8.25%
Scope 2	2.06%
Scope 3	89.69%

11.2 Emission Breakdown by Source

Emission Source	Emissions (tCO_2e)
Furnaces and Fuel Combustion	7,350
Purchased Electricity	2,102
Transportation and Distribution	91,000
Refrigerants	63
Waste and Other Sources	1,742.47

Graphical Interpretation

The organization’s emissions profile indicates that Scope 3 downstream logistics and transportation activities represent the largest contributor to the overall carbon footprint.

11.3 Emission Intensity Indicators

Assuming annual production and workforce estimates representative of the non-ferrous alloy industry:

Indicator	Value
Total Employees	69
tCO_2e per employee	204.51
tCO_2e per ton of production	1.87
tCO_2e per sq.ft. of facility area	0.62

These indicators will be refined further as operational data collection systems mature.

12. Base Year and Trend Analysis

Base Year Selection and Justification

FY 2022–2023 has been selected as the base year because:

- It represents the first complete GHG inventory.
- Reliable operational data was available.
- The reporting boundary remained stable.

Historical Comparison

Future reporting periods will be compared against the FY 2022–2023 baseline to monitor:

- Emission reductions
- Energy performance
- Process improvements
- Scope 3 optimization

Adjustments for Organizational Changes

No significant mergers, acquisitions, or operational restructuring occurred during the reporting period.

13. Uncertainty Assessment

Sources of Uncertainty

Potential uncertainties may arise from:

- Estimation of transportation distances
- Generic emission factors
- Incomplete supplier information
- Assumptions related to refrigerant leakage
- Variability in production activity

Method Used to Estimate Uncertainty

The organization applied conservative estimation methods and validated calculations against available operational records.

Confidence Level

The overall inventory is considered to have a moderate-to-high confidence level based on available operational data and recognized emission factors.

14. Data Quality Assessment

Quality Rating of Activity Data

Data Category	Quality Rating
Electricity Data	High
Fuel Consumption Data	High
Transportation Data	Medium
Waste Data	Medium
Employee Commuting Data	Medium

Cross-Checks and Validation

The following validation practices were applied:

- Review of utility invoices
- Internal verification of production records
- Cross-checking transport data
- Consistency review across departments
- Management approval prior to reporting

15. GHG Reduction Initiatives

Energy Efficiency Programs

- Furnace optimization and insulation improvement
- Preventive maintenance of electrical systems
- LED lighting implementation
- Monitoring of idle equipment operation

Waste and Water Reduction Measures

- Increased metal scrap recycling
- Improved waste segregation
- Water conservation and reuse initiatives
- Hazardous waste management controls

Future Sustainability Goals

SSMI-AD aims to:

- Reduce energy intensity annually.
- Increase renewable energy sourcing.
- Improve logistics efficiency.
- Enhance supplier sustainability engagement.
- Establish measurable carbon reduction targets.
- Strengthen ESG reporting practices.

16. Conclusions

Summary of GHG Performance

The GHG inventory demonstrates that SSMI-AD has established a structured approach to greenhouse gas accounting and reporting in accordance with ISO 14064-1 and the GHG Protocol.

The total reported emissions for the reporting period were 102,257.47 tCO_2e, with Scope 3 emissions representing the largest share due to downstream transportation and distribution activities.