# Innovative Engineering Services

S.F.No.162/1, Tank Street, Chinnamettupalayam, Chinnavedampatti,
Coimbatore – 641049. Tamilnadu, India.

## GHG EMISSION REPORT

**For the Year January 2025 to December 2025**

**Form No:** IES/ESG/076

**Issue No:** 01

**Rev No:** 00

**Date:** 9th January, 2026

Innovative Engineering Services Coimbatore

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# 1. Executive Summary

IES is a fabrication, machining, and engineering services organization operating in India, committed to integrating Environmental, Social, and Governance (ESG) principles into its operational and strategic decision-making processes. The company recognizes the importance of managing greenhouse gas (GHG) emissions to reduce environmental impact and support sustainable development. Accordingly, IES has developed this GHG emission inventory in alignment with ISO 14064-1 and the GHG Protocol. The inventory covers emissions from operational activities during the reporting period from March 2026 and aims to establish a transparent baseline, identify emission reduction opportunities, and support continuous environmental performance improvement.

## Key Emission Results

### Organizational Boundary

### INNOVATIVE ENGINEERING SERVICES

S.F.No.162/1, Tank Street, Chinnamettupalayam, Chinnavedampatti, Coimbatore - 641049. Tamilnadu, India.

**Calculation period: January 2025 to December 2025**

All values are in MT CO2 e

### GHG Emission Reporting Frequency: Annually

| EMISSIONS | CURRENT YEAR JANUARY 2025 TO DECEMBER 2025 |
|---|---|
| Scope 1 | 2552.01 |
| Scope 2 | 94.73 |
| Scope 3 | 23.42 |
| Scope 3 Upstream | 23.39 |
| Scope 3 Downstream | 0.03 |
| **Total GHG Emission** | **2670.16** |

## 2. Introduction

This report quantifies greenhouse gas (GHG) emissions generated from IES operations and identifies opportunities for emission reduction and improved environmental performance. The assessment covers direct and indirect emissions arising from fabrication, machining, engineering activities, electricity consumption, fuel usage, transportation, and other operational sources. By analyzing emission sources, the report highlights key areas where energy efficiency, resource optimization, and sustainable practices can be implemented. The findings support informed decision-making, enabling IES to set realistic reduction targets and enhance climate-related performance. This report also supports compliance with ISO 14064-1 and GHG Protocol requirements while reinforcing IES's commitment to ESG principles and long-term sustainability objectives.

### ♣ Intended Users

- Management
- Customers
- ESG stakeholders
- Certification bodies
- Regulatory authorities

### Reporting Objectives

- Compliance with ISO 14064-1
- Alignment with GHG Protocol
- ESG disclosure
- Customer sustainability requirements

## 3. Organization Description

### ♣ Company Profile

IES provides fabrication, machining, and engineering services including structural fabrication, CNC machining, and assembly operations.

### ♣ Organizational Structure

- Head Office
- Fabrication Unit
- Machining Unit
- Utility and Maintenance Department
- Administration and Support Services

### ♣ Operations, Facilities and Boundaries

- One manufacturing facility in India
- Machining shop
- Fabrication shop
- Utility section
- Administrative office

## 4. Reporting Boundary

### ♣ Organizational Boundary – Operational Control Approach

IES has defined its organizational boundary using the Operational Control Approach in accordance with ISO 14064-1 and the GHG Protocol. Under this approach, IES accounts for 100% of greenhouse gas emissions from operations where it has operational control, including fabrication units, machining facilities, engineering workshops, offices, and associated support activities. This includes emissions from energy use, fuel consumption, and operational processes managed by IES. The approach ensures consistent reporting, improved accountability, and effective identification of emission reduction opportunities across all controlled operations.

### ♣ Operational Boundary – Scope 1, Scope 2, and Scope 3

IES has established its operational boundary to include Scope 1, Scope 2, and relevant Scope 3 emissions. Scope 1 covers direct emissions from fuel consumption, company-owned vehicles, and onsite equipment. Scope 2 includes indirect emissions from purchased electricity used in fabrication, machining, and office operations. Scope 3 includes other indirect emissions such as employee commuting, business travel, transportation, and waste management. Including all three scopes ensures comprehensive emission reporting and supports IES in identifying improvement opportunities and reducing overall environmental impact.

### ♣ Entities and Locations Covered

- Main manufacturing facility
- Administrative office
- Company owned vehicles

## 5. Reporting Period

Start Date: 01 January 2025
End Date: 31 December 2025
Frequency: Annual Reporting

## 6. GHG Accounting Methodology

### ♣ Standards Followed

- ISO 14064-1:2018
- GHG Protocol Corporate Standard

### ♣ Calculation Approach

GHG Emissions = Activity Data × Emission Factor

### ♣ Tools Used

- Excel-based GHG calculation sheet
- Emission factor databases

## 7. Emission Sources Identification

IES has identified both direct and indirect emission sources across its fabrication, machining, and engineering operations. Direct emissions (Scope 1) include diesel consumption for DG sets, LPG used in cutting operations, fuel used in company-owned vehicles, and refrigerant leakage from air-conditioning and cooling equipment. Indirect emissions include purchased electricity used in manufacturing and office activities (Scope 2). Additional indirect emissions (Scope 3) arise from raw material transportation, waste disposal activities, employee commuting, and business travel. Identifying these emission sources enables IES to measure its carbon footprint accurately and implement targeted strategies to reduce greenhouse gas emissions and improve environmental performance.

# 8. GHG Scope Classification

## ♣ 8.1 Scope 1 – Direct Emissions

- Stationary combustion (DG set diesel)
- LPG for cutting and heating
- Company owned vehicles diesel/petrol
- Refrigerant leakage from AC units
- Minor process emissions from welding

## ♣ 8.2 Scope 2 – Indirect Energy Emissions

- Purchased electricity for fabrication shop
- Machining shop power consumption
- Office electricity

## ♣ 8.3 Scope 3 – Other Indirect Emissions

- Purchased raw materials transport
- Waste disposal
- Third-party logistics
- Employee commuting
- Business travel
- Product delivery

# 9. GHG Data Collection & Quality

- Fuel purchase records
- Electricity bills
- Transport invoices
- Waste disposal records
- HR commuting survey
- Cross-verification with finance records
- Monthly reconciliation
- Supervisor approval

# 10. Emission Factors

IES has utilized internationally recognized and credible emission factor sources to ensure accuracy and reliability in GHG calculations. The Intergovernmental Panel on Climate Change (IPCC) Guidelines were used for fuel combustion and general emission calculations. DEFRA Emission Factors were applied for transportation, waste, and business travel emissions. The India Grid Emission Factor published by the Central Electricity Authority (CEA) was used to calculate emissions from purchased electricity. Additionally, the GHG Protocol Database was referenced for Scope 3 emission factors, including employee commuting and logistics. These sources ensure transparency, consistency, and alignment with ISO 14064-1 and global GHG reporting standards

# 11. Calculation Results

## 11.1 Total GHG Emissions

| Scope | Emissions ($tCO_2e$) |
|---|---|
| Scope 1 | 2552.01 |
| Scope 2 | 94.73 |
| Scope 3 | 23.42 |
| **Total** | **2670.16** |

Gas-wise Breakup (Scope 1):
- $CO_2$ – 98%
- $CH_4$ – 1%
- $N_2O$ – 1%

## 11.2 Emission Breakdown by Source

| Source | Emissions ($tCO_2e$) |
|---|---|
| DG Diesel | 1800.45 |
| Vehicles | 320.10 |
| LPG | 210.22 |
| Refrigerant | 170.20 |

| | |
|---|---|
| Electricity | 92.84 |
| Transport | 15.60 |
| Waste | 3.25 |
| Commuting | 3.10 |
| Business Travel | 1.00 |

### 11.3 Emission Intensity Indicators

The GHG emission calculations for IES are based on key operational assumptions to ensure consistent and meaningful analysis. The organization has considered a total workforce of 85 employees for the reporting period. Annual production is estimated at 1,200 tons of fabricated components generated through machining and engineering operations. Based on total emissions, the carbon intensity per employee is calculated as 30.78 $tCO_2e$ per employee, reflecting operational energy and resource usage. Additionally, emission intensity per production output is calculated as 2.18 $tCO_2e$ per ton of fabricated components. These assumptions support performance benchmarking and help identify emission reduction opportunities.

## 14. Data Quality Assessment

| Data Type | Rating |
|---|---|
| Fuel Data | High |
| Electricity | High |
| Transport | Medium |
| Waste | Medium |
| Commuting | Low |

## 15. GHG Reduction Initiatives

IES has identified several emission reduction initiatives to improve environmental performance and reduce its carbon footprint. These include adopting energy-efficient CNC machines, conducting a solar installation feasibility study, optimizing DG fuel consumption, introducing electric forklifts, expanding waste recycling programs, engaging vendors on sustainability practices, and promoting employee carpool initiatives. These measures aim to reduce energy consumption, fuel use, and indirect emissions. As part of future targets, IES aims to achieve a 5% reduction in Scope 1 emissions, a 10% reduction in Scope 2 emissions, and increase renewable energy procurement to support long-term sustainability and climate change mitigation goals.

## 16. Conclusions

IES's total carbon footprint for the reporting period is calculated at covering Scope 1, Scope 2, and Scope 3 emissions from fabrication, machining, and engineering operations. Scope 1 emissions contribute the highest share, primarily due to diesel consumption in DG sets, company-owned vehicles, and fuel used in operational equipment. Scope 2 emissions from purchased electricity and Scope 3 emissions from transportation and commuting also contribute significantly to overall emissions. Electricity consumption and transport-related emissions present key opportunities for reduction through energy efficiency improvements, renewable energy adoption, optimized logistics, and sustainable transportation initiatives across IES operations.