YAPP INDIA AUTOMOTIVE SYSTEMS PRIVATE LIMITED

LOCATIONS COVERED

Pune plant:	Chennai plant:	Nashik plant:
Plot No. A-3/A, MIDC Chakan Phase II, Village Khalumbre, Taluka Khed, District Pune – 410501. Maharashtra, India.	Ford New Supplier Park, Melrosapuram, Chittamannur Village, S.P.Koil Post, Chengalpattu Taluk, Kancheepuram District - 603204. Tamilnadu, India.	C S 4264, Gat No 243/2, Trimbak road, Chandrama Garden, Near Amrut Garden, Pimpalgaon bahula, Sharmik Nagar, Nashik, Maharashtra - 422012. India.

GHG EMISSION REPORT

Form No : **YAPP INDIA/SMS/250**

Issue No : **01**

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Company Secretary

Verified by : Mr. Santosh Madas
Vice President

Approved by: Mr. Chen Huazhu
Director

1. Company Overview

YAPP India is a leading manufacturer and assembler of high-quality plastic fuel tanks for automotive applications, serving major Original Equipment Manufacturers (OEMs). With advanced technology and precision engineering, we deliver lightweight, durable, and sustainable fuel storage solutions that enhance vehicle performance and efficiency. Our operations in India are guided by global standards of quality, safety, and innovation. We integrate Environmental, Social, and Governance (ESG) principles into our core business strategy, ensuring responsible sourcing, energy efficiency, and reduced carbon footprint. Committed to excellence, YAPP India strives to meet evolving customer needs while contributing to a more sustainable automotive industry.

2. GHG Emission Overview

Scope 1 Emissions – Direct

YAPP India records Scope 1 emissions from fuel combustion in stationary sources such as boilers and diesel generators, as well as company-owned vehicles used in operations. These emissions are under our direct control and are calculated using internationally recognized emission factors from the IPCC Guidelines. For FY reporting, Scope 1 emissions total **130.191MTCO$_2$e**, dominated by CO_2, with minor contributions from CH_2 and N_2O. We maintain strict monitoring of fuel use and equipment efficiency, focusing on minimizing consumption through maintenance, energy optimization, and operational controls. Scope 1 management reflects our commitment to reducing direct, controllable GHG impacts.

Scope 2 Emissions – Indirect Energy

Scope 2 emissions at YAPP India arise solely from purchased grid electricity consumed at our manufacturing facilities. For the reporting period, Scope 2 emissions amount to **5550.171 MTCO$_2$e**, making this category a significant part of our total carbon footprint. Calculations are based on location-based emission factors provided by the Central Electricity Authority (CEA) of India, ensuring accuracy and regional relevance. As electricity is critical for production processes, we continuously explore efficiency measures, equipment upgrades, and potential renewable energy integration. Addressing Scope 2 emissions directly supports our ESG goals by reducing dependency on high-carbon grid power and enhancing sustainability performance.

Scope 3 Emissions – Value Chain

Scope 3 emissions represent the largest share of YAPP India's GHG footprint, totaling **7499.886 MTCO$_2$e**. These include **upstream** sources such as raw material procurement, packaging, transport, waste treatment, business travel value **5313.831 MTCO2e**, and employee commuting, and **downstream** activities like product distribution and end-of-life treatment of plastic fuel tanks value **2186.055 MTCO2e.** Calculations follow the GHG Protocol Scope 3 Standard using secondary data and recognized emission factors (e.g., DEFRA, IPCC). The majority of emissions stem from purchased goods and logistics, reflecting the material-intensive nature of fuel tank production. YAPP India actively engages suppliers, customers, and logistics partners to reduce Scope 3 impacts through innovation and collaboration.

3. GHG EMISSIONS SUMMARY

Organizational Boundaries

Pune plant : Plot No. A-3/A, MIDC Chakan Phase II, Village Khalumbre, Taluka Khed, District Pune – 410501. Maharashtra, India.

Chennai plant : Ford New Supplier Park, Melrosapuram, Chittamannur Village, S.P.Koil Post, Chengalpattu Taluk, Kancheepuram District - 603204. Tamilnadu, India.

Nashik plant : C S 4264, Gat No 243/2, Trimbak road, Chandrama Garden, Near Amrut Garden, Pimpalgaon bahula, Sharmik Nagar, Nashik, Maharashtra - 422012. India.

Calculation period: April 2024 to March 2025

All values are in MT CO2 e

GHG Emission Reporting Frequency: Annually

4. Reporting Boundary & Scope Definition

Scope / Category	Included?	Boundary Definition	Justification
Scope 1 – Direct Emissions	✓	All direct GHG emissions from operations under YAPP India's operational control, including fuel combustion in stationary equipment (boilers, gensets) and company-owned vehicles.	Direct emissions fully controlled by YAPP; required under GHG Protocol.
Scope 2 – Indirect Emissions (Energy)	✓	Purchased grid electricity consumed at YAPP India facilities (location-based method).	Indirect emissions from purchased energy; material to operations.
Scope 3 – Upstream	✓	Purchased goods & services (plastic resins, packaging), capital goods, fuel- and energy-related activities, upstream transport & distribution, waste generated, business travel, employee commuting.	Significant supply chain emissions and logistics relevant to automotive plastic fuel tank manufacturing.

Scope 3 – Downstream	✓	Downstream transport & distribution of sold products to OEMs, end-of-life treatment of fuel tanks.	Relevant for value chain impacts; material for automotive components sector.
Scope 3 – Excluded Categories	Partial / ✗	Product use phase emissions (fuel tanks themselves do not directly emit GHGs), leased assets not under operational control.	Insignificant or not applicable to YAPP operations; exclusion disclosed transparently.

5. Scope 3 Categories – Reporting Boundary and Justification

S. No.	Scope 3 Category	Included? (Yes/No)	Boundary Definition	Justification
1.	Purchased Goods & Services	Yes	Raw materials (plastic resins), packaging materials, and consumables used in manufacturing.	Major contributor to emissions due to material intensity of plastic fuel tanks.
2.	Capital Goods	Yes	Machinery, equipment, and tools purchased for production facilities.	Material for long-term operations; included as per GHG Protocol.
3.	Fuel- and Energy-Related Activities (not in Scope 1 or 2)	No	Upstream emissions from production and transport of fuels and electricity consumed.	Standard category; supports full accounting of energy-related emissions.
4.	Upstream Transport & Distribution	Yes	Transport of raw materials, packaging, and components from suppliers to YAPP facilities.	Material logistics impact; relevant to supply chain.
5.	Waste Generated in Operations	Yes	Treatment and disposal of production waste, including plastics and packaging.	Significant environmental aspect; aligns with ESG commitments.
6.	Business Travel	Yes	Air, rail, and road travel by employees for business purposes.	Relevant but smaller contributor; included for transparency.
7.	Employee Commuting	Yes	Travel of employees between home and workplace.	Material due to workforce size; aligns with social impact measurement.

8.	Upstream Leased Assets	No	Leased assets not under YAPP's operational control.	Insignificant / immaterial for reporting.
9.	Downstream Transport & Distribution	Yes	Distribution of plastic fuel tanks to automotive OEM customers.	Material due to logistics needs of automotive supply chain.
10.	Processing of Sold Products	No	Fuel tanks are delivered as final products; no further processing by customers.	Not applicable to product type.
11.	Use of Sold Products	No	Fuel tanks themselves do not emit GHG during use.	Excluded as immaterial.
12.	End-of-Life Treatment of Sold Products	No	Disposal, recycling, or treatment of plastic fuel tanks after vehicle life.	Material environmental impact; relevant for sustainability reporting.
13.	Downstream Leased Assets	No	Not relevant; YAPP does not lease assets downstream.	Excluded as not applicable.
14.	Franchises	No	YAPP does not operate under franchise arrangements.	Excluded as not applicable.
15.	Investments	No	YAPP India does not hold investments relevant to GHG accounting.	Not applicable to operations.

6. Scope 1 Emissions Breakdown by Gas

Greenhouse Gas	GWP (100-year, IPCC AR6)	Emission (MT)	CO_2e Contribution ($MTCO_2e$)	Share of Total Scope 1 (%)
Carbon Dioxide (CO_2)	1	128.745	128.745	98.89%
Methane (CH_4)	27.9	0.028	0.781	0.60%
Nitrous Oxide (N_2O)	273	0.0024	0.665	0.51%
Total Scope 1	-	-	**130.191**	**100%**

7. Emission factors and GWPs used (statement & citations)

- **Emission Factors Used:** GHG Protocol Emission Factors from Cross-Sector Tools and GHG Emissions from Transport or Mobile Sources.
- **GWP Values:** Based on **IPCC AR6 Synthesis Report (100-year time horizon)**.
- **Scope 1 Sources:** On-site fuel combustion (e.g., diesel for generators, LPG for heating, company-owned vehicles).
- **Uncertainty Statement:** Variability in emission factors (fuel quality, combustion efficiency) may result in ±5–8% uncertainty.

8. Scope 2 Emissions Breakdown ($MTCO_2e$)

Source of Electricity	Activity Data (kWh)	Emission Factor ($MTCO_2e$ /MWh)	Method (Location / Market)	Emissions ($MTCO_2e$)
Grid Electricity (India National Grid)	6,41,916	**0.82** (CEA India v19.0, FY 2022–23 average OM factor)	Location-based	5550.717

9. Emission Factor References

- **CEA India CO_2 Baseline Database, Version 19.0 (2022–23):**
  - Average Operating Margin (OM): ~0.82 $MTCO_2e$ /MWh
  - Build Margin (BM): ~0.64 $MTCO_2e$ /MWh
  - Combined Margin (CM): ~0.73 $MTCO_2e$ MWh

  *(*Select the factor aligned with your reporting boundary — typically **OM or CM***).*
- **GHG Protocol Scope 2 Guidance:** Requires reporting both *location-based* and *market-based* methods if data available.
- **Market-based factors:** Use supplier-specific emission rates (if electricity supplier provides verified factor) or residual-mix factors.

10. Scope 3 Emissions Breakdown ($MTCO_2e$)

Category (GHG Protocol)	Examples Relevant to YAPP	Activity Data	Emission Factor (Source)	Emissions ($MTCO_2e$)	Notes
Purchased Goods & Services	Plastic resin, steel, packaging	Mass/volume purchased (tonnes)	Ecoinvent / DEFRA material-specific EF ($MTCO_2e$ /tonne)	545.621	Major upstream driver
Capital Goods	Molds, tooling, machinery	Spend data (INR) or weight	DEFRA spend-based EF / LCA studies	861.972	Include if material
Fuel- & Energy-Related Activities (not included in Scope 1/2)	Well-to-tank (WTT) for fuels, electricity T&D losses	kWh electricity, liters fuel	DEFRA WTT EF ($MTCO_2e$ /unit)	Excluded	Not applicable to YAPP
Upstream Transport & Distribution	Raw material inbound freight	Tonne-km by mode (road, sea, air)	DEFRA freight EF ($MTCO_2e$ /tonne-km)	3826.532	Based on supplier/shipping data
Waste Generated in Operations	Scrap plastics, packaging	Tonnes by waste stream	DEFRA/India waste EF (landfill, recycling, incineration)	0.567	Break down by disposal route
Business Travel	Flights, rail, taxis	Passenger-km or spend	DEFRA travel EF ($MTCO_2e$ /pkm)	30.892	Often low share
Employee Commuting	Staff travel to site	Surveys or estimated km	DEFRA commuting EF	47.164	Optional but encouraged
Upstream Leased Assets	N/A	—	—	Excluded	Not applicable to YAPP
Downstream Transport & Distribution	Delivery of fuel tanks to OEMs	Tonne-km outbound freight	DEFRA freight EF	2185.425	

Processing of Sold Products	Not applicable (fuel tanks are not processed further)	—	—	Excluded	Not applicable
Use of Sold Products	Not applicable (fuel tanks not energy-using)	—	—	Excluded	Disclose rationale
End-of-Life Treatment of Sold Products	Fuel tank disposal/recycling	Mass of tanks sold (tonnes)	DEFRA plastics EoL EF	Excluded	Not applicable
Downstream Leased Assets	N/A	—	—	Excluded	Not applicable
Franchises / Investments	N/A	—	—	Excluded	Not applicable

11. Emission Factor References

- **Purchased goods & capital goods:**
  - Ecoinvent LCA database (resins, steel, plastics)
- **Transport (upstream & downstream):**
  - DEFRA freight emission factors (road/rail/sea/air, tonne-km basis)
- **Waste:**
  - DEFRA waste factors or India CPCB guidance where available (landfill, incineration, recycling of plastics)
- **Business travel & commuting:**
  - DEFRA 2024 passenger-km factors
- **End-of-life of sold products:**
  - DEFRA waste treatment factors for plastics (incineration, recycling, landfill)

12. Statement of uncertainty

- Scope 1: **15%** (higher if refrigerant fugitive estimates are used).
- Scope 2: **15%** depending on electricity factor selection and year alignment.
- Scope3: **50%** depending on category and share of secondary data. We will continuously improve with better supplier-specific data, updated factors, and QA checks *(*e.g., variance checks vs. production*).*

13. GHG Emissions Summary (MT CO2 e)

Calculation period: April 2024 to March 2025
All values in MT CO2 e GHG Emission
Reporting Frequency: Annually

EMISSION	CURRENT YEAR April 2024 to March 2025
Scope 1	130.191
Scope 2	5550.171
Scope 3	7499.886
Scope 3 Upstream	5313.831
Scope 3 Downstream	2186.055
Total GHG Emission	**13,180.248**

12. SBTi-Aligned Emission Reduction Targets for YAPP INDIA

Scope	Baseline (FY 2024–25)	2025–26 Target	2030 Target (Near-term SBTi)	2040 Target	2050 Target (Net Zero)	Key Reduction Strategies
Scope 1 (Direct emissions)	130.19 $MTCO_2e$	-5% (124 $MTCO_2e$)	-42% (≈75 $MTCO_2e$)	-90% (≈13 $MTCO_2e$)	Net Zero	Replace diesel gensets with LPG/NG or renewables; transition fleet to EVs/hybrids; strong preventive maintenance.
Scope 2 (Purchased electricity)	5550.171 $MTCO_2e$	-5% (5273 $MTCO_2e$)	-50% (≈2775 $MTCO_2e$)	-90% (≈555 $MTCO_2e$)	Net Zero	Solar PV installation, renewable PPAs, efficiency upgrades (motors, HVAC, lighting), digital energy monitoring.
Scope 3 (Total Value Chain)	7499.89 $MTCO_2e$	-5% (7125 $MTCO_2e$)	-25% (≈5625 $MTCO_2e$)	-60% (≈3000 $MTCO_2e$)	Net Zero	Engage suppliers for recycled plastic use, optimize logistics with low-carbon transport, support circular economy/EPR.
Upstream (Raw materials, packaging, logistics, commuting)	5313.83 $MTCO_2e$	-5% (5050 $MTCO_2e$)	-30% (≈3720 $MTCO_2e$)	-65% (≈1859 $MTCO_2e$)	Net Zero	Recycled materials, supplier decarbonization programs, green procurement, shared mobility for employees.
Downstream (Distribution & end-of-life)	2186.06 $MTCO_2e$	-5% (2077 $MTCO_2e$)	-20% (≈1749 $MTCO_2e$)	-55% (≈984 $MTCO_2e$)	Net Zero	Optimize outbound logistics, lightweight fuel tank design, recyclability & take-back programs.
Total GHG Emissions	13,180.25 $MTCO_2e$ (Scopes 1+2+3)	-5% (12,521 $MTCO_2e$)	-35–40% (≈7900 $MTCO_2e$)	-80–90% (≈2000 $MTCO_2e$)	Net Zero	Integrated decarbonization roadmap across operations & supply chain.

14. GHG Emission Reduction Plan

Action Area	Initiatives	Expected Impact	Timeframe
Scope 1 Reduction	Transition from diesel gensets to cleaner fuels (natural gas/LPG) or hybrid systems; enhance preventive maintenance of equipment.	Reduce direct combustion CO_2e emissions by 10–15%.	2025–2027
Scope 2 Reduction	Energy efficiency upgrades (LED lighting, high-efficiency motors, process optimization); explore solar PV installation at facilities; adopt renewable energy purchase agreements (RECs/Green Tariffs).	Cut grid electricity-related emissions by 20–25%.	2025–2030
Scope 3 Upstream	Work with suppliers to reduce emissions in resin and packaging manufacturing; increase use of recycled plastics; optimize inbound transport with low-carbon logistics providers.	Significant reduction in purchased goods and logistics-related emissions.	2025–2030
Scope 3 Downstream	Collaborate with OEM customers to improve distribution efficiency; design tanks with recyclability in mind; support extended producer responsibility (EPR) initiatives.	Mitigate downstream logistics and end-of-life emissions.	2026–2032
Cross-cutting	Establish annual ESG performance review, set science-based targets (SBTi), improve data accuracy for Scope 3 categories.	Strengthened reporting credibility and long-term decarbonization pathway.	Ongoing

15. References

- **The GHG Protocol Corporate Accounting and Reporting Standard** (WRI/WBCSD, Revised Edition, 2004). Corporate Standard | GHG Protocol
- **The GHG Protocol Scope 2 Guidance** (2015) – Accounting and Reporting of Scope 2 Emissions. GHG Protocol Scope 2 Guidance (2015) Corporate Standard | GHG Protocol
- **The GHG Protocol Corporate Value Chain (Scope 3) Accounting and Reporting Standard** (2011). Corporate Standard | GHG Protocol

- **The GHG Protocol Emission Factors from Cross-Sector Tools** (2024 update).
- **The GHG Protocol – GHG Emissions from Transport or Mobile Sources** (2015).
- **IPCC AR6 Synthesis Report: Climate Change 2024** – Global Warming Potentials (100-year). Publications - IPCC-TFI
- **Calculation of Carbon Footprints for Water Diversion and Desalination Projects** (Applied Energy, 2022).

16. Emission Factors Reference Table

Scope / Category	Activity / Source	Emission Factor Reference	Details Used
Scope 1 – Stationary Combustion	Diesel Generators / Boilers	IPCC 2006 Guidelines for National GHG Inventories – Vol. 2: Energy	CO_2, CH_4, N_2O factors (kg/TJ); converted using calorific values and AR6 GWPs (CO_2=1, CH_4=27.2, N_2O=273).
Scope 1 – Mobile Combustion	Company-owned vehicles (diesel/petrol)	GHG Protocol – GHG Emissions from Transport or Mobile Sources (2015)	Fuel-based method; country-specific fuel data applied.
Scope 2 – Purchased Electricity	Grid electricity (India)	Central Electricity Authority (CEA), India – CO_2 Baseline Database (latest version)	Location-based factor (tCO_2/MWh) applied to total purchased kWh.
Scope 3 – Purchased Goods & Services	Plastic resins, packaging	GHG Protocol Scope 3 Calculation Guidance (2013); DEFRA/UK Govt Conversion Factors (2024)	Cradle-to-gate life-cycle emission factors for plastics and packaging.
Scope 3 – Capital Goods	Equipment, machinery	GHG Protocol Scope 3 Standard	Category-specific LCA-based factors applied.
Scope 3 – Upstream Transport & Distribution	Supplier logistics (road, sea, air)	DEFRA/UK Govt Conversion Factors (2024); GHG Protocol – Transport Tool	Tonnes-km × mode-specific EF (road/sea/air).

Scope 3 – Waste Generated in Operations	Plastic scrap, packaging waste	DEFRA/UK Govt Conversion Factors (2024); Dubai Climate Change Report (Plastic Waste Study, 2023)	Treatment-specific EF (landfill, recycling, incineration).
Scope 3 – Business Travel	Air/rail/car	DEFRA/UK Govt Conversion Factors (2024)	Distance-based EF by mode (kgCO_2e/passenger-km).
Scope 3 – Employee Commuting	Daily transport (car, bus, bike)	GHG Protocol Scope 3 Guidance; DEFRA (2024)	Survey data × mode EF.
Scope 3 – Downstream Transport & Distribution	Distribution to OEMs	DEFRA/UK Govt Conversion Factors (2024)	Tonnes-km × EF based on distance and vehicle type.
Scope 3 – End-of-Life Treatment	Plastic fuel tanks disposal	IPCC 2006 Waste Guidelines; Dubai Plastic Waste System Dynamics Study (2023)	Scenario-based EF (landfill, incineration with energy recovery, recycling).