

GHG Inventorization Report

Lightstorm Telecom Connectivity
Pvt Ltd.
April 2025



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Introduction

GHG Inventorization Report

GHG Inventory Report

This GHG inventory report is prepared for LTC. The report has been prepared in accordance with World Resources Institute (WRI)/The World Business Council for Sustainable Development (WBCSD)'s Greenhouse Gas Protocol's Corporate Accounting and Reporting Standards ("GHG Protocol") for quantifying corporate GHG emissions ("GHG Protocol"). It includes the information required by the GHG Protocol for public reporting.

Coverage

- Scope 2 – Purchased Electricity
- Scope 3 Coverage – Purchased goods and services (Category 1), Capital Goods (Category 2), Fuel and Energy (Category 3), Upstream Transportation and Distribution (Category 4), Business Travel (Category 6), Employee Commute (Category 7), Upstream Leased Assets (Category 8).
More details about description and applicability of scope 3 categories are discussed further in the report.

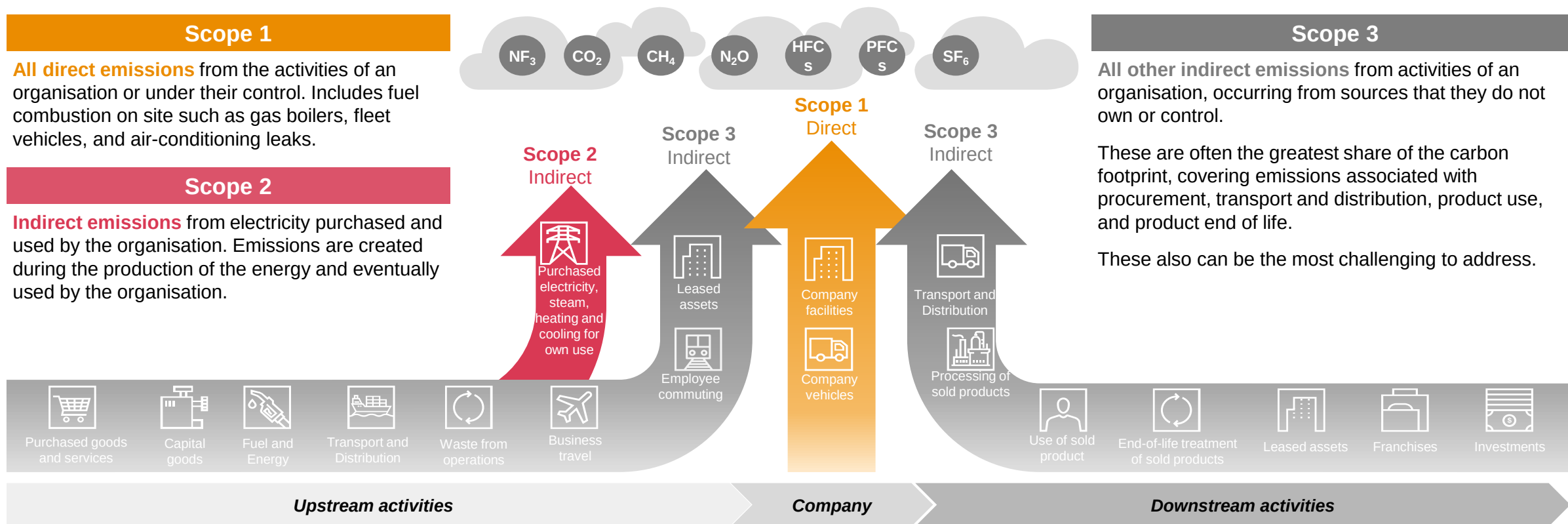
Reporting Period

GHG emissions in the calendar year of 2024 are reported (1st January, 2024 – 31st December 2024).

GHG Emission Overview

NF3, CO2, CH4, N2O, HFCs, PFCs, SF6 are the 6 GHG gases released due to activities of organization. These emissions are classified as Scope 1,2&3.

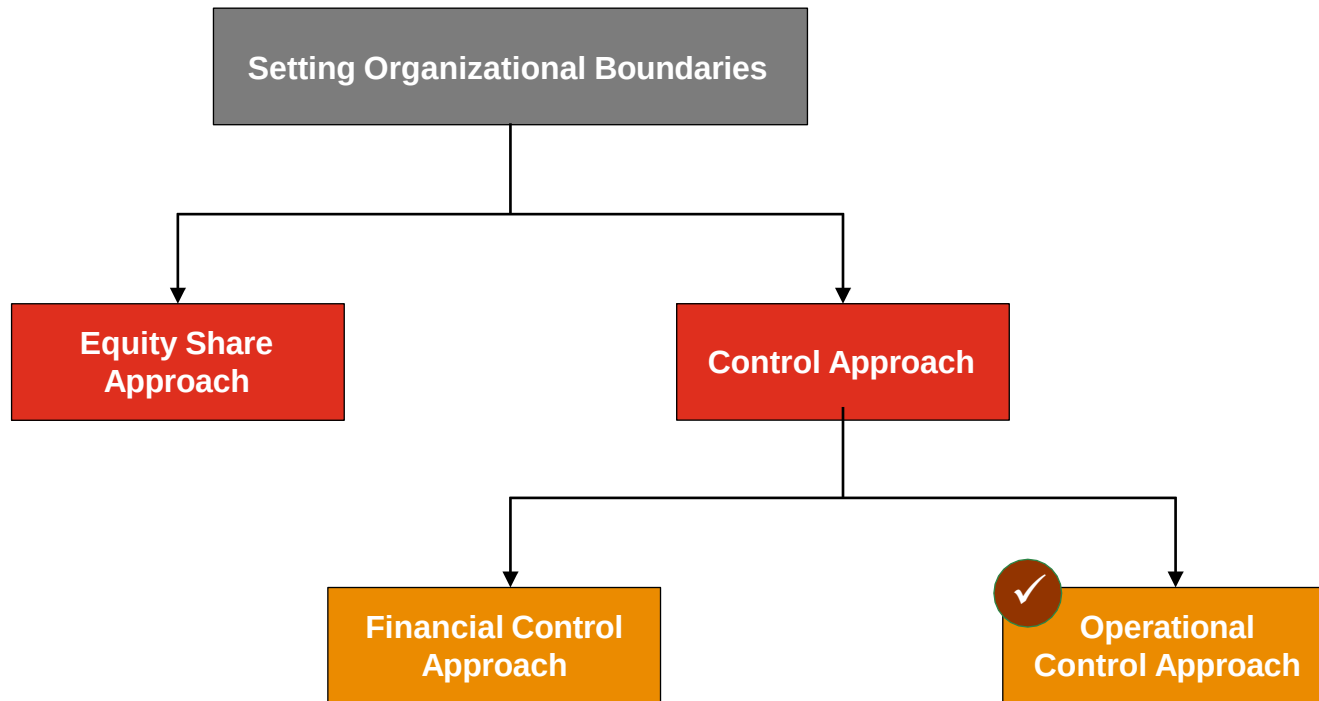
The detailed classification of activities and their contribution to emissions is explained below



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GHG Inventorization- Boundary and Scope

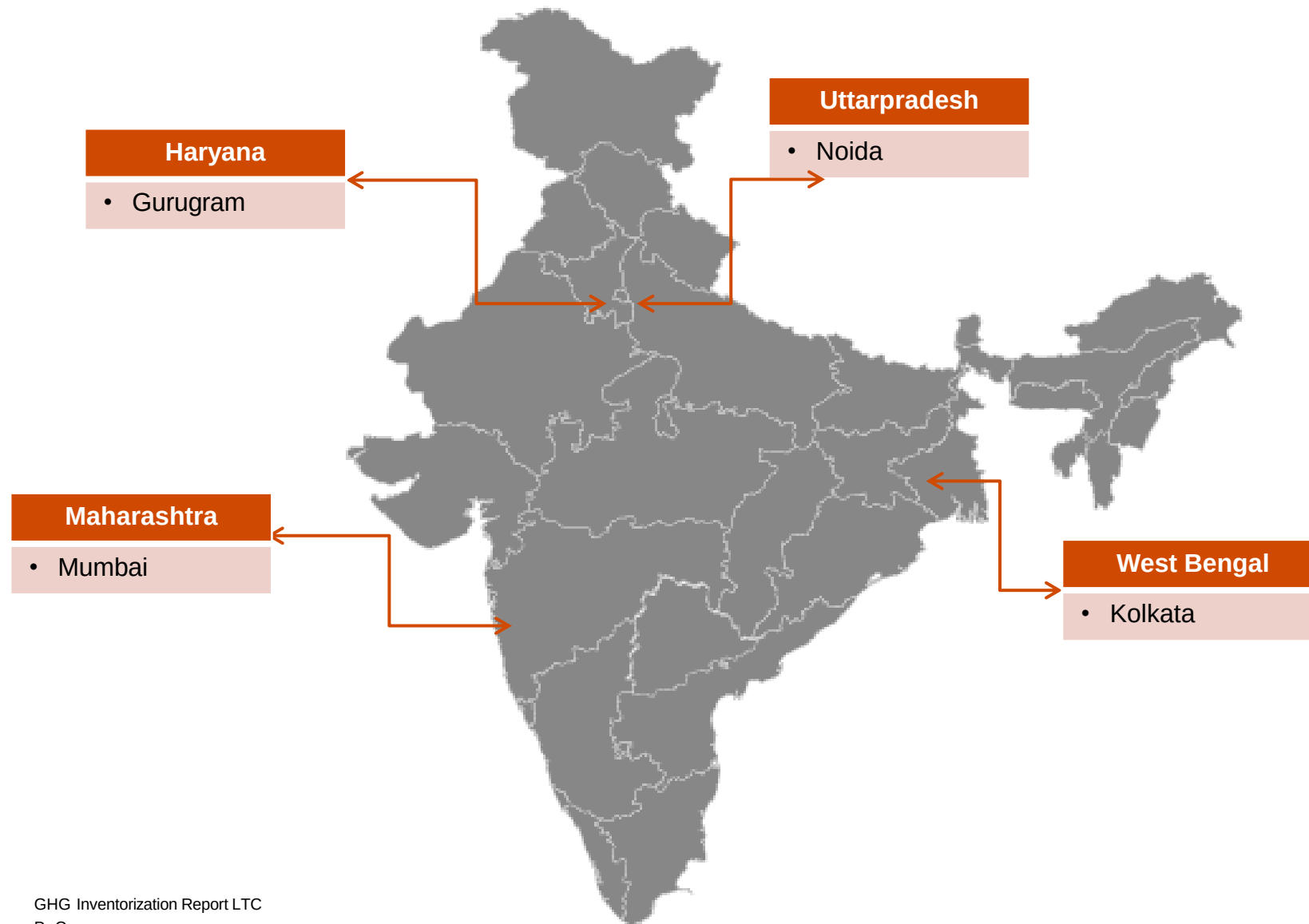
Setting Organizational and Operational Boundary : Approach



- **Equity share approach** - Companies record emissions according to the equity share it holds in each operation. This is based on the assumption that the economic risks and rewards are comparable to its ownership.
- **Financial control approach** – Companies record emissions from facilities, sites or operations over which it has financial control, i.e., the ability to direct the financial and operating policies.
- **Operational control approach** - Companies record emissions from facilities, sites or operations over which it has operational control, i.e., the authority to introduce and implement its operating policies at sites.

- *In this report operational control approach has been followed for LTC as the company has operational control over their facilities*

Setting Organizational Boundary: Asset Details



In the boundary we've considered :

- 4 main offices of Lightstorm
- Co-working spaces
- 10 Transco sites
- 36 Colo sites

Detailed Emission Coverage

The table represents various categories and the respective emission sources covered in emission calculation.

Scope	Category	Emissions Sources	Data Collected
Scope 1*	Stationery Fuel	Fuel used in company owned assets	Fuel consumption record at facilities and owned assets
Scope 2	Purchased Electricity	Consumption of grid electricity	Facility wise electricity procured
Scope 3	Purchased Goods & Services	Emissions due to purchase of goods and services	Purchase order data
Scope 3	Capital Goods	Emissions due to Capital goods	Purchase order data
Scope 3	Fuel and Energy	Emissions due to upstream activities electricity	Electricity procurement and consumption data
Scope 3	Business Travel	Emissions due to business travel by employees	Travel records data
Scope 3	Employee Commute	Emissions due to travel of employees from their place to office	Data from employee commute survey
Scope 3	Upstream Transportation and Distribution	Emissions arising from upstream transportation of raw material from suppliers	Supply chain data for upstream activities
Scope 3	Upstream Leased Assets	Emissions arise due to electricity consumed at leased sites	Annual electricity consumption at leased sites

As fuel consumption for LTC is nil as per database, hence scope 1 is zero

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Methodology for GHG calculation

Emission Factors reference link

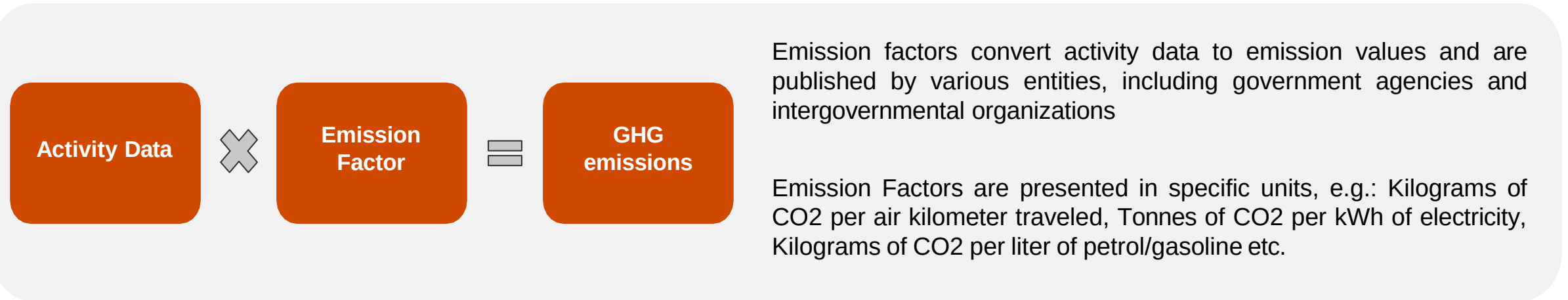
Emission Factor databases used for calculations

Department for Environment, Food and Rural Affairs (DEFRA)	The Department for Environment, Food and Rural Affairs (DEFRA) is a UK government department responsible for environmental protection, food production, agriculture, fisheries, and rural affairs.
Central Electricity Authority (CEA)	The Central Electricity Authority (CEA) is a statutory organization in India responsible for planning, coordination, and development of the electricity sector, as well as formulating policies related to generation, transmission, and distribution of electricity.
US Environmentally-Extended Input-Output (EEIO)	The Environmentally-Extended Input-Output (EEIO) framework in the United States (EEIO US) is an analytical approach that expands traditional input-output models to account for environmental impacts and resource use throughout the entire supply chain of goods and services, providing a comprehensive perspective on the environmental footprint of economic activities.

Reference Links for the sources

Department for Environment, Food and Rural Affairs (DEFRA)	https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1166237/ghg-conversion-factors-2023-full-file-update.xlsx
Central Electricity Authority (CEA)	https://cea.nic.in/wp-content/uploads/2021/03/User_Guide_Version_20.0.pdf
US Environmentally-Extended Input-Output (EEIO)	https://cfpub.epa.gov/si/si_public_record_Report.cfm?dirEntryId=349324&Lab=CE_SER

Calculation Methodology using Emission factor



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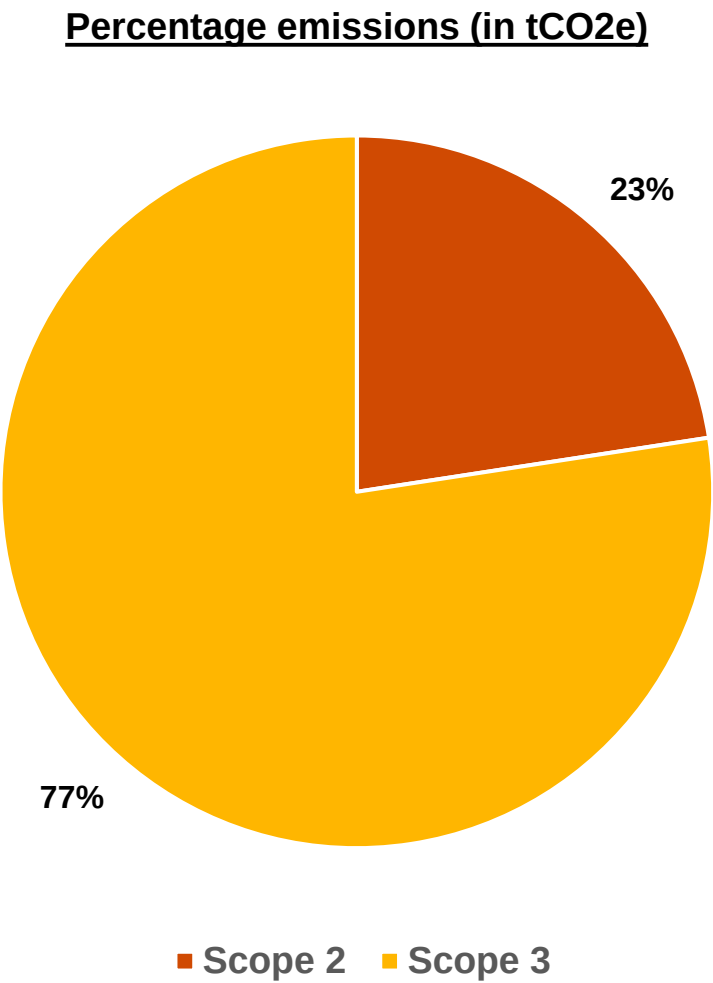
GHG inventory : Results

Result of GHG calculation

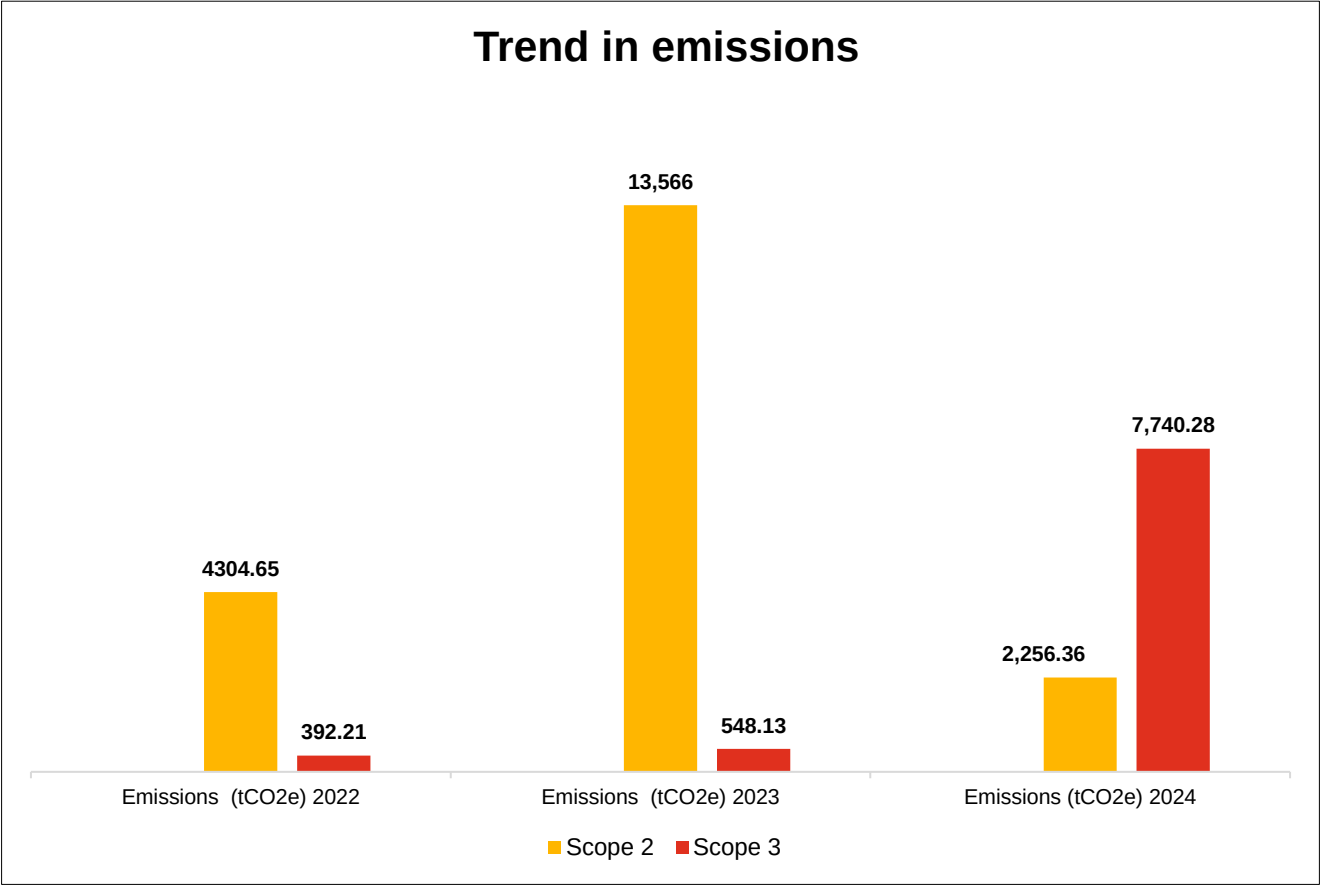
Final Results: 2024

The below table states the total emissions for LTC – CY 24, its bifurcation and percentage contribution of each category

Emission Category	Emissions (tCO2e) 2024	% Contribution
Scope 1	0	0
Scope 2	2,256.36	22.57
Scope 3	7,740.28	77.43
Total	9,996.64	100



Trend Analysis of LTC emissions for last 3 years



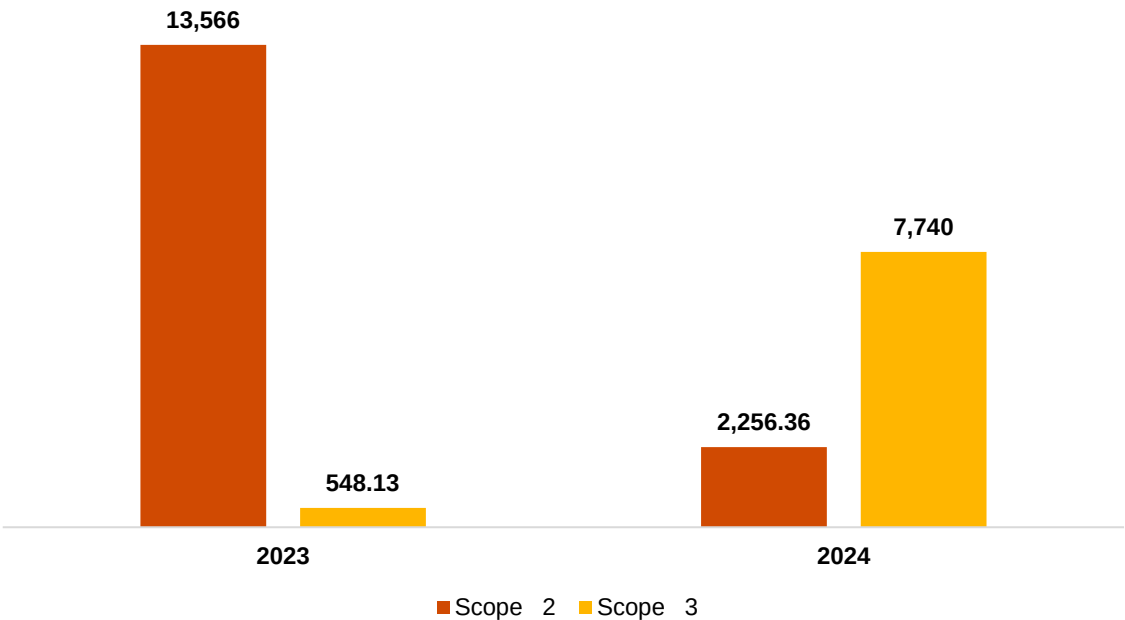
Emission Category	Emissions (tCO2e) 2022	Emissions (tCO2e) 2023	Emissions (tCO2e) 2024
Scope 2	4304.65	13,566	2,256.36
Scope 3	392.21	548.13	7,740.28

- The change in scope 2 emissions is associated with consumption of electricity across the 4 offices of Gurgaon and assets.
- The significant variation in scope 3 in 2024 is due to accounting of Cat 1 and 2 purchased goods and capital goods that account for maximum emissions

Trend Analysis of LTC emissions for last 2 years

The graph shows the change in significant change in emissions in year 2024 from 2023

Trend in emissions



Emission Category	Emissions (tCO2e) 2024	Emissions (tCO2e) 2023
Scope 1	0	0
Scope 2	2,256.36	13,566
Scope 3	7,740.28	548.13
Total	9,996.64	14,114

- The direct emissions (Scope 2) for LTC have decreased by 83% in 2024 from 2023
- The indirect emissions (Scope 3) for LTC have increased by 1312 % in 2024 from 2023

Detailed Analysis of Scope 2 Emissions

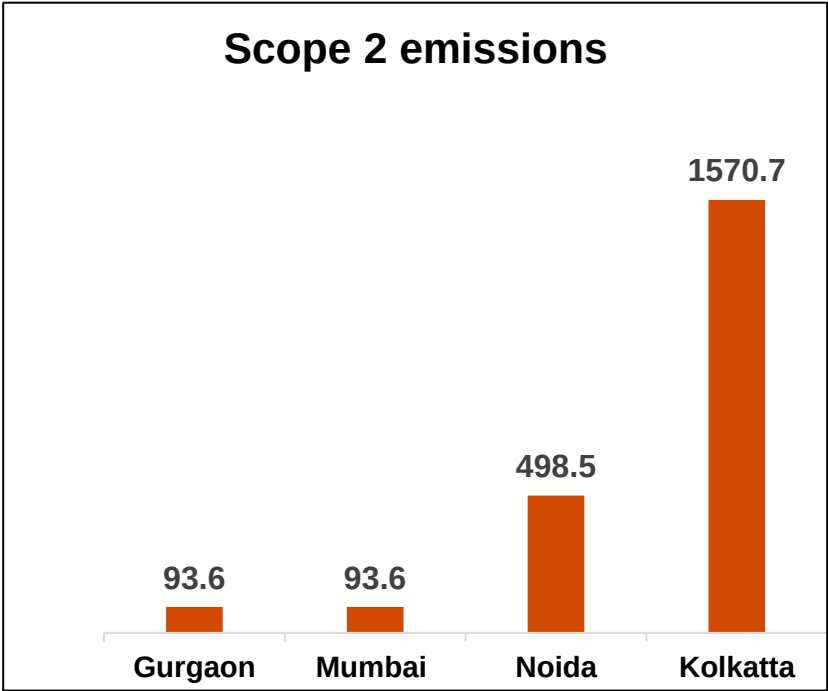
Scope 2 emissions are calculated by multiplying the total energy consumed (e.g., kWh) by the emissions factor (CO2e per unit of energy) for the energy source.

- Total Scope 2 emissions as per latest emission factor - **2,256.36 tCO2e**
- **Kolkata** had the highest contribution in of scope 2 emissions, the highest among all locations, accounting for **70%** in Year 2024
- This was followed by **Noida** which was the second highest contributor with **22%** in year 2024

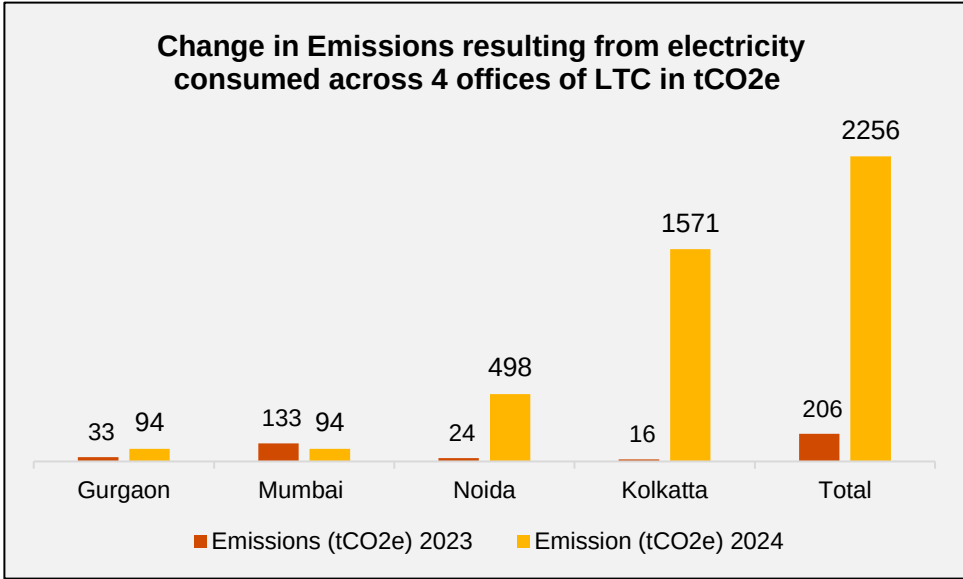
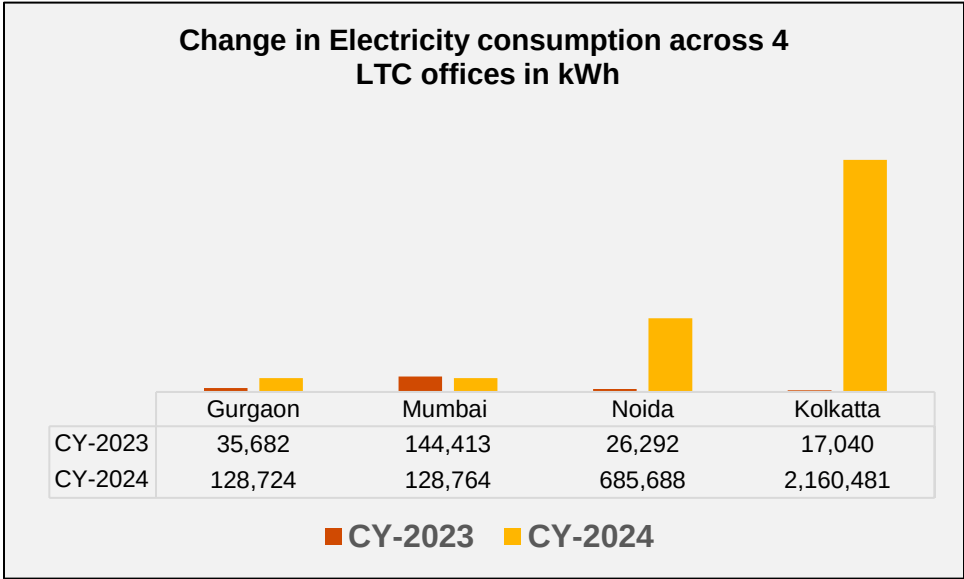
Calculation Methodology

Emissions (tCO2e) = Grid electricity procured x Emission Factor (Country specific)

Electricity type	Unit of measurement	Total	Emission Factor	EF Unit	Emissions (tCO2e)
Grid Electricity	kWh	3,103,657.30	0.727	kgCO2e/kWh	2,256.36



Trend analysis of scope 2 emissions



Scope 2 Emissions :

- Total Scope 2 Emissions for Year 2024 – 2,256 tCO2e
- It covers electricity consumption of 4 offices (Gurgaon, Mumbai, Noida and Kolkata)
- The increase in emissions from **206 tCO2e** in 2023 to **2,256 tCO2e** in 2024 is associated with **1289% of increase** in electricity consumption in 2024 from 2023
- Note: Electricity consumption from sites is considered in Scope 3 category – Upstream leased assets

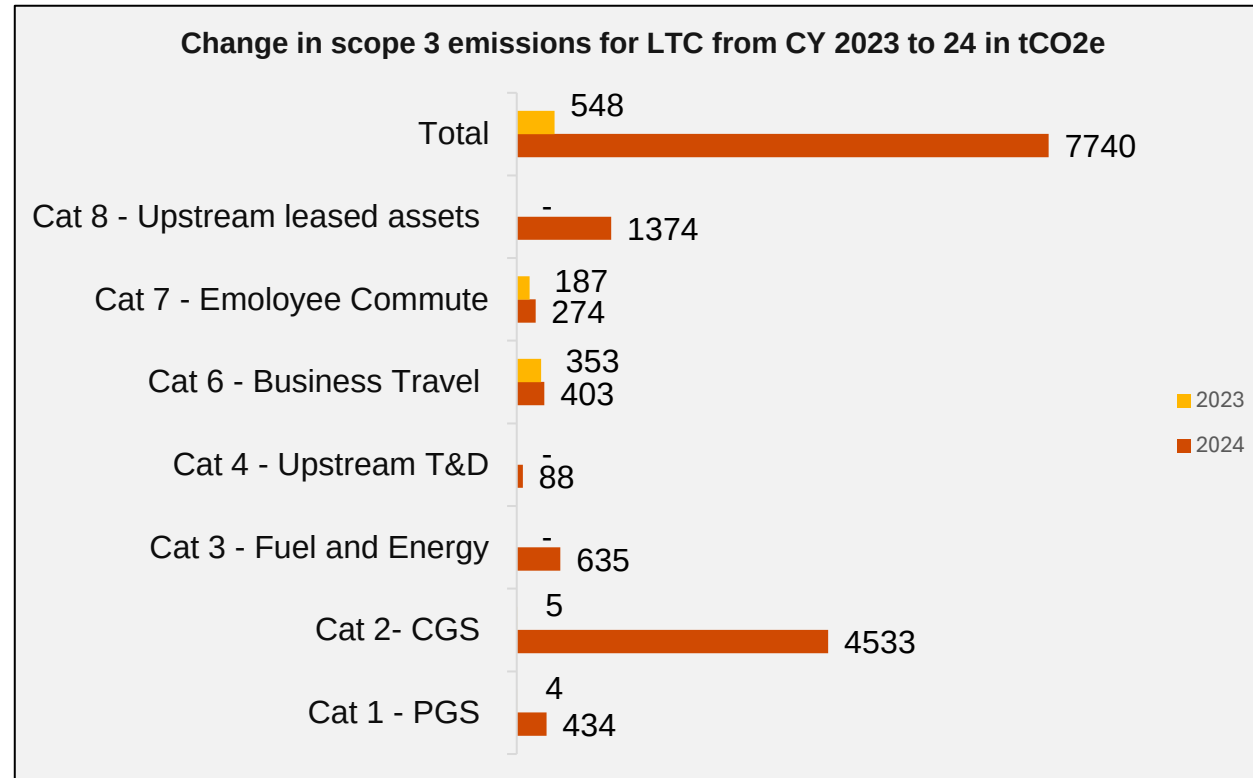
GHG Inventorization Summary

Scope 3 Emissions Category		Emissions (tCO ₂ e)
Cat 1	Purchased goods and services	432
Cat 2	Capital Goods	4532.8
Cat 3	Fuel and energy-related activities	634.5
Cat 4	Upstream transportation and distribution	88.2
Cat 6	Business travel	402.9
Cat 7	Employee commuting	273.7
Cat 8	Upstream Leased Assets	1374
	Total	7,740

Methodology/Assumptions:

- **Category 1 : Purchased Goods and Services** is calculated based on the total expenditure as recorded in the purchase ledger.
- **Category 2: Capital Goods** is calculated based on the total expenditure as recorded in purchase order
- **Category 3: Fuel and Energy-Related Activities** is calculated based on fuel consumption data provided.
- **Category 4: Upstream Transportation** is calculated based on the expenditure for upstream logistics as detailed in the freight ledger.
- **Category 6: Business Travel** is calculated based on expenditure on road, air, train travel and hotel stays.
- **Category 7: Employee Commute** is calculated based on sample responses from 147 employees, which is further extrapolated for the total workforce of 220 employees (*total employee provided by Lightstorm team*).
- **Category 8 : Upstream Leased Assets** is calculated based on the on the expenditure for leasing assets used in upstream operations, as recorded in the lease ledger.

Trend analysis of scope 3 emissions



Scope 3 Emissions :

- Total Scope 3 Emissions for Year 2024 – 7,740 tCO2e
- The increase in emissions from **548.13 tCO2e** in 2023 to **7,740 tCO2e** in 2024 is associated with addition of new categories being calculated in year 2024
- Cat 3 – Fuel and energy, Cat 4 – Upstream T&D and Cat 8 – Upstream leased assets have been considered in year 2024 for Lightstorm and are calculated as part of scope 3 emissions
- Significant increase in emissions in Cat 1 and Cat 2 is associated with increase in purchase order value from **96,997,05 USD** in 2023 to **44,409,787.83 USD** in 2024 as LTC has undergone business expansion.

Scope 3, Category-1 :Purchased Goods and Services

Scope 3 emissions from purchased goods and services are calculated using purchase order data and applying emissions factors to estimate production-related emissions.

Calculation Methodology

Emissions (tCO2e) = Amount spent on the category (in USD) * EEIO Emission Factor (tCO2e/USD)

Item description	Total amount in INR	Total amount in USD	Emission Factor	EF Unit	Emissions (tCO2e)
Various goods and services purchased in CY'24	232,693,502.48	2,717,645.48	Multiple emission factors as per specific good and service	kgCO2e/2022 USD	433.95

Scope 3, Category-2 :Capital Goods

Scope 3 emissions from capital goods are calculated by using the purchase data of capital assets and applying emissions factors to estimate the emissions associated with their production and lifecycle.

Calculation Methodology

Emissions (tCO2e) = Amount spent on the category (in USD) * EEIO Emission Factor (tCO2e/USD)

Item description	Total amount in INR	Total amount in USD	Emission Factor	EF Unit	Emissions (tCO2e)
Various Capital goods purchased	3,569,814,643	41,692,142.35	Multiple emission factors as per specific good	kgCO2e/2022 USD	4532.8

Scope 3, Category 3-Fuel and Energy

Scope 3 for fuel- and energy-related activities are calculated using data on fuel and energy consumption, including upstream emissions factors, to estimate emissions from the production, transport, and distribution of fuels and energy used.

Calculation Methodology

Emissions per week (tCO2e) = Quantity of fuel consumed or electricity purchased * T&D emission factor

Electricity type	Unit of measurement	Total	Emission Factor	EF Unit	Emissions (tCO2e)
Grid	kWh	3,103,657.30	0.20446	kgCO2e/kWh	635

Scope 3, Category 4- Upstream transportation and distribution

Scope 3 emissions for upstream transportation and distribution are calculated using data on total spent on inbound logistics as received in freight ledger.

Calculation Methodology

Emissions (tCO2e) = Amount spend in USD for each transportation type* Emission factor (tCO2e/km)

Spent category	EEIO category	Emission factor	Total amount in USD	Emission
Car Rental Charges	Truck, Utility Trailer, and RV (Recreational Vehicle) Rental and Leasing	0.11	23762.25	2.61
Transportation and logistic charges	General Freight Trucking, Local	0.595	143959.46	85.65
			Total Emissions	88.26973

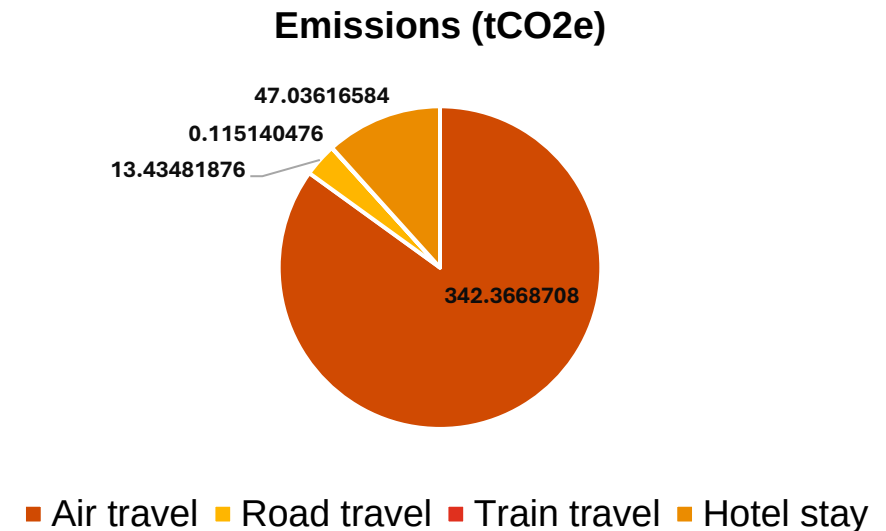
Scope 3, Category 6-Business Travel

Scope 3 emissions for business travel are calculated using the total spend on travel services and applying emissions factors based on financial expenditure to estimate associated emissions.

Calculation Methodology

Emissions (tCO₂e) = Amount spend in USD for each travel type X Emission factor (tCO₂e/km)

S No	Description	Amount (INR)	Amount (\$)	EEIO Category	EF kg CO ₂ e/ 2022 USD	Emissions (tCO ₂ e)
1	Air travel	45,519,483	531,626	Scheduled Passenger Air Transportation	0.64	342.37
2	Road travel	2,032,389	23,736	All Other Transit and Ground Passenger Transportation	0.57	13.43
3	Train travel	21,156	247	Short Line Railroads	0.47	0.12
4	Hotel stay	27,775,083	324,387	Hotels (except Casino Hotels) and Motels	0.15	47.04
					Total	402.95



Scope 3, Category 7 -Employee Commute

Scope 3 emissions for employee commuting are calculated using survey data on commuting patterns, distances, and transportation modes, applying emissions factors to estimate associated emissions.

Calculation Methodology – Employee Commute Survey

Emissions: Daily Distance travelled by particular mode of transport (km) X No. of days of travel in a year X Emission factor (tCO₂e/km)

Emissions from Employee Commute	
Total emissions by respondents	182.89
Total employees no. of respondents	147
Emission per respondent	1.24415
Total employees in Lightstorm	220
Emissions for Total employees in tCO₂e	273.713

Scope 3, Category 8 – Upstream Leased assets

Scope 3 emissions for upstream leased assets are calculated using data on electricity consumption at leased or rented sites, applying emissions factors to estimate the associated emissions.

Calculation Methodology

Emissions (tCO2e) = Grid electricity procured x Emission Factor (Country specific)

Electricity type	Unit of measurement	Total	Emission Factor	EF Unit	Emissions (tCO2e)
Grid Electricity	MWh	1890	0.20446	kgCO2e/kWh	1374.68

Note

- *There is a 87% decrease in emissions due to upstream leased assets in 2024 as compared to 2023 i.e. 13360 tCO2e*
- *This change is associated with dismantling of 13 sites that reduced the overall electricity consumption resulting in lesser emissions*

Thank you

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