



O.P. JINDAL GLOBAL
[INSTITUTE OF EMINENCE DEEMED TO BE]
UNIVERSITY
A Private University Promoting Public Service

GHG Accounting Report
Reporting Year 2024

Prepared by



NEW DELHI, INDIA

Table of Contents

1	1. Introduction:	3
2.	Objective of the Report	4
2.1	Intended Report user and usage:	4
2.2	Time Period, Frequency and Base Year Calculation	4
3.	Declaration Statement by the Reporting Organization	4
3.1	JGU - Organizational Profile	6
3.2	Boundaries Statement	6
3.2.3	Clarification on Owner-Operator Relationships	6
4.	OP Jindal Emission Profiles for the Year 2024 (1st, January-31st December)	7
4.1	Scope 1 –	7
4.1.1	Stationary Fuel Combustion:	7
4.1.2	Mobile combustion:	7
4.1.3	Refrigerant and Fire Extinguishers:	8
4.2	Scope 2 (Indirect Emissions)	8
4.3	Scope 3-Value Chain Emissions (Indirect)	9
5.	Emission Calculation Methodology	9
5.1	Organizational and Operational Boundaries	9
5.1.1	Emission Scopes Covered	9
5.1.2	Emission Source Identification and Prioritization	10
5.1.3	Summary of Emission Sources and Data Collection	10
5.2	Emission Calculation Methodology	13
5.2.1	Calculations flow for Scope 1 and 2	14
5.2.2	Process Documentation in the Inventory Management Plan (IMP)	15
6.	Emission Quantities in 2024	15
6.1	Direct Emissions (Scope 1)	16
6.2	Indirect Emissions	17
6.2.1	Scope 2	17
6.2.2	Scope 3:	18
6.3	Materiality	18
7.0	Organizational Activities to Reduce GHG Emissions or Enhance GHG Removals	19
7.1	Key Practices Contributing to GHG Mitigation:	19
7.2	Key Opportunities for Emissions Reduction and Sustainability Enhancement	20
1.1.1	Annexure – Glossary of Terms (GHG Emissions Report)	21

(i) Organization

The report represents the data related to OP Jindal Global University, as per the scope, inclusions and exclusions, as detailed out in the report.

(ii) Responsible Person

Mr. Padmanabha Ramanujam

E-Mail: pramanujam@jgu.edu.in

S. No	Project Team Members	Functions & Location
1	Prof. Padmanabha Ramanujam	Dean, Office of Academic Governance
2	Ms. Anadika Sahu	Office of Rankings, Benchmarking and Institutional Transformation
3	Ms. Ipsita Das	
4	Ms. Niharika Godara	
5	Ms. Pooja	
6	Ms. Sneha Garg	
7	Mr. Swapnil Bhosale	
8	Ms. Varnika	

(iii) Consulting Organization

This report is prepared by Greenloop CleanTech, New Delhi

S. No	Team Members Greenloop CleanTech	Functions and contact
1	Dr Rachana Malviya	Consultant, rachanamalviya@greenloopcleantech.com
2	Dr. Rimika M.Kapoor	Consultant, rimikakapoor@greenloopcleantech.com

1 1. Introduction:

Climate change is the defining challenge of our time. Its far-reaching effects on ecosystems, human health, infrastructure, and economic stability have made it a central concern for governments, industries, and academic institutions alike. Universities are not only centres of learning and research—they are also large-scale operational entities with tangible environmental footprints. As such, the role of higher education institutions in modelling sustainable practices has never been more important.

O.P. Jindal Global University (JGU), located in Sonipat, Haryana, is a premier higher education institution known for its world-class infrastructure that supports academic excellence, research, and innovation. Spanning across an 80-acre fully residential campus, JGU houses modern academic blocks, residential hostels, dining areas, a comprehensive library, and advanced recreational and sports facilities. The campus includes technologically equipped classrooms, a moot court, a state-of-the-art auditorium, and robust support services such as medical care, internet connectivity, and 24/7 security. This modern infrastructure not only enhances the quality of education but also contributes to the university's environmental footprint. As a large-scale operational entity with energy-intensive systems and diverse activities,

O.P. Jindal Global University (JGU) stands uniquely positioned to lead in this domain. Recognized as an 'Institution of Eminence' under the UGC's regulatory framework, JGU has consistently demonstrated excellence in education, research, and innovation. It has been ranked the No. 1 Private University in India by the QS World University Rankings 2023—for the third consecutive year—and is the only Indian private university ranked among the top 150 'Young Universities in the World' (under 50 years of age) in the QS Young University Rankings 2022.

As global university rankings increasingly incorporate environmental responsibility into their frameworks, integrating GHG accounting into JGU's operational strategy is both a mark of institutional integrity and a strategic imperative. By systematically measuring and transparently reporting its carbon footprint, JGU can strengthen its QS standing, inspire peer institutions, and lead by example in building a climate-conscious academic future. This emissions report presents the university's baseline inventory, methodological approach, and key findings—marking the beginning of a long-term commitment to sustainability leadership.

Greenloop Cleantech, New Delhi, India, is a sustainability consulting firm specializing in greenhouse gas (GHG) accounting, ESG reporting, and decarbonization strategies for institutions and businesses. With expertise in climate data management and reporting frameworks, the firm supports organizations in aligning their operations with international environmental standards. Greenloop Cleantech was engaged by O.P. Jindal Global University (JGU) to develop and prepare its official Greenhouse Gas

Emissions Report. The engagement reflects JGU's commitment to transparency, institutional accountability, and climate leadership.

Greenhouse Gas (GHG) accounting—the systematic process of measuring and reporting an organization's carbon emissions—is a critical first step in this journey. It provides transparency, drives informed action, and allows institutions to set measurable targets for emissions reduction. The methodology applied in this report follows the internationally recognized *GHG Protocol Corporate Standard*, the most widely used framework for corporate GHG accounting.

2. Objective of the Report

The primary objective of this report is to quantify and document the Scope 1 and Scope 2 greenhouse gas (GHG) emissions associated with O.P. Jindal Global University's operations for the specified reporting period (January 1, 2024 - December 31, 2024). By establishing a transparent and verifiable emissions baseline, the report supports informed decision-making, guides future emissions reduction planning, and aligns JGU's sustainability initiatives with internationally recognized standards, certification frameworks, and best practices.

2.1 Intended Report user and usage:

This GHG Emissions report is intended for internal planning, public disclosure, institutional benchmarking, and reporting to external stakeholders including university rankings bodies, government agencies, and sustainability certification organizations. The emissions data disclosed will help demonstrate environmental accountability and support JGU's leadership in sustainable campus operations.

2.2 Time Period, Frequency and Base Year Calculation

This report covers the calendar year from January 1, 2024, to December 31, 2024. The reporting frequency is annual. As this is the first formal GHG inventory conducted at the institutional level, 2024 will serve as the base year for future comparisons and emissions reduction targets.

3. Declaration Statement by the Reporting Organization

We, O.P. Jindal Global University (JGU), declare that this Greenhouse Gas (GHG) Emissions Report for the calendar year January 1, 2024, to December 31, 2024, has been prepared in collaboration with Greenloop Clean Tech, New Delhi, our sustainability consulting partner, and is aligned with internationally recognized GHG accounting and reporting principles. The report adheres to the following principles:

- **Relevance** – The report focuses on data and emissions sources that support informed decision-making and sustainability planning at JGU. With Greenloop Cleantech’s domain expertise, the data selection has been tailored to meet both institutional and stakeholder needs.
- **Completeness** – All significant GHG emission sources within the defined organizational and operational boundaries have been considered. Where data was not available or emissions were deemed immaterial in terms of overall energy consumption, such exclusions are clearly noted and justified to prevent misinterpretation. Both JGU and Greenloop Cleantech have ensured that these exclusions are well-understood and managed appropriately.
- **Consistency** – The data collection and reporting methodologies have been consistently applied across sources and over time, with technical support from Greenloop Cleantech to maintain methodological integrity and allow year-over-year comparison.
- **Transparency** – Assumptions, calculation methods, emission factors, and data sources have been disclosed to the extent possible to ensure clarity and credibility of the report.
- **Accuracy** – Efforts have been made to minimize uncertainties and enhance data reliability. Both JGU and Greenloop Cleantech have taken reasonable steps to ensure the accuracy of the disclosed information through internal verification and quality control measures.

We recognize that not all GHG sources have been included in this report. However, exclusions have been carefully assessed and are limited to areas where data was either unavailable or considered insignificant in terms of total energy use and emissions impact. These exclusions have been documented and managed to ensure the report remains robust and credible.

3.1 JGU - Organizational Profile

O.P. Jindal Global University (JGU) is a non-profit, multi-disciplinary and research oriented university founded in 2009. JGU was established as a philanthropic initiative of its Founding Chancellor, Mr. Naveen Jindal in memory of his father, Mr. O.P. Jindal. JGU has over 14,000 students, 1100+ full-time faculty members, and 2900+ administrative staff in its fully residential campus. JGU's twelve schools focus on Law, Business & Management, International Affairs, Public Policy, Liberal Arts & Humanities, Journalism, Art & Architecture, Banking & Finance, Environment & Sustainability, Psychology & Counselling, Languages & Literature and Public Health & Human Development. Over the last decade, JGU has grown into an institution that brings full-time faculty from 50+ countries in the world, students from 75+ countries and has collaborated with 500+ leading institutions in 75+ countries which makes the learning experience truly international.

3.2 Boundaries Statement

JGU has adopted the **operational control approach** for defining its organizational boundary. JGU reports emissions from all facilities over which it has full operational control, irrespective of ownership status. For the 2024 reporting period, there are 14 buildings (academic, residential, food court, theatre, library are different forms of building), with a built-up area of the campus as on December 2024-346811 m². The 80 acre campus has 55% of green cover, 1,40,000+ trees and 41 acres of lawns and garden.

3.2.1 Operational and Reporting Boundary

The operational boundary defines reporting boundaries for the types of emissions to be included, categorized as Scope 1 (direct), Scope 2 (indirect from energy), and select Scope 3 (other indirect) emissions, as applicable. The university has identified and mapped all emission sources within these scopes, including:

- **Scope 1:** Direct GHG emissions from stationary combustion (e.g., diesel generators), mobile combustion (campus vehicles), and on-site waste disposal (if applicable).
- **Scope 2:** Indirect emissions from purchased electricity used across the campus.
- **Scope 3 (partial, where data is available):** Includes emissions from business travel, employee commuting, upstream fuel emissions, and waste generated in operations.

3.2.3 Clarification on Owner-Operator Relationships

To prevent double counting or omission of emissions, careful consideration was given to owner-operator relationships across all campus assets. Since JGU has full operational and financial control over the Sonipat campus, all relevant emissions have been appropriately included in the university's GHG inventory in line with standard GHG accounting protocols.

4. OP Jindal Emission Profiles for the Year 2024 (1st, January-31st December)

Following table 1 present the snapshot of the JGU emission profile. This section defines type of emission sources considered, followed by description of data collection, handling and emission calculation.

Table 1: JGU Emissions- Scope 1, Scope 2, Scope 3

Scope	Type of Emission	2024 Total (GWP)	Reference
Scope 1	Total Direct	4505.14	Excel worksheet
	Stationary Combustion	3389.2	
	Mobile Combustion	458.23	
	Refrigerator /Fire Extinguisher	657.66	
Scope 2	Purchased Electricity- Indirect	28858.12	
Scope 3	Value Chain Emissions-Indirect	35830.55	
Total		69193.81	

4.1 Scope 1 – Direct Greenhouse Gas Emissions

Scope 1 emissions refer to direct GHG emissions from sources that are owned or controlled by O.P. Jindal Global University (JGU). These emissions result from activities that occur within the physical and operational boundary of the university and are not attributable to third-party actions.

4.1.1 Stationary Fuel Combustion:

Emissions from the use of diesel in generators deployed across campus facilities. This is a key contributor to Scope 1 emissions, especially during power outages and peak load times. The other contributor to the activity is PNG used in the kitchens in cylinders

Scope 1 Calculation : The inventory management plan describes the data collection and calculation process for all Scope 1: direct, indirect emissions.

4.1.2 Mobile combustion:

Emissions from diesel and petrol, compressed natural gas consumption in university-owned vehicles, including buses and utility vehicles used for academic, administrative, and maintenance operations. The combustion of these fuels created GHG emissions in the form of CO₂ as well as smaller amounts of CH₄ and N₂O.

Combustion from gas and diesel: Data to calculate emissions from the mobile combustion of gas and diesel in automobiles is obtained by using log entries for fuel refill and pump receipts. Monthly usage data per vehicle is used to estimate consumption.

4.1.3 Refrigerant and Fire Extinguishers:

Unintentional releases, primarily from air-conditioning and refrigeration units, which may involve refrigerant gases with high global warming potential. Efforts have been made to track and estimate these emissions where data is available. No process emissions (from industrial chemical transformations) are applicable within JGU's current operations.

O.P. Jindal Global University (JGU) tracks refrigerant-related emissions through facility-level maintenance data managed by maintenance team, using the Simplified Material Balance Method recommended by the U.S. EPA for calculation, which is suitable for entities that rely on contractors and do not maintain refrigerant stock. The emissions to the extinguishers is associated to the emissions related to the onsite usage of fire extinguishers either during drill or real emergency. These refrigerants are about 2 % of total emissions at JGU.

4.2 Scope 2 (Indirect Emissions)

O.P. Jindal Global University's Scope 2 greenhouse gas (GHG) emissions account for indirect emissions resulting from the generation of purchased electricity consumed by the institution. Scope 2 emissions can be reported using either the market-based or location-based approach. The market-based method reflects the emissions intensity of electricity purchased through specific contractual arrangements, such as renewable energy certificates or supplier-specific emission factors. The location-based method, on the other hand, is based on the average emissions intensity of the regional electricity grid where the institution operates. For this report, the market-based approach is not applicable. Therefore, Scope 2 emissions have been calculated using the location-based method, in accordance with GHG Protocol guidance:

$$\text{Emissions} = \text{Electricity Consumption (kWh)} \times \text{Emissions Factor (kgCO}_2\text{e/kWh)}$$

4.3 Scope 3-Value Chain Emissions (Indirect)

O.P. Jindal Global University's Scope 3 greenhouse gas (GHG) emissions represent indirect emissions that occur as a result of the institution's activities but arise from sources not owned or directly controlled by the university. These may include emissions from purchased goods and services, employee commuting, business travel, waste generated in operations, and upstream and downstream transportation. In alignment with the GHG Protocol guidelines, JGU is currently in the process of identifying and prioritizing material Scope 3 categories relevant to its operations. While a comprehensive Scope 3 inventory is still under development, preliminary assessments are being conducted based on activity data, spend-based proxies, and emission factors from credible sources. As more data becomes available, JGU will refine its Scope 3 accounting and expand disclosures to support transparency and climate action planning.

5. Emission Calculation Methodology

This section outlines the methodology used to identify, collect, and calculate greenhouse gas (GHG) emissions from O.P. Jindal Global University (JGU), Sonipat for the calendar year 2024. JGU operates a fully residential academic campus that includes 14 buildings used for teaching, administration, student housing, faculty residences, and food services. To support operations, the university maintains a fleet of buses and vehicles used for intra-campus and city-to-campus transportation of students, faculty, and staff.

5.1 Organizational and Operational Boundaries

JGU has adopted the operational control approach in line with the GHG Protocol Corporate Standard, reporting emissions from all facilities over which it exercises full operational control, regardless of ownership.

5.1.1 Emission Scopes Covered

Scope 1: Direct GHG emissions from fuel combustion in diesel generators and university-owned vehicles; refrigerant leaks; and fire extinguisher use.

Scope 2: Indirect emissions from purchased electricity from the national grid.

Scope 3 (assessed for materiality): Indirect emissions from upstream and downstream activities such as business travel, procurement, employee commuting, and waste.

5.1.2 Emission Source Identification and Prioritization

Emission sources were identified and prioritized using the following criteria:

- **Operational Significance** – Sources essential to day-to-day operations.
- **Emission Intensity** – High GWP gases or high-volume energy sources.
- **Compliance Requirements** – Regulatory or reporting obligations.
- **Historical Relevance** – Sources with previously reported or available data.

5.1.3 Summary of Emission Sources and Data Collection

Table 2: Summary of emission sources and respective data resource

S. No.	Emission Source	Type	Data Source	Supporting Records
1	Diesel Generator (DG) Operation	Fuel Combustion (Scope 1)	Operations Department	Diesel Issue Log Book
2	University-Owned Vehicles (Mobile Fleet)	Fuel Combustion (Scope 1)	Transport/Maintenance Dept.	Fuel Logs, Vehicle Usage Logs
3	Purchased Electricity (Grid Supply)	Purchased Electricity (Scope 2)	Accounts/Facilities	Monthly Electricity Bills
4	Sewage Treatment Plant (STP)*	Process Emissions (Scope 1/3)	Campus Operations	Occupancy Records (excluded)**
5	Scope 3 15 categories	Upstream and downstream emissions		Travel documentation Scope1(fuel consumption logs) and Electricity bills, Spend data, business travel flight data from travel desk database

*STP emissions were considered anthropogenic but excluded from calculation due to their immaterial impact in the current year.

Table 3: Scope 3 Categories and Materiality for JGU

Category Name	Materiality	Remark's
(1) Purchased Goods and Services	Not calculated	Data unavailable. Typically material; will be prioritized in future cycles.
(2) Capital Goods	Not calculated	Embedded emissions from equipment/facilities; to be assessed in future.
(3) Fuel- and Energy-Related Activities	21,794.80 (Material)	Significant upstream impact of Scope 1 & 2 energy use. Routinely tracked.
(4) Upstream Transportation and Distribution	NA	Likely material; supplier logistics data required.
(5) Waste Generated in Operations	13,099.80 (Material)	Based on operational waste treatment. Reduction opportunities identified.
(6) Business Travel	376.94 (Material)	Visible to stakeholders. Based on 2,230 trips via ICAO calculator.
(7) Employee Commuting	559.0	Employees commuting to work using personal vehicles
(8) Upstream Leased Assets	NA	No upstream leased assets used.
(9) Downstream Transportation & Distribution	NA	There are no downstream logistics related to current operations.
(10) Processing of Sold Products	NA	No third-party processing of sold goods.
(11) Use of Sold Products	NA	Products do not produce emissions during the use phase.
(12) End-of-Life Treatment of Sold Products	NA	This is not relevant to our current business model.
(13) Downstream Leased Assets	NA	The company does not lease assets for product use.
(14) Franchises	NA	No franchises.
(15) Investments	NA	There are currently no financial investments to report.

5.1.3.1 Scope 3 Emissions Assessment and Materiality

Scope 3 emissions were screened based on the 15 categories defined by the GHG Protocol. A **1% materiality threshold** (of total emissions) was applied. Relevant data was collected from internal departments, vendors, and other stakeholders. Categories meeting the threshold were included in the inventory, while others were noted for future expansion. A supplementary Scope 3 annex will be provided upon material data

(a) **Category 1 and 2:** these categories were not calculated in 2024 due to unavailability of data, spend based analysis will be conducted in coming years. On The materiality scale these categories are expected to be significant due to usage of goods papers, electronics, software, hardware, furniture and other services (cleaning, housekeeping, accounting, software, subscriptions etc)

(b) **Category 3- Fuel- and Energy-Related Activities-** Due to significant emissions from fuels utilized to manage smooth operations at JGU, Well to Tank emissions are estimated for all fuels used in

stationary and mobile equipment's. The emission in this category is the most significant indirect scope 3 emissions. Which is related to the processing of fuels and electricity consumed by JGU in the Year 2024. Approximately 60% of the total scope 3 emissions.

(c) **Category 5- Waste Generated in Operations-** The waste generated in operations of JGU university consists of recyclable and wet waste. The waste is collected and segregated at source and handled by third party vendor. The data supplied by third party includes distinction of wet waste and recyclable for 2024. This category contributes about 18% of the total scope three emissions.

(d) **Category 6-Business travel:** Emissions from business travel by air for the reporting year were calculated using the ICAO Carbon Emissions Calculator, a globally recognized methodology for estimating CO₂ emissions from commercial aviation. Each trip was assessed based on one passenger traveling in economy class, consistent with ICAO's default and conservative approach for GHG estimation. A total of 2,230 one-way flight segments were analyzed, with flight route data extracted from JGU's internal ticketing system and compiled in a sector-wise format. Round trips were treated as two one-way segments unless otherwise specified in the source data. The emissions reported reflect direct CO₂ only, as per the ICAO methodology, and exclude radiative forcing effects or non-CO₂ impacts. Emissions related to hotel stays, ground transportation, and other travel-related activities were not included in this category and will be considered separately under other Scope 3 categories, subject to data availability.

(e) **Category 7- Employee Commute:** Employee commuting emissions were estimated using average travel patterns for Tier 2 cities in India. It was assumed that each staff member travels 10 km one way (20 km round trip) by personal vehicle. Based on the CEEW 2022 study, 86.5% of staff use two-wheelers and 13.5% use four-wheelers (hatchbacks). Of the 788 staff commuting by personal vehicles, this equates to approximately 682 two-wheeler users and 106 four-wheeler users. The number of effective workdays per person was assumed to be 254, accounting for 22 working days per month and 10 days of annual leave. Total annual distance traveled was estimated at 3,462,629.6 km for two-wheelers and 540,410.4 km for four-wheelers. These distances were used along with appropriate emission factors to quantify Scope 3 Category 7 (Employee Commuting) emissions.

5.1.3.2 GHG Activity Data Selection and Collection Process

Following the GHG Protocol, JGU applied a structured methodology for GHG data selection, collection, and management. These steps are fully documented in the Inventory Management Plan (IMP), which serves as the institutional reference for emissions accounting procedures.

5.1.3.3 Key Steps:

1. Emission Source Mapping

- Scope 1: Diesel, petrol, PNG, CNG (generators and vehicles), refrigerants, fire extinguishers
- Scope 2: Grid electricity
- Scope 3: Business travel, procurement, waste, commuting (assessed for relevance)

2. Activity Data Identification

- Quantities of fuel purchased/consumed
- Electricity use via meters
- Occupancy for wastewater estimates
- Procurement and HR records for Scope 3 estimates

3. Data Collection Overview

Table 4: Detailed description of type of emission data, its resource, frequency

Source	Type of Data Collected	Relevant Scope	Frequency
Diesel Logbooks	Fuel use for DGs and vehicles	Scope 1	Daily
Vehicle Fuel Logs	Fuel refills for university fleet	Scope 1	Daily
Maintenance Records	Refrigerant top-ups and extinguisher usage	Scope 1	Monthly
Electricity Bills	Electricity consumption	Scope 2	Monthly
Occupancy Registers	Number of people served by STP	Scope 1 (Excluded)	Annual Average
Procurement Records	Purchased goods/services	Scope 3	Annually
HR Data	Employee headcount, travel activity estimates	Scope 3	Annually

In cases where primary data was unavailable, standardized templates were circulated to departments to fill gaps. All collected data underwent internal verification and completeness checks.

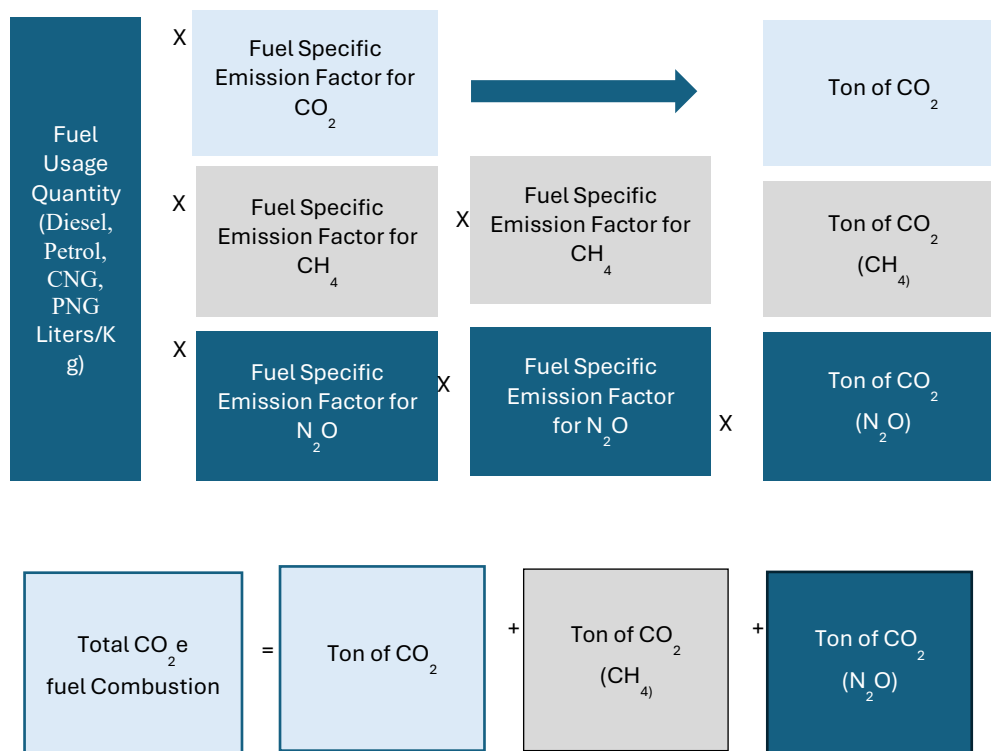
5.2 Emission Calculation Methodology

All GHG emissions were calculated using the following standard formula:



5.2.1 Calculations flow for Scope 1 and 2

Figure 1.1 calculation flow for conversion of activity to global warming potential



Scope 3 Calculations

Emission factors were sourced from the following authoritative databases:

- DEFRA 2024 UK Government Conversion Factors:** For combustion of diesel, petrol, CNG, PNG
<https://www.gov.uk/government/publications/greenhouse-gas-reporting-conversion-factors-2024>
- IPCC AR6 / US EPA / GHG Protocol:** For refrigerants and fugitive emissions
- CEA (India) Emission Factor Guide (Version 20.0):** For electricity purchased from the Indian grid
https://cea.nic.in/wp-content/uploads/2021/03/User_Guide_Version_20.0.pdf

Emissions were calculated in **kg CO_2e** and then converted to **tonnes CO_2e (tCO_2e)**. Results were aggregated by scope and source and normalized where necessary for comparability.

5.2.2 Process Documentation in the Inventory Management Plan (IMP)

All processes—ranging from source identification and data collection to calculation and verification—are documented in the **Inventory Management Plan (IMP)**. The IMP serves as a foundational tool for ensuring consistency across reporting years and supports future third-party verification, audits, and internal reviews. It also includes procedures for version control, data archiving, and continuous improvement.

6. Emission Quantities in 2024

For the reporting year 2024, the following greenhouse gas (GHG) emission quantities were recorded. The organizational and operational boundaries, reporting period, and materiality criteria applicable to this inventory have been defined in the preceding sections.

Table 5: JGU Emissions year 2024

Scope	Type of Emission	2024 Total (GWP)	Reference
Scope 1	Direct	4505.14	Excel worksheet
Scope 2	Indirect	28858.12	
Scope 3	Indirect	35830.55	
Total emissions year 2024		69193.81	

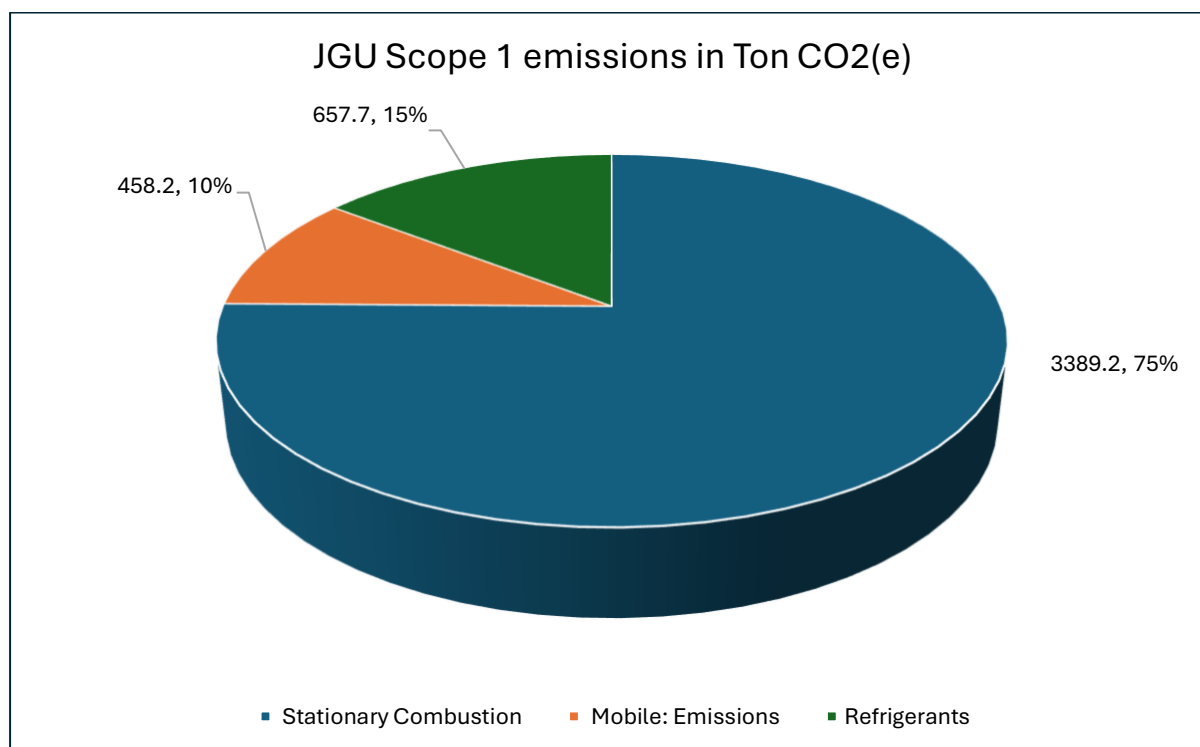
6.1 Direct Emissions (Scope 1)

In 2024, direct emissions from O.P. Jindal Global University (JGU) accounted for approximately 12% of the total GHG emissions. This estimate is based on actual consumption data collected from the diesel generator (DG) operations team and the vehicle fleet operations department. Refrigerant-related emissions were calculated using on-site refilling data as invoiced by the service vendors. Additionally, emissions from fire extinguishers discharged during firefighting or drill exercises were also included in the Scope 1 inventory

Table 6 Scope 1 Emissions 2024

Site	OP Jindal University, Sonipat Haryana			
Scope1	CO2	t CO2 e (CH4)	t CO2 e (N2O)	t CO2 e
Stationary Combustion DG Set	763.486	2.275	2623.459	3389.220
Mobile: Emissions	269.916	11.894	176.422	458.231
Refrigeration and fire extinguishers	657.667	0.000	0.000	657.667
TOTAL Scope 1	1691.07	14.17	2799.88	4505.12

Figure 2 JGU SCOPE1 EMISSIONS, 2024



6.2 Indirect Emissions

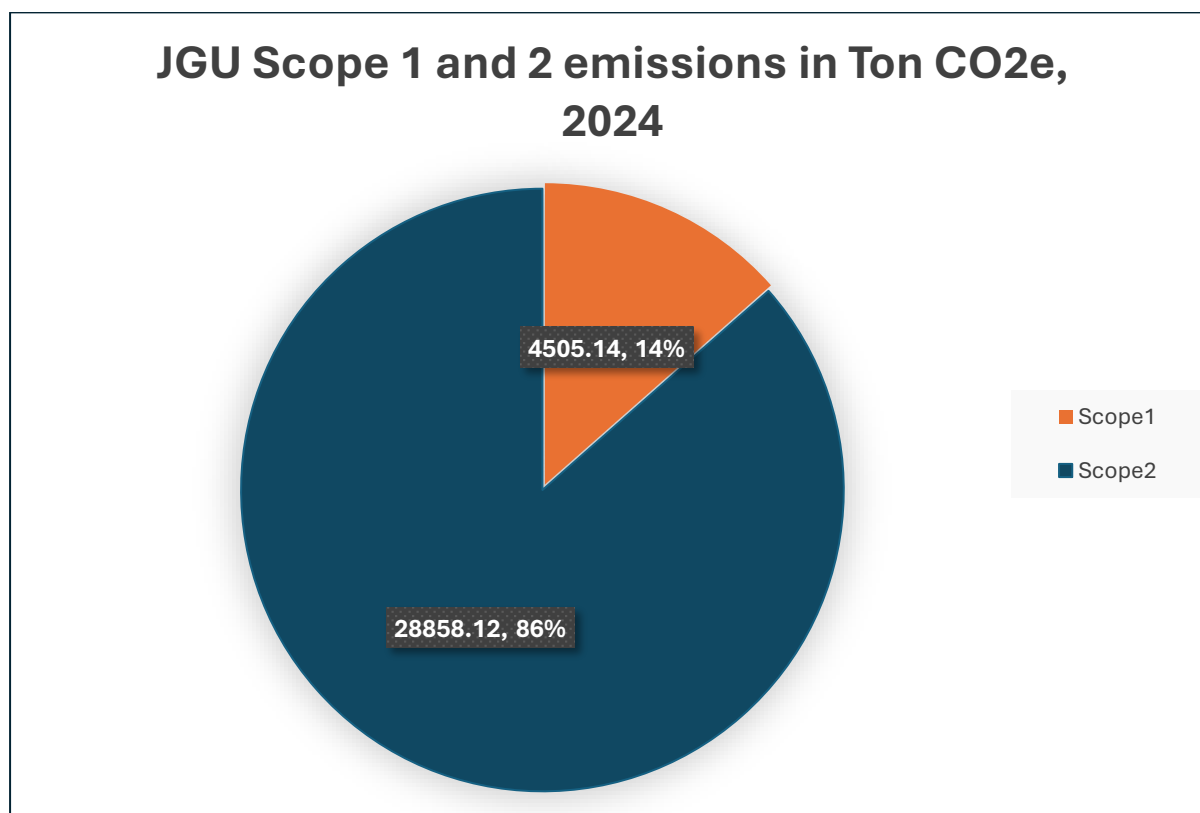
6.2.1 Scope 2

Electricity for campus sites is sourced from the national grid. Quantification of Scope 2 emissions was based on electricity consumption data recorded through calibrated on-site energy meters. Uttar Haryana Bijli Vitran Nigam Limited (UHBVNL) manages electricity supply in the region which is part of National power grid. Central electricity authority “CO2 Baseline Database for the Indian Power Sector” was used as source of emission factor. For the reporting year 2024, the location-based method was applied, and no market-based instruments (such as renewable energy certificates) were applicable. The total Scope 2 emissions attributable to purchased electricity amounted to 28,858.12 tCO₂e for the year.

Table 7: Scope 2 Emissions 2024

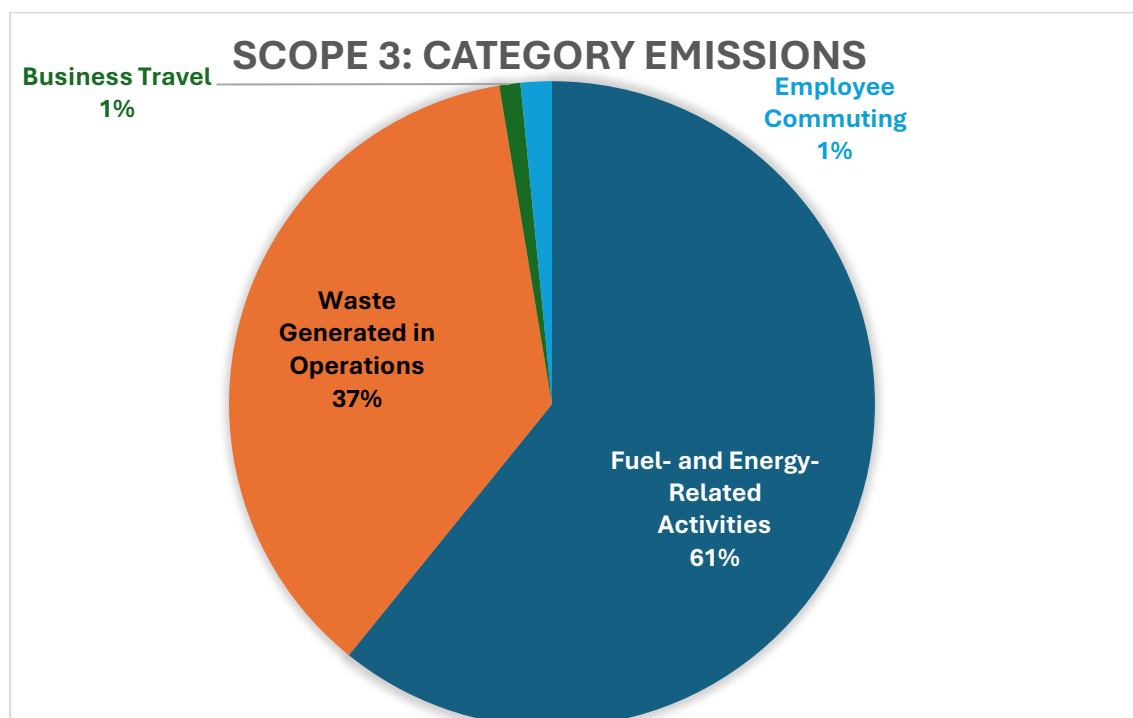
Site	OP Jindal University, Sonipat Haryana			
Scope2	CO2	t CO2 e (CH4)	t CO2 e (N2O)	t CO2 e
Electricity Usage	28858.120	-	-	28858.120

Figure 3: REPRESENTATION OF OVERALL EMISSION PROFILE AND CONTRIBUTIONS OF SCOPE1 & SCOPE2



6.2.2 Scope 3:

The year 2024 marks the first assessment of Scope 3 emissions for O.P. Jindal Global University (JGU). Based on the availability and quality of data, four Scope 3 categories—Category 3 (Fuel- and Energy-Related Activities), Category 5 (Waste Generated in Operations), Category 6 (Business Travel), and Category 7 (Employee Commuting)—were analysed. These categories were identified as material from JGU's operational activity perspective. Emission estimates for these categories were calculated in accordance with the GHG Protocol Scope 3 Standard, using activity data and relevant secondary emission factors.



6.3 Materiality

Materiality refers to the principle that errors, omissions, or misrepresentations—whether individually or in aggregate—may affect the integrity of the GHG assertion and could influence the decisions of intended users of the report. For this inventory, a materiality threshold of 10% has been established. All contributors to the GHG inventory must ensure that no significant data is omitted and that any exclusions are transparently documented and justified to maintain the accuracy and credibility of the report.

6.4 Base year declaration and considerations

The year 2024 emission profile will be considered as base year profile for Scope 1 and Scope 2 emissions. According to the GHG Protocol Corporate Accounting and Reporting Standard, companies often experience structural changes—such as acquisitions, divestments, or mergers—that can significantly alter their historical emissions profiles. These changes may affect the comparability of emissions data over time. To ensure consistency in tracking and reporting, the base year emissions must be recalculated when such structural or operational changes result in a significant shift in overall emissions. This recalculation ensures that emission trends reflect genuine performance improvements rather than structural changes in the organization.

- **Changes in Source Ownership or Control:** Alterations in operational control or ownership of GHG-emitting sources, which affect how emissions are attributed in the inventory.
- **Methodology Updates or Data Improvements:** Adoption of new quantification methodologies or enhancements in data accuracy that lead to a 20 % or greater change in total reported emissions.
- **Operational and Infrastructure Changes:** Construction of new facilities or the addition of emission sources that significantly impact the organization's overall emissions profile by 20 % or more

7.0 Organizational Activities to Reduce GHG Emissions or Enhance GHG Removals

- As of the reporting year 2024, O.P. Jindal Global University (JGU) has not yet established formal carbon reduction targets. However, several ongoing operational and infrastructure practices contribute meaningfully to both GHG emissions reduction and carbon removal, some of which are estimated to influence the emissions profile by 15% or more over time if scaled or enhanced.

7.1 Key Practices Contributing to GHG Mitigation:

- **Promotion of Shared and Public Transportation:** JGU actively supports the use of mass and public transportation within and outside the campus to minimize the reliance on personal vehicles by students, faculty, and staff. This reduces Scope 1 and Scope 3 transport-related emissions.
- **Carpooling Initiatives :** An internal carpool system is in place to encourage shared mobility, thereby lowering per-capita fuel use and emissions associated with 7 individual commuting.

- **Deployment of Solar Irrigation Systems** : Installation of solar-powered irrigation systems reduces dependence on diesel or grid-based electricity for landscaping and green area maintenance.
- **Energy-Efficient Infrastructure** : The university has widely adopted LED and CFL lighting technologies to enhance energy efficiency in academic, residential, and administrative buildings.
- **Campus Green Cover and Carbon Sequestration** : Approximately 40 acres (54%) of JGU's campus is covered by maintained green spaces, which contribute to natural carbon sequestration and improved air quality. The independent carbon sequestration study carried out indicate that the Green cover The % of emissions offset by sequestration is 725 ton/year , which is 2.17% of Scope 1 and scope 3 emissions and 1.04% of all three scopes emissions together at 69193.8 tons CO₂e /year.

7.2 Key Opportunities for Emissions Reduction and Sustainability Enhancement

- To advance its commitment to sustainability and reduce its overall carbon footprint, O.P. Jindal Global University (JGU) may consider implementing the following strategies:
- **Sustainable Procurement** : Prioritize the purchasing of low-carbon and environmentally certified products and construction materials to reduce upstream Scope 3 emissions and support circular economy principles.
- **Expansion of Renewable Energy Use**: Increase on-campus solar energy generation or invest in the purchase of green power or renewable energy certificates (RECs). Explore carbon credit mechanisms to offset residual emissions.
- **Fleet Decarbonization**: Transition the university's transportation fleet from conventional petrol/diesel vehicles to cleaner alternatives such as Compressed Natural Gas (CNG) or electric vehicles to reduce Scope 1 emissions.
- **Green Building Certification**: Pursue LEED (Leadership in Energy and Environmental Design) or equivalent green building certification for campus infrastructure to enhance energy efficiency, water conservation, and waste management performance.
- **Waste-to-Energy Projects**: Implement on-site waste-to-energy systems to convert organic waste into usable energy, thereby reducing waste volumes and contributing to renewable energy production.

1.1.1 Annexure – Glossary of Terms (GHG Emissions Report)

Term	Definition
GHG (Greenhouse Gas)	Gases that trap heat in the atmosphere and contribute to global warming. Common GHGs include CO ₂ , CH ₄ , N ₂ O, and fluorinated gases.
GHG Inventory	A comprehensive record of all GHG emissions and removals associated with an organization's activities over a specific reporting period.
Scope 1 Emissions	Direct emissions from sources owned or controlled by the organization (e.g., DG sets, university-owned vehicles, refrigerants).
Scope 2 Emissions	Indirect emissions from the generation of purchased electricity, heat, or steam consumed by the organization.
Scope 3 Emissions	Other indirect emissions not directly controlled by the organization (e.g., commuting, procurement, waste, business travel).
Organizational Boundary	Defines which entities, sites, or operations are included in the GHG inventory, based on ownership or control.
Operational Boundary	Defines the types of emissions (Scope 1, 2, and 3) included in the inventory based on the nature of the organization's operations.
Base Year	The reference year against which current and future GHG emissions are compared. May be recalculated when structural or methodological changes occur.
Emission Factor	A value that quantifies emissions per unit of activity (e.g., kg CO ₂ e per kWh or per liter of fuel), used for calculating total emissions.
CO₂e (Carbon Dioxide Equivalent)	A standard unit used to compare the emissions of different GHGs based on their global warming potential (GWP).
GWP (Global Warming Potential)	A metric that compares the warming impact of a GHG to CO ₂ over a defined time period (typically 100 years).
Materiality	The concept that certain emissions should be included in the inventory if their omission could affect decision-making by stakeholders.
GHG Protocol	The global standard for GHG accounting developed by the World Resources Institute (WRI) and the World Business Council for Sustainable Development (WBCSD).
DEFRA	The UK's Department for Environment, Food & Rural Affairs – a key source of emission factors for GHG reporting.
CEA (Central Electricity Authority)	India's authority providing location-based grid emission factors used to calculate Scope 2 emissions from purchased electricity.
Inventory Management Plan (IMP)	A formal document that outlines procedures for collecting, calculating, validating, and archiving GHG data for consistency and audit readiness.
Simplified Material Balance Method	A calculation method recommended by the U.S. EPA for estimating refrigerant emissions based on refills and losses.
LEED (Leadership in Energy and Environmental Design)	An internationally recognized green building certification that evaluates environmental performance across several categories.
Carbon Neutrality	A state in which an organization balances its carbon emissions by reducing emissions and purchasing carbon offsets to achieve net-zero emissions.
Carbon Offset	A credit representing a reduction of one metric tonne of CO ₂ e, used to compensate for emissions made elsewhere.

Renewable Energy Certificate (REC)	A market-based instrument that certifies the generation of one megawatt-hour (MWh) of electricity from a renewable energy source.
Energy Efficiency Measures	Strategies and technologies implemented to reduce energy consumption and associated emissions without compromising output or service quality.
Public Disclosure	The act of publishing GHG emissions data and sustainability metrics to inform stakeholders and enhance transparency and accountability.
Net Zero Emissions	A target where all GHG emissions are reduced as much as possible and any remaining emissions are neutralized through offsets or removals.
Mitigation Measures	Actions taken to reduce the severity or intensity of GHG emissions, including technology upgrades, behavioral changes, and policy interventions.
Verification	An independent assessment of the GHG inventory to ensure its accuracy, completeness, and adherence to defined standards.