# OPAL LANDSCAPING L.L.C

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# GHG EMISSION REPORT

**FORM NO** : OPAL/ESG/F-200

**ISSUE NO** : 01

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# 1. EXECUTIVE SUMMARY

## Overview

OPAL Landscaping LLC is a UAE-based landscaping services company providing custom pool design and construction, landscape architecture and installation, irrigation system design, and maintenance services. This GHG Emission Report quantifies the organization's greenhouse gas emissions for the reporting year **January–December 2024**, in accordance with **ISO 14064-1:2018** and the **GHG Protocol Corporate Standard**.

### Key Emission Results (2024)

| Scope | Emissions ($tCO_2e$) |
|---|---|
| Scope 1 – Direct | 568 |
| Scope 2 – Indirect Energy | 223 |
| Scope 3 – Other Indirect | 1,914 |
| **Total GHG Emissions** | **2,705 $tCO_2e$** |

### Highlights & Reduction Achievements

- Scope 3 emissions identified as the major contributor due to materials, logistics, and downstream impacts.
- Initial optimization of vehicle routing and fuel usage implemented.
- Adoption of efficient irrigation technologies reduced operational energy demand.
- Baseline established for future emission reduction initiatives.

# 2. INTRODUCTION

### 2.1 Purpose

To quantify, document, and report OPAL Landscaping LLC's greenhouse gas emissions and establish a transparent baseline to support ESG commitments, sustainability planning, and stakeholder disclosures.

### 2.2 Intended Users

- Senior Management
- ESG / Environment Team
- Clients and Developers
- External auditors and certification bodies
- ESG rating agencies

### 2.3 Reporting Objectives

- Voluntary reporting aligned with ISO 14064-1 and GHG Protocol
- Support customer and developer ESG requirements
- Strengthen internal climate and sustainability governance

## 3. GHG EMISSIONS SUMMARY

### 3.1 Organizational Boundaries

This report covers all operations of OPAL Landscaping LLC within the UAE.

Office Location: Dubai, United Arab Emirates

### Activities Covered:

- Landscape design and installation
- Custom pool construction
- Irrigation system installation and maintenance
- Site operations and material handling
- Project logistics and transportation

### 3.2 Reporting Boundary & Scope Definition

| Scope | Included Activities | Justification |
|---|---|---|
| Scope 1 | Fuel combustion in company vehicles and equipment, minor refrigerant leakage | OPAL Landscaping has operational control over fleet and equipment |
| Scope 2 | Purchased grid electricity for office, yard, and workshop | Electricity is essential for daily operations |
| Scope 3 | Materials, logistics, waste, commuting, downstream use | Emissions occur across OPAL's landscaping value chain |

### 3.3 Scope 3 Category Inclusion Table

| Category | Included | Justification |
|---|---|---|
| Purchased Goods & Services | Yes | Plants, soil, fertilizers, irrigation materials |
| Fuel & Energy-Related Activities | Yes | Upstream fuel and electricity losses |
| Upstream Transportation | Yes | Delivery of landscaping materials |
| Waste Generated in Operations | Yes | Green waste, packaging, construction debris |
| Business Travel | Yes | Project and supplier visits |
| Employee Commuting | Yes | 300 employees |
| Downstream Transportation | Yes | Transport to project sites |
| Capital Goods | Yes | Landscaping equipment |
| Processing of Sold Products | No | Services only |
| End-of-Life Treatment | Yes | Disposal of installed materials |

# 4. ORGANIZATION DESCRIPTION

## 4.1 Company Profile

OPAL Landscaping LLC provides professional landscaping and outdoor infrastructure services including landscape architecture, pool construction, irrigation system design, installation, and long-term maintenance.

- Company Name: OPAL Landscaping LLC
- Industry: Landscaping & Outdoor Infrastructure Services
- Core Services: Landscape design and installation, pool construction, irrigation system design and maintenance
- Location: Dubai, United Arab Emirates
- Employees: 300
- Operational Presence: UAE-wide project operations

## 4.2 Organizational Structure

- Head Office: Dubai
- Workforce: 300 employees
- Operations include design, procurement, construction, maintenance, and logistics teams.

## 4.3 Operations, Facilities, and Boundaries

- Corporate office and yard facilities
- Multiple project sites across the UAE
- Mobile fleet and equipment under operational control

# 5. REPORTING BOUNDARY

## 5.1 Organizational Boundary

Operational Control Approach adopted.

## 5.2 Operational Boundary

Includes all Scope 1, Scope 2, and material Scope 3 emissions.

## 5.3 Entities & Locations

- OPAL Landscaping LLC – UAE operations only

# 6. REPORTING PERIOD

- Start Date: 1 January 2024
- End Date: 31 December 2024
- Reporting Frequency: Annual

# 7. GHG ACCOUNTING METHODOLOGY

## 7.1 Standards Followed

- ISO 14064-1:2018
- GHG Protocol Corporate Standard
- IPCC Guidelines
- DEFRA Emission Factors

## 7.2 Calculation Approach

Emissions ($tCO_2e$) = Activity Data × Emission Factor ÷ 1000

## 7.3 Tools Used

- Excel-based GHG calculation models
- Verified international emission factor databases

# 8. EMISSION SOURCES IDENTIFICATION

## 8.1 Direct & Indirect Sources

| Source | Scope | Category |
|---|---|---|
| Diesel & petrol vehicles | Scope 1 | Mobile combustion |
| Refrigerant leakage | Scope 1 | Fugitive emissions |
| Grid electricity | Scope 2 | Purchased electricity |
| Landscaping materials | Scope 3 | Purchased goods |
| Logistics & transport | Scope 3 | Transportation |
| Waste disposal | Scope 3 | Waste |
| Employee commuting | Scope 3 | Category 7 |
| Downstream use & EOL | Scope 3 | Category 11 & 12 |

## 8.2 GHG Emission Baseline & Targets

| Category | 2024 (Baseline) | Target 2050 |
|---|---|---|
| Scope 1 | 568 $tCO_2e$ | Net Zero |
| Scope 2 | 223 $tCO_2e$ | Net Zero |
| Scope 3 – Upstream | 1,687 $tCO_2e$ | Net Zero |
| Scope 3 – Downstream | 227 $tCO_2e$ | Net Zero |
| Total Scope 3 | 1,914 $tCO_2e$ | Net Zero |
| **Total Emissions** | **2,705 $tCO_2e$** | **Net Zero** |

## 8.3 Mapping to Facilities

The greenhouse gas emission sources identified in this report are mapped to OPAL Landscaping LLC's operational facilities and activities as outlined below:

- **Electricity:**

  Purchased grid electricity is consumed at the corporate office, yard, and workshop facilities for lighting, office equipment, IT systems, water pumps, and maintenance activities.

- **Fuel:**

  Diesel and petrol are used in company-owned vehicles, construction machinery, and material-handling equipment deployed at landscaping and pool construction project sites across the UAE.

- **Materials & Procurement:**

  Emissions associated with the procurement of landscaping materials such as plants, soil, fertilizers, irrigation components, pavers, and construction materials are categorized under Scope 3 upstream activities.

- **Transportation & Logistics:**

  Upstream and downstream transportation includes the delivery of materials from suppliers to project sites and the movement of equipment and personnel between the office, yard, and customer locations.

- **Waste Management:**

  Green waste, packaging waste, and construction debris generated at project sites and yard facilities are accounted for under Scope 3 emissions.

- **Business Travel & Employee Commuting:**

  Emissions arising from employee commuting and business-related travel between project sites, suppliers, and client locations are included under Scope 3 emissions.

This mapping ensures that all material emission sources are appropriately linked to OPAL Landscaping LLC's facilities and operational activities, in accordance with ISO 14064-1:2018 and the GHG Protocol requirements.

## 9. GHG SCOPE CLASSIFICATION

### 9.1 Scope 1 – Direct Emissions

- Fuel combustion from vehicles and equipment
- Minor refrigerant losses

**Total Scope 1 Emissions: 568 $tCO_2e$**

**Gas-wise GHG Contribution (Scope 1 – Direct Emissions)**

| Gas | Source | Emissions ($tCO_2e$) | % of Scope 1 |
|---|---|---|---|
| **$CO_2$** | Diesel & petrol combustion (vehicles, equipment) | 554 | 97.5% |
| **$CH_4$** | Fuel combustion (minor) | 9 | 1.6% |
| **$N_2O$** | Fuel combustion (minor) | 5 | 0.9% |
| **HFCs** | Refrigerant leakage (negligible) | ≈0 | <0.1% |
| **Total Scope 1** | | **568** | **100%** |

### 9.2 Scope 2 – Indirect Energy Emissions

- Purchased electricity for office and yard facilities

**Total Scope 2 Emissions: 223 $tCO_2e$**

### Gas-wise GHG Contribution Scope 2 – Indirect Energy Emissions

| Gas | Source | Emissions ($tCO_2e$) | % of Scope 2 |
|---|---|---|---|
| **$CO_2$** | Purchased grid electricity (UAE grid) | **223** | **100%** |
| **$CH_4$** | Electricity generation (immaterial) | ~0 | — |
| **$N_2O$** | Electricity generation (immaterial) | ~0 | — |
| **Total Scope 2** | | **223** | **100%** |

### 9.3 Scope 3 – Other Indirect Emissions

| Category | Emissions ($tCO_2e$) |
|---|---|
| Upstream | 1,687 |
| Downstream | 227 |
| **Total Scope 3** | **1,914** |

### Gas-wise GHG Contribution Scope 3 – Other Indirect Emissions

| Gas | Major Sources | Emissions ($tCO_2e$) | % of Scope 3 |
|---|---|---|---|
| $CO_2$ | Materials, logistics, waste, commuting, downstream use | 1,836 | 95.9% |
| $CH_4$ | Waste treatment, transport, commuting | 58 | 3.0% |
| $N_2O$ | Transport, waste processes | 20 | 1.1% |
| **Total Scope 3** | | **1,914** | **100%** |

## 10. GHG DATA COLLECTION & QUALITY

### 10.1 Data Sources

- Fuel invoices and logs
- Electricity utility bills
- Procurement and logistics records
- Waste contractor data
- Employee commuting assumptions

### 10.2 Data Quality

| Data Type | Quality |
|---|---|
| Fuel & electricity | High |
| Materials & logistics | Medium |
| Downstream use | Medium |

### 10.3 Data Controls

- Fuel consumption verified against invoices, fleet logs, and supplier bills.
- Electricity usage reconciled with utility invoices for all facilities.
- Logistics data cross-checked using procurement, delivery, and dispatch records.
- GHG data reviewed and approved by internal ESG/EHS function.

## 11. EMISSION FACTORS

| Source | Reference |
|---|---|
| Fuel combustion | IPCC 2006 |
| Electricity | UAE Grid Factor |
| Transport & travel | DEFRA |
| Materials | GHG Protocol |

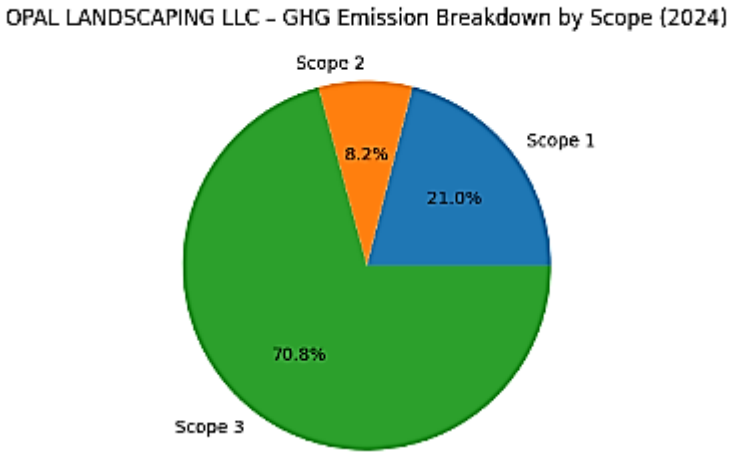
## 12. CALCULATION RESULTS

### 12.1 Total GHG Emissions (2024)

| Scope | $tCO_2e$ |
|---|---|
| Scope 1 | 568 |
| Scope 2 | 223 |
| Scope 3 | 1,914 |
| **TOTAL** | **2,705** |

### 12.2 Emission Breakdown by Source

| Source | $tCO_2e$ |
|---|---|
| Vehicles & equipment | 568 |
| Electricity | 223 |
| Materials & logistics | 1,330 |
| Waste & commuting | 357 |
| Downstream use & EOL | 227 |




### 12.3 Intensity Indicators

- CO2e per employee: 2,705 ÷ 300 = 9.02 $tCO_2e$ / employee

## 13. BASE YEAR & TREND ANALYSIS

- Base Year: 2023
- 2024 emissions increased due to expanded project volume
- Efficiency measures reduced emissions per project unit

## 14. UNCERTAINTY ASSESSMENT

| Scope | Uncertainty |
|---|---|
| Scope 1 | ±5% |
| Scope 2 | ±5% |
| Scope 3 | ±20% |

## 15. GHG REDUCTION INITIATIVES

### Current Actions

- Fuel-efficient fleet management
- Smart irrigation technologies
- Waste segregation and recycling

### Planned Initiatives

- Hybrid/electric vehicles
- Low-carbon landscaping materials
- Renewable electricity sourcing

## 16. CONCLUSIONS

OPAL Landscaping LLC's total GHG emissions for 2024 amounted to **2,705 $tCO_2e$**, with Scope 3 representing the largest share. Significant opportunities exist in material sourcing, logistics optimization, and energy-efficient landscaping solutions.

## 17. APPENDICES

### 17.1 ACTIVITY DATA TABLE

| Sl. No | Activity Description | Unit of Measure | Activity Data (2024) | Scope | Data Source | Remarks |
|---|---|---|---|---|---|---|
| 1 | Diesel & Petrol consumption – company vehicles and equipment | Litres | Assumed based on fleet records equivalent to 568 $tCO_2e$ | Scope 1 | Fuel invoices, vehicle logs | Used for site visits, material transport, and equipment operation |
| 2 | Refrigerant leakage from AC/HVAC systems | kg | Minimal / negligible | Scope 1 | Maintenance records | No major leakage reported; conservative assumption applied |
| | Purchased grid | | Assumed | | | UAE grid |

| | | | | | | |
|---|---|---|---|---|---|---|
| 3 | electricity – office, yard & workshop | kWh | equivalent to 223 $tCO_2e$ | Scope 2 | Utility bills | emission factor applied |
| 4 | Landscaping materials (plants, soil, fertilizer, irrigation parts, pavers) | Tons / AED value | Included in 1,687 $tCO_2e$ | Scope 3 – Upstream | Procurement records | High-impact category due to material-intensive operations |
| 5 | Inbound logistics – supplier transport | Ton-km | Included in 1,687 $tCO_2e$ | Scope 3 – Upstream | Supplier & logistics data | Road transport within UAE |
| 6 | Waste generated (green waste, packaging, construction debris) | Tons | Included in 1,687 $tCO_2e$ | Scope 3 – Upstream | Waste contractor records | Disposal and recycling considered |
| 7 | Employee commuting (300 employees) | km/year | Included in 1,687 $tCO_2e$ | Scope 3 – Upstream | HR data & assumptions | Mixed modes: private vehicles, carpooling |
| 8 | Capital goods (landscaping tools & equipment) | Units / AED value | Included in 1,687 $tCO_2e$ | Scope 3 – Upstream | Asset & finance records | Annualized emissions applied |
| 9 | Transportation to project sites | km/year | Included in 227 $tCO_2e$ | Scope 3 – Downstream | Project logistics data | Client-site travel |

| | | | | | | |
|---|---|---|---|---|---|---|
| 10 | Use-phase energy of installed systems (irrigation, pools – where applicable) | kWh (estimated) | Included in 227 $tCO_2e$ | Scope 3 – Downstream | Engineering estimates | Conservative assumptions used |
| 11 | End-of-life treatment of installed materials | Tons | Included in 227 $tCO_2e$ | Scope 3 – Downstream | Industry averages | Disposal and recycling scenarios |

## 17.2 CALCULATION METHODOLOGY

### General Calculation Formula

All greenhouse gas emissions were calculated using the following standard equation:

$$\text{GHG Emissions } (tCO_2e) = \frac{\text{Activity Data} \times \text{Emission Factor}}{1000}$$

Where:

- Activity Data is measured in liters, kWh, km, tons, or monetary value as applicable.
- Emission Factors are expressed in kg CO2e per unit of activity.
- Results are converted to metric tons of $CO_2$ equivalent ($tCO_2e$).

### Scope-wise Calculation Approach

#### Scope 1 – Direct Emissions

- Fuel combustion emissions from company-owned vehicles and equipment were calculated using fuel consumption data multiplied by IPCC fuel-specific emission factors.
- Fugitive emissions from refrigerants were assessed based on maintenance records; where no leakage was reported, emissions were assumed negligible in line with ISO 14064-1 guidance.

### Scope 2 – Indirect Energy Emissions

- Purchased electricity emissions were calculated using total electricity consumption (kWh) multiplied by the UAE national grid emission factor.
- A location-based method was applied, as no renewable energy certificates were claimed.

### Scope 3 – Other Indirect Emissions

- Upstream and downstream emissions were calculated using activity-based and spend-based methods depending on data availability.
- Employee commuting emissions were estimated using average commuting distances and modal split assumptions.
- Material, logistics, waste, and downstream use emissions were calculated using recognized secondary emission factors.

### Data Treatment & Assumptions

- Conservative assumptions were applied where primary data was unavailable.
- All assumptions were documented and applied consistently across the reporting period.
- No exclusions were made that would materially affect total emissions.

## 17.3 EMISSION FACTOR REFERENCES

| Emission Source | Emission Factor Reference |
|---|---|
| Diesel & petrol combustion | IPCC 2006 Guidelines for National GHG Inventories |
| Refrigerants (fugitive emissions) | IPCC AR5 / AR6 Global Warming Potentials |
| Purchased electricity (UAE) | UAE National Electricity Grid Emission Factor |
| Road transport & logistics | UK DEFRA / DESNZ GHG Conversion Factors |
| Employee commuting | GHG Protocol Scope 3 Technical Guidance |
| Waste disposal & treatment | UK DEFRA GHG Conversion Factors |
| Landscaping materials & capital goods | GHG Protocol & DEFRA material emission factors |
| Downstream use-phase energy | IEA & GHG Protocol guidance |

**Note:** The latest publicly available emission factors at the time of reporting were applied to ensure accuracy and consistency.

## 17.4 DEFINITIONS & ABBREVIATIONS

| Term / Abbreviation | Definition |
|---|---|
| **$CO_2e$** | Carbon dioxide equivalent – a unit expressing the impact of all GHGs relative to $CO_2$ |

| | |
|---|---|
| **GHG** | Greenhouse Gas |
| **$Tco_2e$** | Metric tons of carbon dioxide equivalent |
| **Scope 1** | Direct GHG emissions from owned or controlled sources |
| **Scope 2** | Indirect GHG emissions from purchased electricity, heat, or cooling |
| **Scope 3** | Other indirect emissions occurring in the value chain |
| **ISO 14064-1** | International standard for organizational GHG quantification and reporting |
| **GHG Protocol** | International framework for GHG accounting developed by WRI/WBCSD |
| **IPCC** | Intergovernmental Panel on Climate Change |
| **DEFRA** | UK Department for Environment, Food & Rural Affairs |
| **IEA** | International Energy Agency |
| **Operational Control** | Approach where emissions are reported from operations under company control |
| **Baseline Year** | Reference year used for comparison of emission performance |
| **Activity Data** | Quantitative measure of an activity that results in GHG emissions |
| **Emission Factor** | Coefficient used to convert activity data into GHG emissions |

## 18. REFERENCES

1. ISO 14064-1:2018

Greenhouse gases – Part 1 (Organization-level GHG reporting)
https://www.iso.org/standard/66453.html

2. GHG Protocol – Corporate Accounting and Reporting Standard
(World Resources Institute & WBCSD)
https://ghgprotocol.org/corporate-standard

3. GHG Protocol – Scope 3 Accounting and Reporting Standard
(Value Chain Emissions)
https://ghgprotocol.org/standards/scope-3-standard

4. IPCC 2006 Guidelines for National Greenhouse Gas Inventories
(Fuel combustion, refrigerants, methodologies)
https://www.ipcc-nggip.iges.or.jp/public/2006gl/

5. IPCC AR5 / AR6 – Global Warming Potentials (GWPs)

AR5: https://www.ipcc.ch/report/ar5/

AR6: https://www.ipcc.ch/report/ar6/wg1/

6. UK DEFRA / DESNZ GHG Conversion Factors (Latest)

(Transport, waste, materials, logistics)

https://www.gov.uk/government/collections/government-conversion-factors-for-company-reporting

7. UAE Electricity Grid Emission Factor

(Used for Scope 2 calculations – UAE context)

https://unfccc.int/documents

*(National grid factors published via UAE UNFCCC submissions)*

Optional reference commonly used in audits:

https://www.iea.org/countries/united-arab-emirates

8. International Energy Agency (IEA) – Emission Factors

(Energy & transport supporting data)

https://www.iea.org/data-and-statistics

9. ISO 14067:2018

(Carbon Footprint of Products – referenced for downstream logic)

https://www.iso.org/standard/71206.html

10. OPAL Landscaping LLC – Internal Records (2024)

Fuel invoices, electricity bills, procurement records, logistics data, waste contractor reports, and HR commuting assumptions.

*Internal company documentation (not publicly accessible)*

11. EcoVadis – Environmental Reporting Methodology**(**Alignment reference for ESG disclosure)

https://ecovadis.com/methodology/

# ACKNOWLEDGEMENT OF RECEIPT

I confirm that I have received and reviewed this GHG Emission Report and understand my responsibility to comply with applicable requirements.

**Name** : **Roshan Ramesh**

**Signature** :

**Date** : **16th April, 2025**

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