Emission Report

Period: Jan 2025 to Dec 2025

1. General Formula for Emission Sources

Emissions (tCO_2e) = Activity Data × Emission Factor

- **Activity Data:** The quantity of fuel used, electricity consumed, distance travelled, etc.
- **Emission Factor:** The amount of CO_2e emitted per unit of activity (varies by fuel type, electricity grid mix, etc.).

2. Total Scope 1 and 2 Emissions (tCO_2e)

Scope 1 Emissions:

Direct emissions from sources owned or controlled by the university (e.g., fuel combustion in vehicles, generators).

- **Diesel/Petrol Consumption: 30,317 Liters**
- **LPG Gas Consumption: 1,14,199 kg**

Emission Factors:

- **Diesel: 2.68 kg CO_2e per liter**
- **LPG Gas: 3.00 kg CO_2e per kg**

Calculation:

- **Diesel/Petrol: 30,317 liters × 2.68 kg CO_2e/liter = 81,249.56 kg CO_2e (81.25 tCO_2e)**
- **114,199 kg × 3.00 kg CO_2e/kg = 342,597 kg CO_2e (342.60 tCO_2e)**
- **Total Scope 1 Emissions: 81.25 + 342.60 = 423.85 tCO_2e**

Scope 2 Emissions:

Indirect emissions from purchased electricity, steam, heating, and cooling.

- **Electricity Consumption: 6,517,008 kWh**
- **Emission Factor (Telangana Grid): 0.716 kg CO_2/kWh**

Calculation:

- **6,517,008 kWh × 0.716 kg CO_2e/kWh = 4,665,778 kg CO_2e (4,665.78 tCO_2e)**

Total Scope 1 + 2 Emissions:

- **423.85 + 4,665.78 = 5,089.63 tCO_2e**

3. Scope 3 Emissions (tCO_2e)

Scope 3 includes indirect emissions from activities such as employee commuting, business travel, waste disposal, and supply chain.

Employee Commuting Data:

- **Employees commuting by Car:** 40
- **Employees commuting by Bike:** 120
- **Employees commuting by Coach Bus:** 110
- **Employees commuting by Public Transportation:** 110
- **Total Day Scholars (Staff):** 380

Emission Factors (kg CO_2e per km)

Vehicle Type	Fuel Type	Emission Factor (kg CO_2e/km)
Medium Motorcycle (150-500cc)	Petrol	0.10
Car (Small/Compact)	Petrol/Diesel	0.15
Coach Bus (30-40 seats)	Diesel	0.04
City Bus (Public Transport) (40-60 seats, high occupancy)	Diesel	0.045

Calculation:

- **Motorcycle Commuters:** 120 × 40 km/day × 200 days × 0.10= **96,000 kg CO_2e (96 tCO_2e)**
- **Car Commuters:** 40 × 40 × 200 × 0.15 = **48,000 kg CO_2e (48 tCO_2e)**
- **Coach Bus Commuters:** 110 × 40 × 200 × 0.04 = **35,200 kg CO_2e (35.2 tCO_2e)**
- **Public Transport Bus Commuters:** 110 × 40 × 200 × 0.045 = **39,600 kg CO_2e (39.6 tCO_2e)**

Total Scope 3 Emissions: 96 + 48 + 35.2 + 39.6 = **218.8 tCO_2e**

4. Year-on-Year Emissions Comparison (2024 vs 2025)

Woxsen University tracks its emissions annually to monitor performance and identify improvement opportunities.

Emissions Comparison

Metric	2024	2025
Scope 1 Emissions	353.6 tCO_2e	423.85 tCO_2e
Scope 2 Emissions	3,923.6 tCO_2e	4,665.78 tCO_2e
Total Scope 1 + 2	4,277.2 tCO_2e	5,089.63 tCO_2e
Population	4778	6100
Per Capita Emissions	**0.90 tCO_2e per person/year**	**0.83 tCO_2e per person/year**

5. Energy Generated from Renewable Sources (kWh):

Woxsen University has installed solar panels; energy generation calculations depend on the installed capacity and efficiency.

- **Total Energy Generated: 7,98,424 kWh**

(*Refer to the Power Consumption Report for detailed information.*)

6. Water Consumption (m^3/Day):

- **Total Water Consumption:** 701,500 liters
- **Converted to m^3:** 7,01,500 liters ÷ 1,000 = **701.50 m^3**

7. Energy Consumption (kWh/year):

- **Total Energy Consumption: 6,517,008 kWh**

(For further details, refer to the relevant reports.)