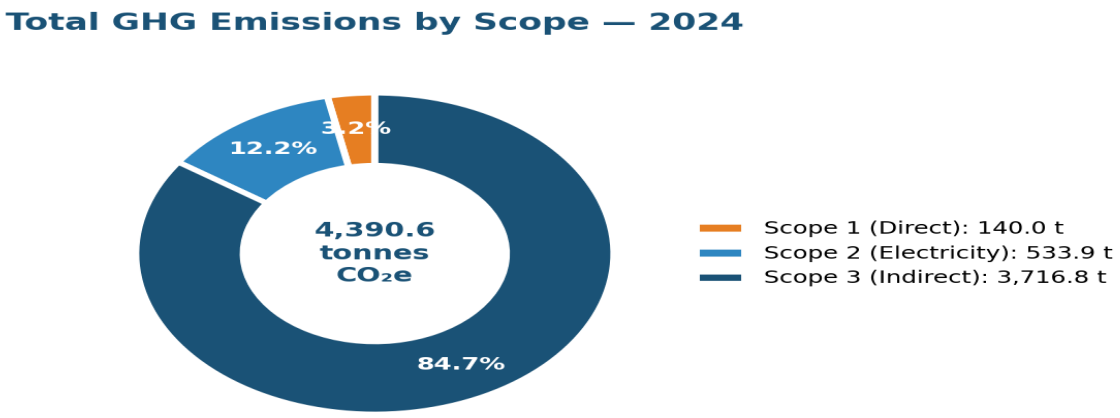
Greenhouse Gas Emissions Inventory

Uzbekistan State World Languages University (UzSWLU) — 2024

Methodology

Standard: GHG Protocol Corporate Standard
Emission Factors: US Environmental Protection Agency (EPA) and Intergovernmental Panel on Climate Change (IPCC) guidelines
Commuting Distance: Assumed average distance of 10 km for all commuting modes
Data Sources: University records and university-wide survey (2024)
Reporting Period: January 1, 2024 — December 31, 2024

Total Emissions	Scope 1 (Direct)	Scope 2 (Electricity)	Scope 3 (Indirect)
4,390.64 t	**139.98 t**	**533.89 t**	**3,716.76 t**
↓ 2.0% vs 2023	3.2%	12.2%	84.7%



Scope 1 Emissions — Direct Emissions

Emission Source	Activity	Emission Factor	Emissions (kg CO■e)	Source
Fuel Consumption (Gasoline)	14,900 L	2.31 kg CO■e/L	34,418.25	University records
Fuel Consumption (Natural Gas)	20,680 m³	1.96 kg CO■e/m³	40,532.80	University records
Refrigerants	64.8 units	1,000 kg CO■e/unit	64,800.00	University records
Waste Disposal	2,312.6 kg	0.1 kg CO■e/kg	231.26	University records
Scope 1 Total			**139,982.31**	

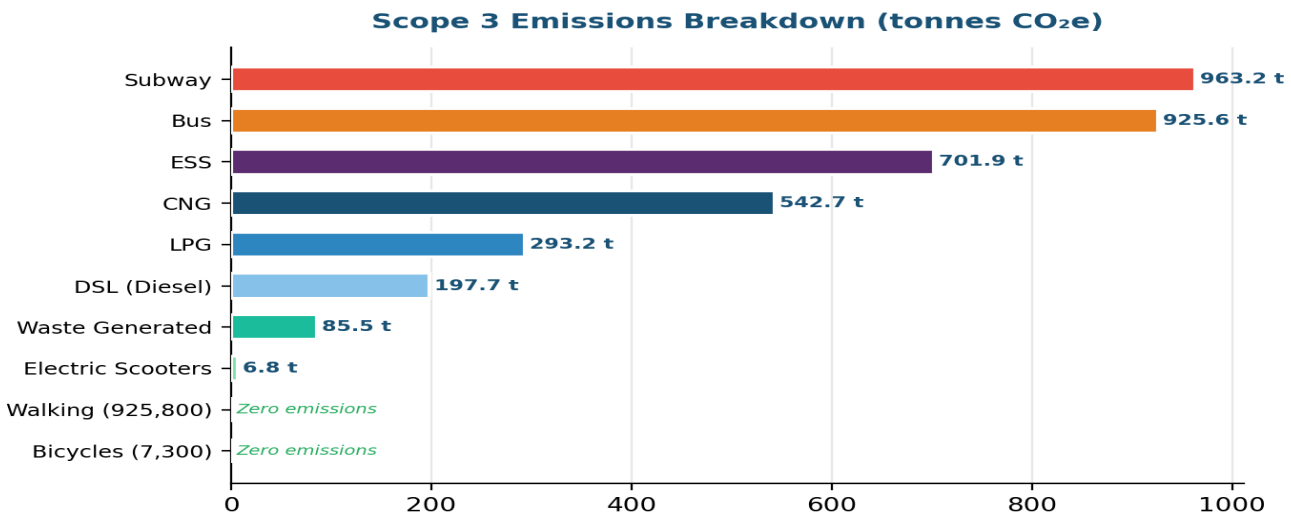
Scope 2 Emissions — Indirect Emissions (Electricity)

Emission Source	Activity	Emission Factor	Emissions (kg CO■e)	Source

Electricity Consumption	1,213,386 kWh	0.44 kg CO■e/kWh	533,889.98	University records
Scope 2 Total			**533,889.98**	

Scope 3 Emissions — Other Indirect Emissions

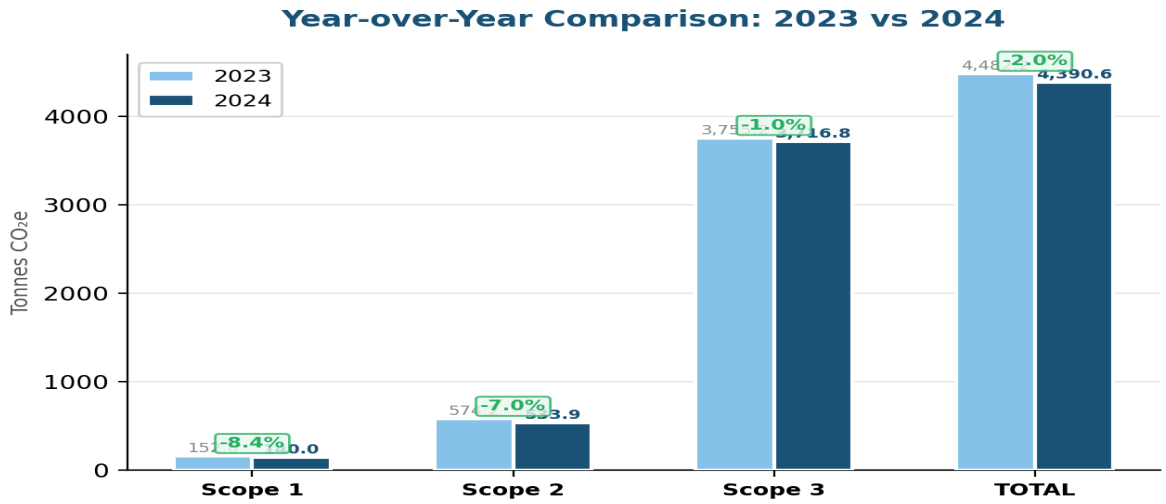
Emission Source	Activity	Emission Factor	Emissions (kg CO■e)	Source
Waste Generated	854,995.5 kg	0.1 kg CO■e/kg	85,499.55	Univ. records
BEV (Battery Electric)	24,650 cars	0 kg CO■e/km	0.00	Univ. survey
ESS (Elec. Storage Sys.)	292,470 cars	0.24 kg CO■e/km	701,929.60	Univ. survey
DSL (Diesel)	73,224 cars	0.27 kg CO■e/km	197,704.80	Univ. survey
LPG	117,290 cars	0.25 kg CO■e/km	293,225.00	Univ. survey
CNG	271,360 cars	0.2 kg CO■e/km	542,720.00	Univ. survey
Subway	1,926,430 pass.	0.05 kg CO■e/p-km	963,215.00	Univ. survey
Bus	771,358 pass.	0.12 kg CO■e/p-km	925,629.60	Univ. survey
Electric Scooters	2,280 scooters	0.03 kg CO■e/km	6,840.00	Univ. survey
Bicycles	7,300 bicycles	0 kg CO■e/km	0.00	Univ. survey
Walking	925,800 ped.	0 kg CO■e/km	0.00	Univ. survey
Scope 3 Total			**3,716,763.55**	



Total GHG Emissions Summary

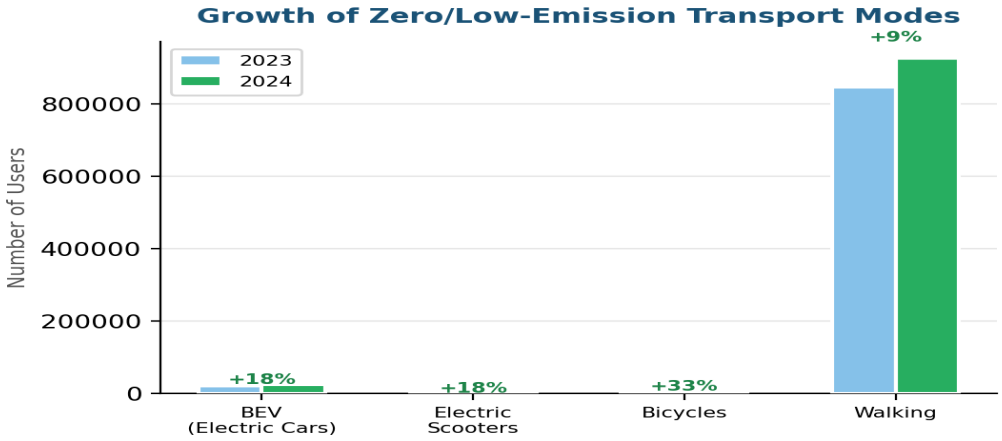
Scope	Emissions (kg CO■e)	Emissions (t CO■e)	Share (%)	Change vs 2023
Scope 1 — Direct	139,982.31	139.98	3.2%	↓ 8.4%
Scope 2 — Electricity	533,889.98	533.89	12.2%	↓ 7.0%
Scope 3 — Indirect	3,716,763.55	3,716.76	84.7%	↓ 1.0%
GRAND TOTAL	**4,390,635.84**	**4,390.64**	**100%**	**↓ 2.0%**

Year-over-Year Comparison: 2023 vs 2024



Overall Result: Total GHG emissions decreased by **2.0%** from 4,482.19 tonnes CO■e (2023) to 4,390.64 tonnes CO■e (2024). Key drivers of this reduction include energy efficiency improvements (LED lighting upgrades, HVAC optimization), reduced fossil fuel consumption, and a significant shift toward sustainable commuting options.

Growth of Zero/Low-Emission Transport



Positive Trend: The number of users choosing zero and low-emission transport modes increased significantly in 2024. Bicycle usage grew by 33%, electric vehicle adoption rose by 18%, walking increased by 9.4%, and electric scooter usage expanded by 17.8%. These trends reflect the university's ongoing investment in sustainable campus infrastructure and awareness campaigns.

Emission Reduction Strategies & Actions

UzSWLU is committed to continuous reduction of its carbon footprint. The following strategies are currently being implemented or planned:

Strategy	Target	Expected Impact	Status
LED lighting across all campus buildings	Scope 2	Reduce electricity consumption by 15%	In progress
Solar panel installation (50 kW, Phase 1)	Scope 2	Generate 65,000 kWh/year clean energy	Planned 2025
Replacement of old refrigerant units	Scope 1	Reduce refrigerant emissions by 30%	In progress
Expanded bicycle parking and cycling lanes	Scope 3	Increase bicycle commuting by 25%	Completed
Public transport subsidies for staff/students	Scope 3	Shift 10% of car commuters	In progress

Digital document management system	Scope 3	Reduce paper waste by 20%	Completed
Energy-efficient HVAC system upgrade	Scope 1 & 2	Reduce heating/cooling energy by 12%	Planned 2025
Campus tree planting program (500+ trees)	Offset	Sequester ~5 tonnes CO■e/year	In progress

Conclusion

UzSWLU's total greenhouse gas emissions for 2024 amount to **4,390.64 tonnes CO■e**, representing a **2.0% reduction** compared to 2023. This decrease demonstrates the university's commitment to environmental sustainability and effective implementation of emission reduction measures. Scope 3 emissions (commuting and waste) continue to represent the largest share at 84.7%, highlighting the importance of continued investment in sustainable transport infrastructure and waste management programs. The university will continue to monitor emissions annually, set progressive reduction targets, and expand its portfolio of sustainability initiatives in line with the UN Sustainable Development Goals and national climate commitments.
