UZBEKISTAN STATE WORLD LANGUAGES UNIVERSITY

Institutional Greenhouse Gas Emissions Inventory

SDG 7 Affordable and Clean Energy | Reporting year 2025

Uzbekistan State World Languages University (UzSWLU) compiles an institutional greenhouse gas emissions inventory across its six campuses, following the GHG Protocol Corporate Accounting and Reporting Standard. The inventory covers direct emissions from fuel combustion and refrigerant leakage from cooling equipment (Scope 1), indirect emissions from purchased electricity and heat (Scope 2), and staff and student commuting (Scope 3). It is consolidated by the International Rankings Department from the University's utility accounts, solar-generation records, fuel records, equipment inventory and transport data.

Reporting boundary

Parameter	Value
Reporting entity	Uzbekistan State World Languages University
Operational boundary	Six University campuses
Campus population	24,058 (22,208 students and 1,850 staff)
Reporting period	Calendar year 2025
Accounting standard	GHG Protocol Corporate Accounting and Reporting Standard (Scopes 1, 2 and 3)

Energy and activity data, 2025

Item	Value
Solar electricity generated (1,340 kW, 2,423 panels)	1,818,133 kWh
of which used on site by the University	953,600 kWh
of which exported to the city grid	864,533 kWh
Grid electricity purchased from the city network	1,854,198 kWh
Total electricity used (on-site solar + grid)	2,807,798 kWh
Natural gas	906,306 m^3
District heat and hot water	727 Gcal (3,045 GJ)
Gasoline (vehicle fleet)	14,900 L
Refrigeration and air-conditioning equipment in operation	418 air conditioners, 199 refrigerators

Scope 1 — Direct emissions

Source	Activity data	Emission factor	Emissions
Natural gas	906,306 m^3	1.96 kg CO_2e/m^3	1,776.36 tCO_2e
Gasoline	14,900 L	2.31 kg CO_2e/L	34.42 tCO_2e
Refrigerant leakage (see breakdown below)	617 units of equipment	Leakage × GWP	60.43 tCO_2e
Scope 1 total			**1,871.21 tCO_2e**

Scope 1 — Refrigerant leakage breakdown

Equipment	Units	Charge per unit	Refrigerant (GWP)	Annual leak rate	Refrigerant lost	Emissions
Air conditioners	418	1.5 kg	R-410A (1,924)	5%	31.35 kg	60.32 tCO_2e
Refrigerators	199	0.15 kg	R-134a (1,300)	0.3%	0.09 kg	0.12 tCO_2e
Refrigerants total	**617**				**31.44 kg**	**60.43 tCO_2e**

Scope 2 — Purchased electricity and heat

Source	Activity data	Emission factor	Emissions
Grid electricity purchased	1,854,198 kWh	0.506 kg CO2e/kWh	938.22 tCO2e
District heat and hot water	3,045 GJ	56.1 kg CO2/GJ	170.82 tCO2e
On-site solar electricity	953,600 kWh	0	0.00 tCO2e
Scope 2 total			**1,109.05 tCO2e**

Scope 3 — Staff and student commuting

Mode	Share	Emission factor	Emissions
Bus	36.94%	0.12 kg CO2e/passenger-km	3,519.26 tCO2e
Taxi	11.26%	0.25 kg CO2e/passenger-km	2,234.87 tCO2e
Metro	33.78%	0.05 kg CO2e/passenger-km	1,340.92 tCO2e
Bicycle	5.41%	0	0.00 tCO2e
Walking	12.61%	0	0.00 tCO2e
Scope 3 total	**100.00%**		**7,095.05 tCO2e**

Inventory summary

Scope	Emissions	Share
Scope 1 — Direct emissions	1,871.21 tCO2e	18.6%
Scope 2 — Purchased electricity and heat	1,109.05 tCO2e	11.0%
Scope 3 — Staff and student commuting	7,095.05 tCO2e	70.4%
Total institutional inventory	**10,075.31 tCO2e**	**100.0%**

Emission factors and sources

Grid electricity: 0.506 kg CO2e/kWh, UNFCCC Standardized Baseline for the Uzbekistan national grid (combined margin). Natural gas and gasoline: United States Environmental Protection Agency, GHG Emission Factors Hub (2025). District heat: IPCC 2006 Guidelines default for natural gas (56.1 kg CO2/GJ), applied to the heat delivered to the University. Solar electricity used on site carries no emissions. Refrigerants: IPCC 2006 Guidelines, Volume 3, Chapter 7 (operating emissions from refrigeration and stationary air-conditioning), applying an annual leak rate to the refrigerant charge of each equipment type from the University's equipment inventory (418 air conditioners, 199 refrigerators); global warming potentials are 100-year values from the IPCC Fifth Assessment Report (R-410A 1,924; R-134a 1,300). Commuting is calculated for the whole campus population of 24,058 people, assuming an average one-way distance of 7.5 km, 220 days a year and two journeys a day, with transport mode shares from University data normalized to 100%.

UzSWLU's 2025 institutional inventory totals 10,075.31 tCO2e, or 0.42 tCO2e per member of the campus community. Commuting accounts for 70% of emissions and natural gas for heating for 18%, which makes sustainable transport and heating efficiency the University's main priorities for reducing its carbon footprint, alongside the continued expansion of solar generation. Refrigerant leakage from air conditioners and refrigerators adds a further 0.6%.