GREENHOUSE GAS EMISSIONS INVENTORY REPORT

Reporting Period: 1 January 2025 – 31 December 2025

National Pedagogical University of Uzbekistan named after Nizami

1. Introduction and Organisational Context

The carbon emissions (CO_2 output) of the National Pedagogical University of Uzbekistan named after Nizami (NPUU) for the period 1 January – 31 December 2025 were calculated in accordance with the GHG Protocol Corporate Standard and are presented in this report.

Field	Details
Institution	National Pedagogical University of Uzbekistan named after Nizami
Reporting period	1 January 2025 – 31 December 2025
Total campus floor area	181,205 m² (gross floor area)
Heated area	75,799 m²
Green area	81,563 m²
Technical and support staff	210 employees

2. Methodology and Emission Factors

Emission quantities are determined from activity data using the relevant calculation factors. Global Warming Potential values are adopted in accordance with the 100-year time horizon set out in the Fifth Assessment Report of the Intergovernmental Panel on Climate Change (IPCC). Indirect emissions have been analysed separately under two independent calculation methodologies in accordance with international standards and are reported accordingly.

Emission Source	Scope	Emission Factor	Reference
Natural gas combustion	Scope 1	2.040 $kgCO_2e/m^3$	IPCC 2006, Vol. 2
Grid electricity	Scope 2	0.5765 $kgCO_2e/kWh$	IEA 2023, Uzbekistan

On-site solar panels	Offset	0 $kgCO_2e/kWh$	International renewable energy guidance

3. Scope 1 – Direct Emissions (Natural Gas)

Scope 1 emissions arise from the combustion of natural gas in the centralised heating system, which consists of 7 gas-fired boiler houses supplying heat to 75,799 m^2 of heated floor area across 15 campus buildings. Natural gas consumed during the reporting period: 527,094 m^3, resulting in 1,075 tCO_2e of direct emissions.

Parameter	Value	Unit	Notes
Natural gas consumed	527,094	m^3/year	Utility billing records
Number of boiler houses	7	units	Campus heating system
Heated area	75,799	m^2	15 campus buildings
Emission factor	2.040	$kgCO_2e/m^3$	IPCC 2006, Annex 2
SCOPE 1 TOTAL	1,075	tCO_2e	

4. Scope 2 – Indirect Emissions (Electricity)

During the reporting period, NPUU consumed 2,001,241 kWh of electricity from the national grid. The university's on-site solar panel system generated 287,281 kWh (14.4% of total consumption), prevented 166 tCO_2e of emissions, and achieved economic savings of 220,119,200 UZS.

Parameter	Value	Unit	Notes
Total electricity consumed	2,001,241	kWh	Utility billing records
Solar panels generated	287,281	kWh	On-site meter

Net grid electricity	1,713,960	kWh	Total consumption minus solar
Grid emission factor (Uzbekistan)	0.5765	kgCO_2e/kWh	IEA 2025
Scope 2 – Location-based	1,154	tCO_2e	Based on total grid consumption
Scope 2 – Market-based	988	tCO_2e	Accounting for solar panels
CO_2 prevented (Solar PV)	166	tCO_2e	Renewable energy benefit

5. Total Emissions Summary

The table below presents the complete summary of NPUU's greenhouse gas emissions for the reporting period 1 January – 31 December 2025. The university's total emissions amount to 2,063 tCO_2e. Of this figure, 1,075 tCO_2e (52.1%) originate from natural gas combustion for campus heating, while the remaining 988 tCO_2e (47.9%) relate to electricity consumption from the national grid.

It is important to note that the on-site solar panel system generated 287,281 kWh of clean electricity in 2025, preventing 166 tCO_2e of emissions and delivering economic savings of 220,119,200 UZS.

Scope	**Source**	**tCO_2e**	**Share**
Scope 1	Natural gas – 7 boiler houses	1,075	52.1%
Scope 2	Grid electricity, accounting for solar panels	988	47.9%
TOTAL		2,063	100%
Scope 2 (location-based)	Grid electricity (gross)	1,154	–
Total (location-based method)		2,229	–

CO_2 saved via solar panels		–166	

6. Sustainability Initiatives and Energy Efficiency

NPUU has implemented a broad range of energy efficiency and sustainability measures, demonstrating a firm commitment to reducing its environmental footprint and transitioning to a low-carbon campus.

Initiative	Indicator	Environmental Benefit
On-site solar panel system	287,281 kWh generated	166 tCO_2e prevented; 220,119,200 UZS saved
LED lighting replacement	1,080 fixtures (760 academic + 320 residential)	Significant reduction in electricity consumption across buildings
Equipment modernisation	1,220 devices replaced with energy-efficient alternatives	Reduced energy demand across all buildings
Boiler house system	7 boiler houses, serving 75,799 m^2	Improved thermal efficiency; reduced gas waste
Building renovation	14 buildings renovated (9 academic + 5 residential)	Enhanced insulation; improved energy efficiency
Green Space Programme	1,620 trees planted (101% of national target)	Carbon sequestration; enhanced biodiversity

7. Scope 3 – Indirect Value Chain Emissions

NPUU has identified the following categories as material for Scope 3 reporting: business travel, staff commuting, procurement of goods and services, and waste generated in operations. Data collection for these categories is ongoing as part of NPUU's commitment to full emissions disclosure. A complete Scope 3 inventory will be presented in the 2026 reporting period.

8. Data Quality

Data Item	Quality
Electricity consumption	Utility billing records – Measured
Natural gas consumption	Utility billing records – Measured
Solar panel generation	On-site production meter – Measured
Uzbekistan grid emission factor	IEA Emission Factors 2025 – Published
Natural gas emission factor	IPCC 2006 Guidelines, Vol. 2 – Published
Building floor area data	Facilities management records – Measured

9. Declaration and Approval

This Greenhouse Gas Emissions Inventory Report has been prepared in good faith using the best available data in accordance with the GHG Protocol Corporate Standard. The figures accurately represent NPUU's greenhouse gas emissions within the defined operational boundary for the reporting period 1 January – 31 December 2025.