University : UzSWLU
Country : Uzbekistan
Web Address: https://www.uzswlu.uz/en#

2. Energy and Climate Change
2.10 Greenhouse gas emission reduction program

Uzbekistan State World Languages University (UzSWLU) has developed and implemented a comprehensive Greenhouse Gas (GHG) Emission Reduction Program to systematically reduce CO_2 and related emissions across its campuses.

The program is part of the Sustainability Development Roadmap (2022–2030) and aligns with Uzbekistan's Low-Carbon Development Strategy, directly supporting SDGs 7 (Clean Energy), 11 (Sustainable Cities), 12 (Responsible Consumption), and 13 (Climate Action).

Key Focus Areas and Measurable Outcomes

Focus Area	Description of Measures	Estimated Annual Savings (UZS)	CO_2 Reduction (tons/year)
Renewable Energy (Solar PV)	1,584 kW rooftop solar systems generating 1.58 million kWh/year across Main, English Philology, and Angren campuses.	–	**45**
Smart Heating Systems	Local high-efficiency boilers (2,200 kW × 2 units) with smart thermostats and zonal controls; reduced gas consumption by ~20%.	820,000,000	**40**
LED and Motion Sensor Lighting	Replacement of 6,000+ lamps with A+++ LED units and automatic lighting control.	210,000,000	**20**
HVAC Optimization	2 smart chillers + 289 fan coil units managed via Fusion Energy; improved cooling efficiency by 15%.	180,000,000	**12**
Green Buffer Zones and Tree Planting	Over 1,000 new trees planted annually (pine, acacia, mulberry, walnut), forming carbon sinks and shade corridors.	–	**10**
Waste and Transport Initiatives	Launch of campus-wide recycling points; promotion of pedestrian zones and hybrid vehicles for administration.	–	**8**

Total CO_2 reduction (estimated): ≈135 tons/year
Total annual financial savings: ≈1.21 billion UZS

Monitoring and Verification

- The **Fusion Energy Environmental Dashboard** automatically tracks fuel, electricity, and heating use, calculating real-time CO_2 equivalents using **IPCC emission factors**.

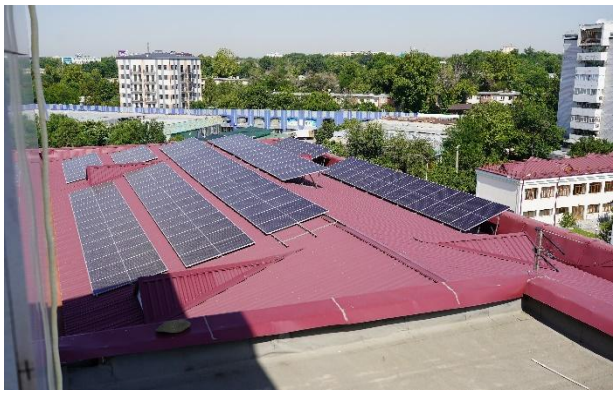
- The E-IJRO System compiles data from each building to generate quarterly emission performance reports.
- Annual GHG summaries are reviewed by the Landscaping and Environmental Monitoring Department and integrated into the university's Sustainability Report (2025).

Program Impact

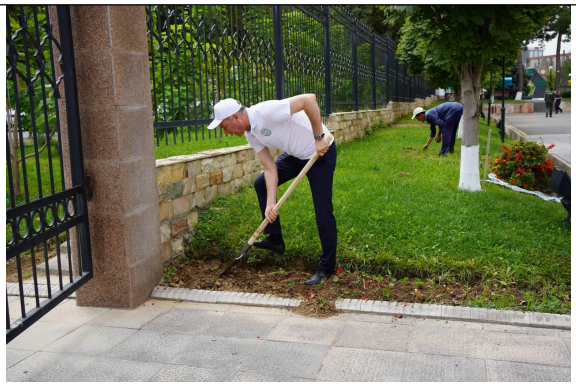
- **Total carbon reduction:** 135 tons CO_2/year
- **Energy consumption reduction:** 22% vs 2021 baseline
- **Heating system efficiency:** +20% improvement
- **Electricity savings:** ≈1.2 billion UZS annually
- **Renewable energy share:** 22% (goal: 30% by 2026)

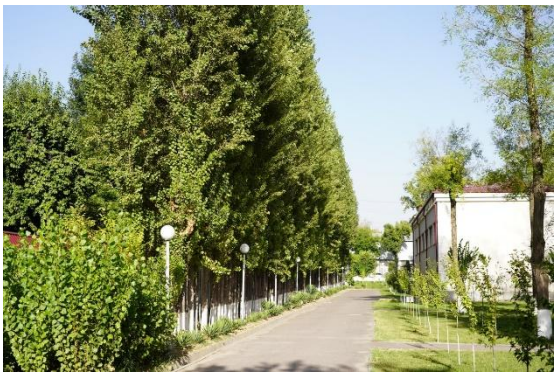
Long-Term Goals (2026–2030)

- Expand solar capacity to 2,000 kW (+25%).
- Introduce electric shuttle service between campuses.
- Achieve 200 tons/year CO_2 reduction.
- Integrate AI-based predictive controls for energy optimization.



Rooftop solar PV arrays





Green zones

Charge parking (UzSWLU)

Heating system UzSWLU