



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

2.1 (EC.1) Use of Energy-Efficient Appliances

The Uzbekistan State University of World Languages (UzSWLU) operates a comprehensive energy efficiency and smart energy management ecosystem that combines digital monitoring technologies, renewable energy generation, and high-efficiency equipment to optimize energy use across all university facilities. The entire system is coordinated through the Fusion Energy Platform, an intelligent digital solution that continuously monitors, analyzes, and optimizes energy production, distribution, and consumption in real time across all five campuses. This initiative forms a key component of the university's Energy Management and Climate Action Plan (2022–2030) and directly supports SDG 7 (Affordable and Clean Energy), SDG 9 (Industry, Innovation and Infrastructure), and SDG 13 (Climate Action).

Integration of Solar Energy and Smart Energy Control

To increase the share of clean energy within its operations, UzSWLU has installed solar photovoltaic systems on building rooftops and selected open-campus locations, supplying academic buildings, administrative offices, student dormitories, campus lighting systems, and other facilities. All renewable generation connects directly to the Fusion Energy Platform, which manages electricity flows according to real-time demand and prioritizes renewable consumption before drawing from the external grid. As a result, the university has reduced dependence on external electricity sources by approximately 26–30% annually, strengthening energy security and lowering carbon emissions.

Fusion Energy Platform: Digital Monitoring and Optimization

The platform consolidates solar generation statistics, building-level electricity consumption data, lighting performance, HVAC controls, and predictive demand-balancing algorithms. Through automation it provides automatic load balancing during peak-demand periods, real-time anomaly alerts, and daily/monthly/annual analytics accessible through the university's E-IJRO Dashboard. Since implementation, UzSWLU has achieved a 34% reduction in overall electricity consumption between 2022 and 2026, avoiding approximately 62 tons of CO₂ emissions annually.

Energy-Efficient Equipment and Smart Lighting

- Approximately 98% of indoor lighting systems upgraded to smart LED technology.



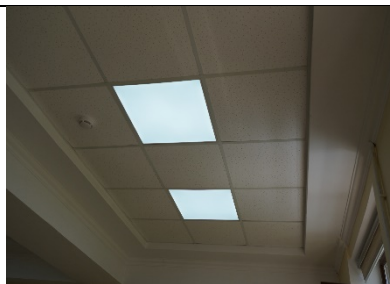
- More than 310 motion-activated sensors installed in classrooms, corridors, administrative areas, and outdoor spaces.
- Procurement of A+++ energy-rated equipment: air conditioners, computers, refrigerators, laboratory devices.
- Solar-powered LED lighting in outdoor areas with automatic dusk-to-dawn operation.

Environmental and Economic Benefits

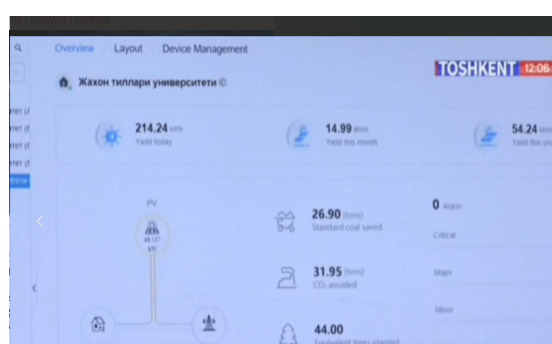
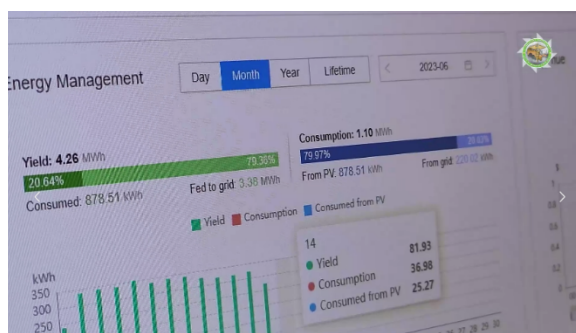
The combined impact of renewable energy generation, smart monitoring, and efficient equipment has produced measurable environmental and financial benefits: reduced electricity consumption, lower GHG emissions, decreased operational costs, improved energy resilience, and enhanced compliance with green-building standards.

Summary Table — Fusion Energy and Efficiency Integration (2026)

Category	Technology / Initiative	Coverage	Status
Smart energy management	Fusion Energy digital monitoring and control	100%	Fully implemented
Solar power utilization	Rooftop and open-area photovoltaic systems	100% (main & satellite)	Active
LED & sensors	Smart indoor and outdoor lighting	98%	Operational
High-efficiency appliances	A+++ office, HVAC, dormitory units	100%	Ongoing upgrade
Energy savings	Reduction in electricity use	34% (2022–2026)	Verified
CO ₂ emissions	Annual reduction	62 tons	Monitored via dashboard



Example of Energy Efficient Appliances Usage: Use of LED lighting and lamps with light detection
(UzSWLU)



Example of Energy Efficient Appliances Usage: Solar absorption Air Conditioning system
(UzSWLU)

Additional evidence link (i.e., for videos, more images, or other files that are not included in this file):

<https://t.me/UzSWLU/9329>

<https://uzswlu.uz/news/quyosh-panellarining-foydasi>

<https://t.me/UzSWLU/9392>

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<https://www.facebook.com/uzswlu.uz>

<https://www.youtube.com/c/Ozbekistondavlatjahontillariuniversiteti>



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