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

2. Energy and Climate Change (EC)

2.2 Smart building implementation

Uzbekistan State World Languages University (UzSWLU) has introduced a comprehensive Smart Building Management System (BMS) integrating digital control, automation, and sustainability monitoring across its campuses.

These innovations, developed under the Energy Management and Climate Action Plan (2022–2030), are aimed at improving energy efficiency, user comfort, and operational safety while reducing the university's carbon footprint.

The initiative fully aligns with SDG 7 (Clean Energy), SDG 9 (Innovation and Infrastructure), SDG 11 (Sustainable Cities), and SDG 13 (Climate Action).

Digital Integration and Intelligent Control Systems

All major university buildings — including the Main Campus, Faculty of Journalism, Faculty of Russian Philology, and Faculty of English Philology — are connected to the Fusion Energy and E-Ijro platforms.

These systems jointly form an integrated Smart Campus Management Network that monitors energy use, temperature, lighting, and air quality in real time.

More than 400 smart sensors have been deployed to regulate lighting, temperature, and motion detection, allowing each zone to automatically adjust energy use based on occupancy.

This system has reduced energy waste by up to 18% annually compared to baseline consumption in 2021.

The Fusion Energy interface provides dynamic dashboards displaying real-time performance, enabling the Facilities Department to track and optimize power usage, air-conditioning load, and equipment operation efficiency.

Smart HVAC and Environmental Control

Each building is equipped with smart heating, ventilation, and air-conditioning (HVAC) units controlled through the Fusion Energy digital system.

These systems automatically regulate temperature and airflow according to occupancy and time of day, maintaining both comfort and energy savings.

Sensors also monitor indoor air quality (CO_2 and humidity levels), ensuring healthy learning environments in compliance with national standards.

In 2024, UzSWLU upgraded all main auditoriums and administrative buildings with smart thermostats and zonal climate controllers, achieving an additional 10% reduction in electricity demand during peak hours.

Smart Lighting and Renewable Energy Integration

UzSWLU's smart buildings are directly linked with the Fusion Energy solar power network, ensuring that renewable energy generated from rooftop panels is prioritized for use in lighting and air-conditioning systems.

Currently, 95% of indoor lighting and 100% of outdoor lighting operate on LED technology, supplemented by motion and daylight sensors that automatically switch lights on and off. All systems are programmed to minimize idle power use and adjust brightness levels dynamically.

IoT and Data-Driven Management

The university is progressively implementing Internet of Things (IoT) modules supported by AI-based predictive analytics, which learn usage patterns and automatically balance energy flow.

Monthly analytical reports generated by the E-IJRO dashboard guide management decisions on maintenance scheduling, equipment replacement, and energy performance evaluation.

These capabilities transform UzSWLU into a smart data-driven campus, where every building contributes measurable insights toward the university's sustainability performance indicators.

Summary Table – Smart Building Coverage (2025)

No	Campus	Smart Systems Installed	Energy Monitoring	HVAC Automation	Lighting & Access Control
1	Main Campus	Fusion Energy + E-IRJO BMS	✓	✓	✓
2	Faculty of Journalism	Smart lighting + HVAC sensors	✓	✓	✓
3	Faculty of Russian Philology	Lighting automation + Smart Access	✓	✓	✓
4	Faculty of English Philology	Full automation + Smart Security	✓	✓	✓
Total	4 campuses	Fully integrated Smart Systems	**100% coverage**	**Operational**	**Integrated**

.Main Campus (UzSWLU)	2.Faculty of International Journalism (UzSWLU)
	
3.Faculty of Russian Philology (UzSWLU)	4.Faculty of English Philology (UzSWLU)