

POLICY DOCUMENT

ENERGY EFFICIENCY AND GREEN INFRASTRUCTURE POLICY

Website

www.sustainable.mdu.edu.az

Email

quality@mdu.edu.az

Address

D.Aliyeva st. 21. Mingachevir





01

Document Information

| Scope | Information |
|----------------------------|---|
| Document Title | Energy Efficiency and Green Infrastructure Policy |
| Document Type | Policy Document |
| Document Code | MDU-POL-AF-010 |
| Version | 1.1 |
| Initial Release Date | 2024 |
| Last Revision Date | 2026 |
| Validity Period | 2024–2027 |
| Document Status | Approved |
| Information Classification | Public |
| Prepared by | Strategic Development Department |
| Approved by | Academic Council of Mingachevir State University |
| Responsible Unit | Working Group on Ecology and Sustainable Development (or relevant sub-commission under the Ethics and Disciplinary |
| Owner | Strategic Development Department |
| Scope | Academic and administrative staff, students, laboratories, campus infrastructure, visiting researchers, and partner |
| Related Documents | Environmental Policy, Procurement and Purchasing Policy, Ethical Organizational Behavior Policy, Health, Safety and |
| Superseded Document | Initial version dated 2024 |
| Distribution | Official university website and internal systems |
| Storage Location | Electronic Document Management System |

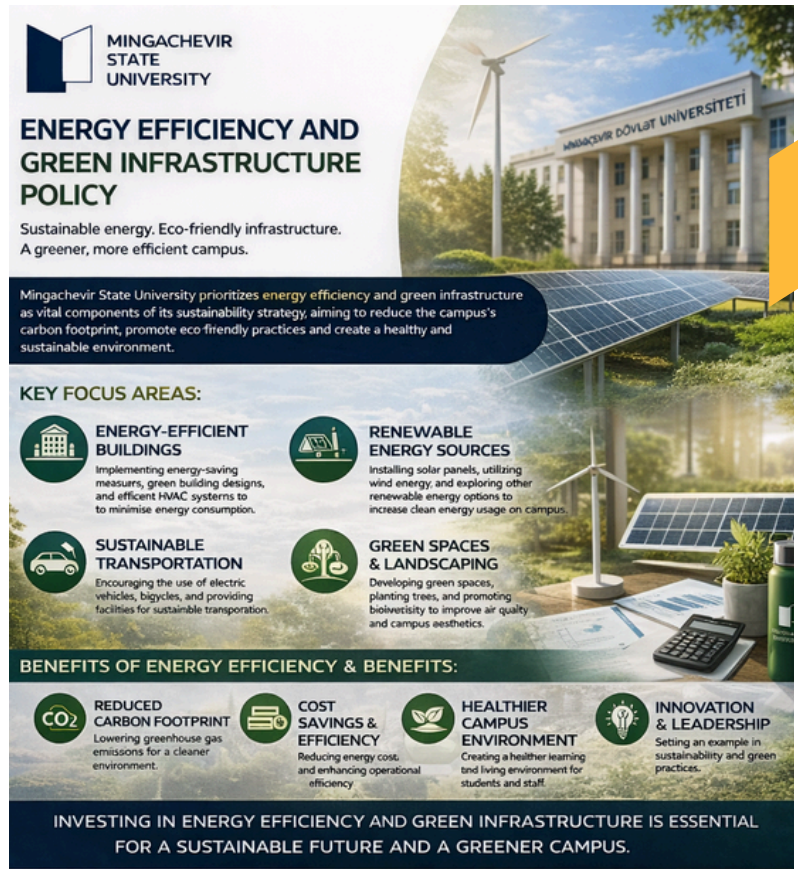
The purpose of this policy is to establish a comprehensive, strategic, and institution-wide framework for enhancing energy efficiency and promoting the development of green infrastructure at Mingachevir State University. It aims to ensure the rational and efficient use of energy resources, reduce environmental impact, and support the transition toward a sustainable, climate-resilient, and low-carbon campus environment.

This policy is designed to systematically integrate sustainability and energy management principles into all

academic, administrative, research, and operational activities of the University. It promotes the adoption of energy-efficient technologies, smart energy management systems, and environmentally responsible approaches in the design, construction, renovation, and maintenance of campus infrastructure. At the same time, it encourages the use of renewable and alternative energy sources, where technically and economically feasible.

A key objective of this policy is to strengthen institutional capacity in energy planning, monitoring, and optimization. This includes the establishment of data-driven decision-making processes, the use of digital tools for tracking energy consumption, and the continuous improvement of infrastructure performance. The policy also supports innovation in sustainable technologies and encourages the integration of green solutions into research and educational practices.

Furthermore, the policy seeks to foster a culture of environmental responsibility and awareness among academic staff, students, and administrative personnel. Through training programs, awareness campaigns, and stakeholder engagement, it promotes energy-saving behaviors and responsible resource consumption across the university community.



In the context of increasing global environmental challenges and the urgent need to address climate change, energy efficiency and sustainable infrastructure have become key priorities for higher education institutions. Universities are not only centers of knowledge creation but also important actors in promoting environmentally responsible practices and contributing to the transition toward sustainable development.

Mingachevir State University recognizes its institutional responsibility to minimize environmental impact and optimize the use of natural and energy resources. As part of its long-term strategic vision, the University is committed to improving energy performance, reducing greenhouse gas emissions, and integrating green infrastructure principles into campus planning and operations.

The growing demand for energy, combined with the need to ensure cost efficiency and environmental protection, requires a systematic and forward-looking approach to energy management. In this regard, the University seeks to adopt modern technologies, improve infrastructure efficiency, and implement sustainable solutions that enhance both operational effectiveness and environmental performance.

Furthermore, the University acknowledges the importance of embedding sustainability into its academic and research activities. By incorporating energy efficiency and environmental considerations into teaching, research, and innovation processes, the institution contributes to the development of environmentally conscious graduates and supports the advancement of sustainable knowledge and practices.

Through this policy, Mingachevir State University establishes a structured framework to guide its efforts in energy efficiency and green infrastructure, ensuring alignment with national regulations, international standards, and global sustainability commitments.



Energy Efficiency: The optimization of energy use to achieve the same or improved performance with lower energy consumption, reducing waste and operational costs.



Green Infrastructure: Environmentally sustainable systems, facilities, and construction practices designed to minimize ecological impact and enhance resource efficiency.



Renewable Energy: Energy generated from natural and continuously replenished sources such as solar, wind, and hydropower, which have minimal environmental impact.



Carbon Footprint: The total amount of greenhouse gas emissions produced directly or indirectly by the activities of an institution.



Sustainable Development: A development approach that meets present needs without compromising the ability of future generations to meet their own needs, balancing environmental, social, and economic factors.

Scope of application

This policy applies to all structural, academic, and operational components of Mingachevir State University and is binding for academic and administrative staff, students, visiting scholars, researchers, and partner organizations engaged in the University's activities. It establishes a unified institutional approach to energy efficiency and green infrastructure, ensuring that sustainability principles are consistently applied across all levels of decision-making and implementation.

The scope covers the entire physical campus and all related facilities, including academic buildings, administrative offices, laboratories, libraries, student residences, sports complexes, and auxiliary service areas. It also extends to all stages of infrastructure lifecycle management, including planning, design, construction, renovation, modernization, and maintenance. Within this framework, environmentally sustainable building standards, energy-efficient systems, and green design principles are systematically integrated into all infrastructure-related activities.

In addition, the policy applies to all forms of energy consumption and resource use within the University. This includes electricity, heating, cooling, water usage, lighting systems, and the operation of mechanical and digital infrastructure. Special emphasis is placed on the monitoring, measurement, and optimization of energy consumption through data-driven management systems and smart technologies, enabling continuous improvement in energy performance.

The scope further includes procurement and financial decision-making processes related to infrastructure and resource use. All purchasing activities involving equipment, materials, and services are expected to consider energy efficiency, environmental impact, and lifecycle cost analysis. The policy promotes the acquisition of energy-efficient technologies, eco-friendly materials, and innovative solutions that support long-term sustainability goals.

Sustainability Integration

Sustainability principles are embedded into all institutional strategies, policies, and operations. Energy efficiency and environmental responsibility are treated as fundamental components of decision-making processes.

Efficient Resource Management

Energy, water, and material resources are used in a rational and optimized manner. Continuous efforts are made to reduce waste, improve efficiency, and ensure long-term resource conservation.

Green Infrastructure Development

All infrastructure planning, construction, and renovation activities incorporate environmentally sustainable design and energy-efficient technologies. Lifecycle thinking is applied to minimize environmental impact.

Innovation and Digitalization

Modern technologies and smart systems are utilized to monitor, manage, and optimize energy consumption. Innovation is encouraged to enhance sustainability performance and operational efficiency.

Environmental Responsibility and Compliance

All activities comply with national environmental regulations and international sustainability standards. The University is committed to reducing emissions and protecting the natural environment.

Awareness and Stakeholder Engagement

Students, staff, and partners are actively engaged in sustainability initiatives. Awareness programs and training activities promote responsible behavior and a culture of energy efficiency.

Strategic Objectives



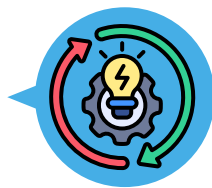
Reduction of Energy Consumption: To systematically decrease overall energy use across all university operations through efficiency measures, optimized systems, and behavioral change initiatives.



Expansion of Renewable Energy Use: To increase the share of renewable and alternative energy sources in campus operations, reducing dependence on conventional energy and lowering carbon emissions.



Development of Sustainable Infrastructure: To ensure that all new construction, renovation, and maintenance activities follow green building principles and energy-efficient design standards.



Strengthening Energy Management Systems: To establish effective monitoring, reporting, and data-driven management systems for tracking and optimizing energy performance across the institution.



Promotion of Sustainability Culture and Innovation: To foster awareness, education, and research in energy efficiency and sustainability, encouraging active participation and innovative solutions from the university community.

Key Performance Indicators (KPIs)

| Objective | Indicator (KPI) | Baseline (2024) | Target (2027) | Timeline | Responsible Unit |
|-------------------------------------|--|-----------------|---------------|-----------|--|
| Increase use of renewable energy | Share of renewable energy usage in campus buildings | 3% | 12% | 2024–2027 | Finance and Facilities Department / IT and Technical Support |
| Improve energy efficiency | Implementation level of LED lighting systems | 55% | 85% | 2024–2027 | Finance and Facilities Department |
| Promote digital transformation | Share of digital document management (paperless system) | 60% | 90% | 2024–2027 | Digital Transformation / Document Management |
| Enhance green campus infrastructure | Proportion of green areas and vegetation on campus | 28% | 35% | 2024–2027 | Finance and Facilities Department |
| Strengthen waste management | Waste sorting and recycling rate (plastic/paper) | 10% | 30% | 2024–2027 | Student Affairs / Volunteer Programs |
| Increase environmental awareness | Number of energy efficiency and environmental training sessions (annual) | 12 | 28 | 2024–2027 | Human Resources / Research and Innovation |

Implementation Mechanism

At Mingachevir State University, the implementation of this policy is carried out through a structured, phased, and measurable approach aligned with international sustainability standards and best practices. At the initial stage, a comprehensive assessment of energy and water consumption is conducted across all academic, administrative, and auxiliary facilities. This includes detailed energy audits aimed at identifying inefficiencies, energy losses, and resource-intensive processes. The active involvement of academic staff, technical specialists, and students in this process not only enhances transparency and institutional ownership but also creates valuable opportunities for experiential learning and research integration.

Following the assessment phase, targeted interventions are systematically implemented to improve energy efficiency and resource management. These measures include the gradual replacement of conventional lighting systems with energy-efficient LED technologies, modernization and optimization of heating, ventilation, and air conditioning (HVAC) systems, and the resolution of insulation-related deficiencies in buildings. In addition, the University introduces smart metering and digital monitoring systems to enable real-time tracking of energy and water consumption, thereby supporting data-driven decision-making and improving operational efficiency.

In parallel, the University advances its commitment to green infrastructure by expanding campus greening initiatives, increasing vegetation coverage, and enhancing biodiversity within the campus environment. A structured waste management system is established, incorporating waste segregation, recycling practices, and awareness campaigns aimed at reducing overall waste generation. Furthermore, the feasibility and gradual integration of renewable energy sources—particularly solar energy systems—are actively explored and implemented where appropriate, contributing to the reduction of the institution's carbon footprint.

Governance and Responsibilities

| Structure / Role | Responsibilities |
|---|--|
| Rector | Provides overall leadership for the implementation of the Energy Efficiency and Green Infrastructure Policy and defines it as a strategic institutional priority. Ensures allocation of financial and administrative resources, evaluates annual progress, and assumes overall institutional accountability. |
| Vice-Rectors (particularly for Administrative Affairs and Development) | Coordinate the operational implementation of the policy and ensure effective collaboration among structural units. Supervise the development and execution of energy-saving and green initiative projects. |
| Administrative and Facilities Department | Conducts daily monitoring of energy and water consumption across university buildings and organizes technical maintenance and repair works. Implements optimization measures for lighting, heating, and other systems based on energy audit results and takes practical steps to reduce energy losses. |
| Sustainability Committee | Ensures overall coordination of the policy implementation and alignment of activities across the institution. Monitors KPIs, prepares annual reports, and provides recommendations for continuous policy improvement. |
| Faculties and Structural Units | Ensure the implementation of the policy at faculty and departmental levels and establish internal control mechanisms for efficient resource use. Promote environmentally responsible behavior among academic staff and students. |
| Students and Staff | Comply with energy-saving and environmentally responsible practices implemented at the university. Actively participate in green initiatives, including waste management, campus greening, and sustainability-related activities. |

Monitoring and Evaluation

The effectiveness of the Energy Efficiency and Green Infrastructure Policy at Mingachevir State University is ensured through continuous monitoring and systematic evaluation mechanisms. The process extends beyond formal reporting and functions as a results-oriented management tool grounded in measurable indicators and evidence-based analysis.

Regular monitoring covers energy and resource consumption across academic buildings, administrative facilities, and other infrastructure units of the University. Data on electricity, heating, and water usage are collected on a monthly basis by the Administrative and Facilities Department and analyzed comparatively with previous periods. Recent modernization initiatives particularly the transition to LED lighting systems and the optimization of heating systems provide a reliable basis for tracking measurable improvements.

Evaluation is not limited to technical indicators. Broader sustainability criteria are also taken into account, including the extent of campus greening, the implementation of waste segregation systems, and the level of engagement among students and staff in environmental initiatives. Activities organized by the SDG Team and SDG Club such as awareness campaigns, environmental actions, and volunteer programs are incorporated into the evaluation framework, with their impact assessed systematically.

Findings from monitoring activities are regularly reviewed by the Sustainability Committee. Identified gaps and opportunities for improvement lead to the development of targeted recommendations. The Climate Change and Sustainable Development Center supports the scientific validation of results and contributes to the identification and implementation of innovative and efficient solutions based on collected data.

Stakeholder Engagement

Successful implementation of the Energy Efficiency and Green Infrastructure Policy at Mingachevir State University extends beyond internal resources, with partnerships serving as a key pillar of the overall approach. Taking into account the strategic importance of Mingachevir as one of the country's major energy centers, the University systematically develops cooperation with institutions operating at local and national levels.

Collaboration with public authorities represents a primary direction in this framework. Joint initiatives, awareness-raising activities, and projects are implemented in cooperation with relevant governmental bodies operating in the fields of energy and environmental protection. Such partnerships enable more targeted actions in energy management, efficient resource utilization, and the adoption of environmental standards within the University.

At the same time, cooperation with large industrial and energy enterprises located in Mingachevir holds particular practical significance. The organization of internships for students, the involvement of industry experts in the teaching process, and the implementation of joint projects contribute to the development of practical knowledge and skills in the field of energy efficiency. These collaborations also facilitate the exchange of experience in the application of green technologies.

International partnerships constitute another important component of the policy. Engagement in international programs and projects enables the University to exchange knowledge and experience in areas such as sustainable development, climate change, and the green economy. As a result, advanced approaches can be studied and adapted to the institutional context.

In addition, internal initiatives such as the SDG Team and SDG Club actively contribute to partnership activities by facilitating cooperation with external stakeholders and supporting the implementation of joint projects.

13

Alignment with Sustainable Development Goals

Green campus initiatives, including landscaping and waste management, contribute to **SDG 11** - Sustainable Cities and Communities by creating a healthier environment. These efforts position the University as a regional sustainability model.

Energy optimization and the transition to LED lighting support **SDG 7** - Affordable and Clean Energy by improving efficiency. Resource-saving practices also reduce environmental impact in line with SDG 7.

Energy efficiency measures contribute to **SDG 13** - Climate Action by reducing carbon emissions. Research activities further strengthen alignment with SDG 13 objectives.

Evidence and Reporting

Implementation of the Energy Efficiency and Green Infrastructure Policy at Mingachevir State University is supported not only by practical measures but also by evidence-based documentation and a strong commitment to public accountability. The adopted approach focuses on measuring real outcomes, validating results, and ensuring their continuous and transparent dissemination.

The evidence base is primarily built on systematically collected data related to energy and resource consumption. Indicators covering electricity, heating, and water usage are regularly recorded, compared with previous periods, and used to demonstrate the effectiveness of implemented measures through quantitative analysis. For example, the gradual modernization of lighting systems and the adoption of energy-efficient technologies in recent years have enabled the tracking of measurable reductions in consumption levels. These data are compiled by the Administrative and Facilities Department and shared with relevant structural units. Accountability extends beyond internal reporting processes. Annual and periodic reports prepared by the Sustainability Committee and the SDG Team consolidate results related to energy efficiency, campus greening, waste management, and awareness-raising activities. Reports are presented to the University leadership and, where possible, disseminated through official communication channels to ensure transparency and public engagement.

Reliability of evidence is ensured through cross-verification of data obtained from multiple sources. In addition to technical indicators, activities, projects, and initiatives are documented through supporting materials such as photographs, participant lists, event programs, and other records. Actions carried out by the SDG Club and other student initiatives are also systematically documented and reflected in reporting outputs.

The accountability mechanism is grounded in the principle of continuous improvement. Collected data and analytical reports inform future planning processes, enabling the identification of gaps and the implementation of more effective solutions.