Mingachevir State University

Report

7 AFFORDABLE AND CLEAN ENERGY

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INTRODUCTION

The Sustainable Development Goals (SDGs) were adopted by the United Nations in 2015 as a global action plan to be implemented by 2030. The seventh of these goals — SDG 7: Affordable and Clean Energy — aims to ensure access to reliable, sustainable, modern, and affordable energy for all.

SDG 7 plays a crucial role in reducing inequalities in the energy sector, increasing energy efficiency, expanding renewable energy sources, and combating climate change. This goal is of strategic importance not only for ensuring social welfare but also for fostering economic growth and protecting the environment.

This document has been developed in the context of the United Nations Sustainable Development Goal 7 – Affordable and Clean Energy. It is based on global and national development priorities and covers the contemporary trends of sustainable economic growth, environmental sustainability, and the alignment of socio-economic objectives with the principles of sustainable development.

The purpose of this document is to systematically present the contribution of Mingachevir State University (MSU) to the implementation of SDG 7 — highlighting the university's achievements, ongoing activities, and strategic goals in the field of sustainable energy. It also aims to promote transparency by sharing the university's progress and future strategies with the public.

The document further considers strategic directions such as technological adaptation in the context of the Fourth Industrial Revolution, balanced regional development, responses to post-conflict challenges, advancement of quality education based on national and international practices, ensuring sustainable energy supply, and building a society grounded in high well-being.

Within this framework, the document reflects MSU's contribution to achieving SDG 7, including implemented and planned activities as well as the main directions of institutional development.

Moreover, it seeks to analyze the university's sustainable energy policy, share relevant best practices, and promote awareness in the academic community in this field.

In addition, by emphasizing the role of higher education institutions in combating climate change and promoting renewable energy technologies, the document serves as a foundation for expanding cooperation opportunities with national and international partners.

ABOUT AFFORDABLE AND CLEAN ENERGY

Affordable and clean energy refers to the use of economically accessible, environmentally friendly, reliable, and sustainable energy sources for all segments of the population. This concept is directly linked to one of the United Nations Sustainable Development Goals — SDG 7: Affordable, Reliable, Sustainable, and Modern Energy for All. Achieving this goal is of strategic

importance for reducing energy poverty, improving economic and social well-being, and maintaining ecological balance.

Clean energy primarily encompasses renewable energy sources such as solar, wind, hydro, biomass, and geothermal energy. These sources play a vital role in combating climate change by significantly reducing greenhouse gas emissions. At the same time, the production of this type of energy is becoming increasingly efficient and cost-effective through the application of technological innovations.

Affordable and clean energy also includes the following key aspects:

• Enhancing energy efficiency to ensure more rational use of resources;

• Ensuring diversification of energy supply and strengthening energy security.

At the global level, the integration of clean energy technologies into energy production and consumption has become a priority for both developed and developing countries. This trend is also accompanied by economic transformation, creation of new jobs, and promotion of social justice.

Thus, the development of affordable and clean energy is not only crucial for the modernization of the energy sector but also serves as a fundamental condition for reinforcing the social, economic, and environmental pillars of sustainable development.

OBJECTIVES

The primary objective of Mingachevir State University's (MSU) Affordable and Clean Energy Policy is to contribute to national and international energy security while minimizing negative environmental impacts, enhancing economic efficiency, and ensuring equal and sustainable access to energy resources for all segments of society.

Within this framework, MSU aims to significantly increase the share of renewable energy sources in the university's energy systems by 2030, improve energy efficiency, and implement innovative and environmentally friendly energy technologies.

MSU's energy policy is aligned with the United Nations Sustainable Development Goals (SDGs), particularly the following:

• SDG 7: Affordable and Clean Energy;

• SDG 13: Climate Action;

• SDG 9: Industry, Innovation, and Infrastructure.

MSU's Affordable and Clean Energy Policy serves the following key purposes:

• Environmental Protection: Reducing greenhouse gas emissions, combating climate change, and implementing "green campus" initiatives;

• Promotion of Economic and Social Development: Creating new opportunities for education, research, and employment in green technologies and energy efficiency;

• Ensuring Energy Accessibility: Providing all university buildings, laboratories, and dormitories with sustainable energy sources;

• Optimization of Energy Consumption: Reducing losses in electricity and heat supply systems and promoting energy-efficient behavior among students and staff;

• Encouragement of Technological Innovation: Implementing digital energy management systems, smart lighting, and heating control technologies.

Through this policy, MSU commits to conducting its teaching, research, and administrative activities based on the principles of energy efficiency, environmental responsibility, and sustainable development.

OUR GOALS

Remaining committed to the principles of sustainable development, Mingachevir State University (MSU) aims to make a tangible contribution to society through its educational, research, and community-oriented activities. In this regard, the university's primary goal is to foster knowledge, skills, and innovations that address both national and global challenges in the field of affordable and clean energy.

MSU bases its activities on scientific principles and international standards, prioritizing the development of renewable energy technologies, enhancement of energy efficiency, and the integration of environmental responsibility into the educational process. To achieve this, the university is dedicated to strengthening a culture of "green thinking" across both academic and administrative environments.

The university's goals in the sphere of affordable and clean energy extend beyond technical and scientific advancements. MSU strives to transform its students and staff into active advocates of sustainable development, nurturing professionals who are environmentally conscious, socially responsible, and capable of demonstrating leadership in the energy sector.

Within this context, by 2030, MSU plans to act consistently and systematically to achieve the following:

- Increase energy accessibility across all university facilities;
- Expand the share of renewable energy sources in university operations;
- Enhance energy efficiency through modern management systems and awareness programs;
- Strengthen international cooperation in research, education, and technology transfer within the sustainable energy domain.

MDU's Contribution to SDG 7 – "Affordable and Clean Energy": Scientific and Practical Activities, Infrastructure Innovations, and Achievements in International Rankings

This section systematically presents the contributions of Mingachevir State University (MSU) to the United Nations Sustainable Development Goals (SDGs), particularly SDG 7 – Affordable and Clean Energy. It highlights the university's scientific and practical initiatives, including conferences, seminars, training programs, and international forums dedicated to sustainable energy, as well as laboratory advancements and infrastructure improvements in the energy sector. Furthermore, it provides an overview of MSU's achievements in international sustainability rankings such as UI GreenMetric, reflecting its progress in this domain.

The evidence clearly demonstrates that MSU consistently adheres to the principles of sustainable development through the implementation of a green energy policy, the promotion of renewable energy technologies, environmental awareness initiatives, and innovative research activities. The university's systematic efforts affirm its significant progress not only in energy efficiency and environmental responsibility but also in the academic, social, and institutional dimensions of sustainable development.

Through its engagement in energy-focused research, green campus initiatives, and international collaboration projects, MSU is emerging as a regional leader in advancing clean energy practices and climate-conscious education. These ongoing initiatives showcase the

university's commitment to building a sustainable institutional culture that aligns with global energy and environmental priorities.

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SCIENTIFIC SEMINARS AND CONFERENCES

At Mingachevir State University (MSU), a scientific seminar titled "Transition from Traditional to Green Energy" was organized within the framework of the "Year of Solidarity for a Green World." The event was dedicated to the environmental reforms being carried out in Azerbaijan's energy sector.

During the seminar, discussions focused on the transition to green energy, the role and development prospects of renewable energy sources, and student presentations addressed topics such as geothermal energy, the efficiency of solar panels, the importance of green hydrogen in energy storage technologies, and the use of wind energy.

As a result of the discussions, current challenges and future opportunities in the green energy sector were assessed. The seminar made a significant contribution to strengthening students' theoretical knowledge and developing their practical perspectives in this field.

Another seminar titled "The Transition to Green Energy as a Continuation of National Leader Heydar Aliyev's Independent Energy Policy" was held at MSU. The event focused on the transition to renewable and clean energy sources, energy security, the modernization of electrical systems, and ensuring environmental sustainability.

Participants discussed the implementation of wind, solar, and other renewable energy projects in the country, as well as efforts to increase energy production and efficiency. The seminar also covered long-term energy strategies and plans to create additional capacity by 2037.

Such initiatives contribute to the UN's SDG 7 – Affordable and Clean Energy, promoting energy accessibility, optimization of energy consumption, and enhancement of environmental sustainability. Azerbaijan's rich energy and

natural resource potential enables the country to strengthen its leading position in the field of renewable energy.

Within the same framework of the “Year of Solidarity for a Green World,” MSU organized a scientific-practical seminar titled “COP29 – Green World” dedicated to climate change and environmental sustainability. The purpose of the event was to promote the principles of global climate policy, raise environmental awareness, and emphasize the importance of renewable energy resources.

Participants were informed about the goals of COP29, international initiatives in combating climate change, reduction of carbon emissions, and strengthening of environmental responsibility. Presentations discussed the importance of maintaining ecological balance and the necessity of the transition to clean energy at both global and regional levels.

This event was recognized as a continuation of MSU’s efforts toward reducing climate change impacts, promoting energy efficiency, and strengthening environmental sustainability, all aligned with SDG 7 – Affordable and Clean Energy.

As part of the “Year of Solidarity for a Green World,” solar energy panels were installed at Mingachevir State University, marking the beginning of the implementation of renewable energy technologies on campus.

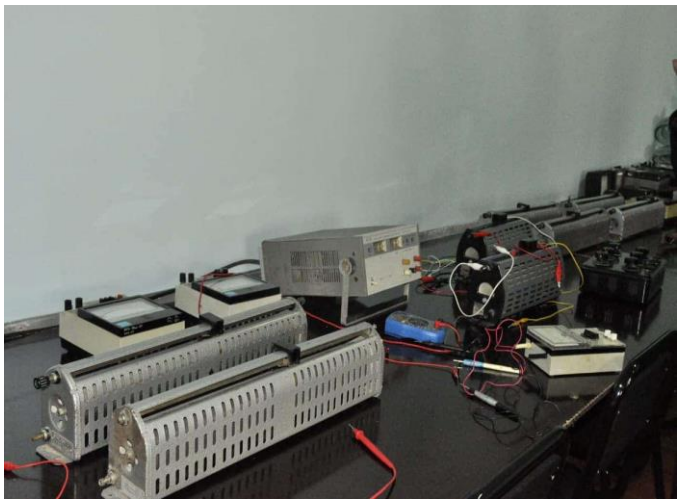
The system, installed in the university’s main academic building, represents a crucial step toward the practical realization of the “green energy” concept, contributing to increased energy efficiency and enhanced environmental responsibility.

The installation of solar panels supports MSU’s mission to train “sustainability-minded” and “green-thinking” specialists. It also improves the quality of engineering education, providing students with opportunities to develop hands-on skills and technical expertise.

This initiative stands as a clear example of MSU’s contribution to SDG 7 – Affordable and Clean Energy, demonstrating the university’s strong commitment to innovative approaches in the field of renewable energy.

OPENING OF THE LABORATORY

An Energy Laboratory has been inaugurated at Mingachevir State University. The laboratory is equipped with modern instruments and devices designed to support the training of highly qualified specialists in the field of energy, enhance the content of teaching, and foster the development of students’



practical skills. The establishment of this infrastructure also makes a significant contribution to strengthening university–industry cooperation.

INTERNATIONAL COOPERATION

The First International Energy Forum was jointly organized by Mingachevir State University (MSU) and Düzce University (Türkiye). The main objectives of the forum were to discuss innovations in the field of energy production, analyze clean energy transition processes, and explore opportunities for international cooperation in this area.

The forum was hosted by Düzce University, and the opening ceremony featured speeches by the rectors of both universities. In his address, Rector of MSU Anar Eminov:

- Emphasized the importance of collaboration in organizing the forum,
- Described MSU's participation as both organizer and contributor as a remarkable event for the university,
- Proposed that the Second International Energy Forum be held in Mingachevir.

Within the framework of the forum:

- Scholars from Düzce University and Mingachevir State University,
- Representatives of local and foreign higher education institutions,
- Leaders of Türkiye's leading energy companies delivered scientific presentations.

Four representatives from Mingachevir State University presented research related to Azerbaijan in the following areas:

- Energy production and export,
- Development of renewable energy resources,
- Energy potential of liberated territories.

This forum served as an important platform demonstrating Mingachevir State University's contribution to international cooperation and academic engagement in the field of clean energy.

ACTIONS FOR A GREEN WORLD

Guided by the “Green University” concept, Mingachevir State University (MSU) consistently implements initiatives aimed at ensuring environmental sustainability and applying clean energy principles. The university’s primary goal is to enhance environmental responsibility within education, research, and management processes while fostering a culture of “green thinking” both within the university and across society.

To achieve this, MSU carries out a variety of initiatives to improve energy efficiency, promote the rational use of resources, and implement renewable energy solutions. Electricity consumption in university buildings is being gradually optimized, lighting systems are replaced with energy-efficient technologies, and digital monitoring systems are used to manage water and heating resources effectively.

At the same time, MSU organizes seminars, trainings, and “green campaigns” to enhance the environmental awareness of students and staff. Supporting research projects on clean energy and climate change, as well as conducting awareness-raising activities aligned with SDG 7 (Affordable and Clean Energy) and SDG 13 (Climate Action), are integral parts of the university’s green development strategy.

Furthermore, MSU contributes to regional “green transition” initiatives, promoting pilot projects on the use of renewable energy technologies. All these efforts reaffirm that Mingachevir State University operates under the principle of “A Cleaner Future for a Greener World”, demonstrating its strong commitment to the United Nations Sustainable Development Goals, particularly SDG 7.

RANKINGS

As a clear indicator of its international recognition in the field of sustainable development and environmental responsibility, Mingachevir State University (MSU) was ranked 928th in the “UI GreenMetric 2024” World University Rankings — marking its first participation in this global assessment. This achievement reflects the university’s growing success in implementing “green campus” initiatives, enhancing energy efficiency, promoting the use of renewable energy, and advancing environmental management practices.

“UI Greenmetric 2024” dünya universitetlərinin reytinqində Azərbaycan ali təhsil müəssisələrinin sayı 3 dəfə artaraq 12-ə çatıb.

Ali təhsil müəssisəsi	2023	2024
Qərbi Kaspi Universiteti	650	439
Azərbaycan Memarlıq və İnşaat Universiteti	813	632
Azərbaycan Dövlət İqtisad Universiteti	1030	670
Sumqayıt Dövlət Universiteti	1173	1082
Bakı Dövlət Universiteti	-	607
Azərbaycan Dövlət Neft və Sənaye Universiteti	-	788
Mingəçevir Dövlət Universiteti	-	928
Azərbaycan Texniki Universiteti	-	1014
Azərbaycan Dövlət Aqrar Universiteti	-	1077
Azərbaycan Dövlət Mədəniyyət və İncəsənət Universiteti	-	1247
Bakı Avrasiya Universitet	-	1334
Azərbaycan Dövlət Pedaqoji Universiteti	-	1388

In the current year, eight Azerbaijani universities, including Mingachevir State University, were featured in the "UI GreenMetric 2024" ranking. Among them, six universities from Azerbaijan made it into the TOP 1000, demonstrating the nationwide progress in integrating sustainability principles into higher education.

It should be noted that the UI GreenMetric 2024 ranking evaluated 1,477 higher education institutions from 95 countries based on their sustainability performance indicators. The inclusion of MSU in this list serves as an important acknowledgment of its contribution to the United Nations Sustainable Development Goals (SDGs) — particularly SDG 7: Affordable and Clean Energy.

FUTURE GOALS

• Expansion of bachelor's and master's programs specializing in renewable energy — to train professionals who meet the demands of the regional and national labor market;

• Establishment of a scientific-research center in renewable energy technologies — to conduct applied research and develop innovative solutions;

• Gradual implementation of solar and other alternative energy systems on the university campus — to transition campus infrastructure toward environmentally sustainable models;

• Development and application of internal standards for energy efficiency and environmental protection — to optimize the use of resources within university operations;

• Organization of certified training programs on SDG 7 and energy-climate issues for students and academic staff — to enhance awareness and knowledge levels;

• Building strategic partnerships with international universities and energy organizations — to expand opportunities for joint research, projects, and academic exchange;

• Hosting interdisciplinary scientific conferences and forums on climate change and energy policy — to foster academic dialogue and exchange of ideas;

• Development of educational programs on energy literacy for regional secondary schools — to raise awareness among the younger generation at an early stage;

• Step-by-step implementation of the "Green University" concept — to establish an environmentally responsible management and teaching environment;

• Support for start-up initiatives and student innovations in sustainable energy technologies — through financial and mentoring mechanisms to encourage young researchers and engineers.

CONCLUSION

Mingachevir State University (MSU) has achieved significant results both nationally and internationally through its comprehensive actions aligned with the United Nations Sustainable Development Goal (SDG) 7 – Affordable and Clean Energy. The university's progress in energy efficiency, renewable energy application, environmental responsibility, and the realization of the "Green University" concept has made these efforts central pillars of its sustainability strategy.

Through scientific seminars, international forums, and collaborative projects, MSU actively contributes not only to academic discourse but also to the promotion of innovations in the energy sector. The establishment of the Energy Laboratory, activities held within the framework of the "Year of Solidarity for a Green World", and students' participation in scientific discussions serve as concrete indicators of the university's environmentally oriented education and research strategy.

At the international level, MSU's inclusion in the UI GreenMetric 2024 ranking stands as a testament to the recognition of its achievements in sustainable development, clean energy, and environmental management. This success also reflects the university's systematic contribution to the UN SDGs, particularly SDG 7.

Looking ahead, MSU aims to strengthen its leadership position in this direction by establishing a renewable energy research center, fully implementing the “Green Campus” model, and expanding international energy partnerships.

In conclusion, the Affordable and Clean Energy Policy of Mingachevir State University is built on the principles of sustainable development, environmental responsibility, and innovative management — serving as an exemplary model both academically and socially, and contributing meaningfully to the nation’s vision of a green future.