

Report on Sustainable Development Goal 7
Affordable and Clean Energy
2024

7 AFFORDABLE AND
CLEAN ENERGY



Foreword

This report presents Azerbaijan Technical University's (AzTU) efforts and achievements in promoting clean and affordable energy in 2025, in alignment with the United Nations Sustainable Development Goal 7 (SDG 7).

Building upon the progress of 2023 and 2024, the university continued to expand energy efficiency measures, integrate renewable energy solutions across its infrastructure, and strengthen sustainability education and research.

Through cooperation with national and international partners—including the Ministry of Energy, the State Agency on Renewable Energy Sources, and universities in Germany, Türkiye, and Malaysia—AzTU has consolidated its role as a national center of excellence in sustainable energy innovation and technology transfer.

Introduction

AzTU's commitment to SDG 7 supports the national "Clean Environment and Green Growth" strategy and the global shift toward a low-carbon economy.

The university's Energy Efficiency and Green Technologies Department coordinates energy audits, renewable energy research, and capacity-building initiatives.

In 2025, AzTU deepened its efforts by integrating smart energy management systems into campus buildings, introducing student-led solar projects, and expanding training in sustainable energy technologies. These initiatives strengthen the connection between academic learning, applied research, and environmental responsibility.

References

[National Information Portal on Sustainable Development Goals of the Republic of Azerbaijan AzTU Sustainability](#)

[AzTU SDG 7 Report / November 2023](#)

[AzTU SDG 7 Report 2023](#)

[AzTU SDG 7 Report 2024](#)

[A Meeting with UN Experts on Energy Efficiency](#)

[Eurasia Universities Summit 2025](#)

[GreenTech II Startup Competition](#)

[Collaboration with Malatya Turgut Özal University](#)

[Collaboration with Holon Institute of Technology](#)

SDG 7 keywords - Affordable and clean energy

Affordable energy	Coal	Greenhouse gas emissions	Solar power
Alternative energy	Energy research	Greenhouse gas	Sustainable energy
Animal waste	Energy infrastructure	Low carbon	Sustainable power
Battery	Energy efficiency	Modern electricity	Sustainable energy services
Carbon	Energy technology	Modern energy	Vehicles
Charcoal	Energy	Reliable energy	Wave
Clean energy	Emissions	Renewable	Wind
Clean energy technology	Electricity infrastructure	Renewable energy	Wind power
Clean fuel technology	Electricity	Renewable power	Wind turbine
Clean fuels	Fossil - fuel	Solar	Wood
Cleaner fossil fuel technology	Hydroelectric	Solar energy	Climate goal

SDG 7 Targets

- **Increase Energy Efficiency in University Buildings:** Reduce energy consumption in university buildings by 5-10% over the next 5 years through the installation of energy-efficient technologies (LED lighting, reinforced insulation, solar water heaters, and automatic control systems).
- **Expand Renewable Energy Infrastructure:** Increase the share of renewable energy in AzTU's energy mix, aiming for 20% of the university's energy consumption to be sourced from solar and wind energy by 2030.
- **Promote Carbon Reduction and Waste Management:** Achieve a 10% reduction in carbon emissions from campus activities over the next 5 years.
- **Enhance Green Energy Research and Innovation:** Position AzTU as a leader in green energy research and innovation by supporting at least 10 student and faculty-led projects annually focused on sustainable energy, energy efficiency, and carbon management.
- **Strengthen Sustainability Education and Awareness:** Increase awareness of SDG 7 across the AzTU community, with at least 75% of students and staff engaged in sustainability-focused initiatives by 2026.
- **Foster Digital Transformation to Optimize Resource Use:** Achieve a 15% reduction in overall resource consumption (e.g., paper, water, and energy) by 2027 through the implementation of digital tools and systems that streamline operations.
- **Strengthen Community and Stakeholder Engagement on Clean Energy:** Engage at least 10 local and regional stakeholders in discussions and partnerships on renewable energy and energy efficiency initiatives by 2025.
- **Reduce Single-Use Plastics and Carbon-Intensive Products:** Eliminate 80% of single-use plastics from the university campus by 2025 and reduce reliance on carbon-intensive materials and products.

Statistics and Their Indicators

Indicator	2023	2024	2025	Change (2024 → 2025)
Total energy consumption (MWh/year)	7100	6500	5720	-12 %
Share of renewable energy in total use (%)	12	16	23	+7 pp
CO ₂ emissions (tons/year)	960	890	730	-18 %
Number of energy-efficiency projects implemented	8	11	15	+36 %
Energy-related research publications	5	8	10	+25 %
Students involved in energy projects	520	640	850	+32 %
Partner institutions (SDG 7 collaboration)	5	8	12	+50 %
Buildings equipped with smart monitoring (%)	30	45	60	+15 pp

Positive impact on other SDGs

SDG 4 (Quality Education): AzTU’s educational initiatives enhance knowledge and skills in energy and sustainability, contributing to quality education. The updated *Renewable Energy Engineering* curriculum, with courses such as Energy Economics, Smart Grids, and Sustainable Power Systems, strengthens students’ technical literacy. More than 850 students participated in seminars and hackathons, promoting hands-on learning and employability in the green economy.

SDG 8 – Decent Work and Economic Growth: Training programs like “*Databricks Engineer Seminar*” and “*AI in Energy Systems*” build digital and energy-sector skills, increasing graduates’ competitiveness in emerging green job markets. Entrepreneurship initiatives such as the “*GreenTech II Startup Competition*” and partnerships with *Baykar Technological Azerbaijan* and *Azerenerji OJSC* foster clean-tech startups and support sustainable economic growth.

SDG 9 – Industry, Innovation, and Infrastructure: AzTU’s initiatives in energy-efficient infrastructure and green energy technologies are fostering innovation in sustainable building practices and creating resilient infrastructure. Through projects like the *Solar PV Project* and wind turbines, AzTU is showcasing cutting-edge renewable energy solutions that contribute to the development of green industry and sustainable construction practices.

SDG 11 – Sustainable Cities and Communities: AzTU’s solar-powered and energy-efficient campus serves as a model for urban sustainability. Pilot micro-solar charging stations designed by the *Student Energy Club* promote decentralized clean energy access in local communities, while the university’s renewable energy roadmap contributes data and best practices to national sustainability policies.

SDG 12 – Responsible Consumption and Production: LED lighting upgrades and the *Smart Energy Monitoring System* have reduced electricity use by 12 %, promoting responsible resource consumption. Awareness programs and student engagement activities further encourage sustainable behavior across the campus community.

SDG 13 – Climate Action: By implementing solar PV systems and LED technology, AzTU has reduced annual CO₂ emissions by 38 tons. Energy- and climate-focused courses, research, and international conferences strengthen climate education and position AzTU as a regional leader in clean energy and climate resilience.

SDG 17 – Partnerships for the Goals: Collaborations with Malatya Turgut Özal University, Holon Institute of Technology, and Namangan State Technical University have expanded international research and education partnerships. Engagements with UN experts and events like the Eurasia Universities Summit on Sustainable Energy and Technology reinforce AzTU’s active role in advancing global SDG partnerships.

Current situation

1. Renewable Energy Infrastructure

- In 2025, AzTU installed solar photovoltaic **panels (capacity 210 kW)** on campus rooftops, covering **23 % of total electricity demand** for educational buildings.
- The “Smart Energy Monitoring System” reduced annual energy consumption by **12 %** compared to 2024.

- New **LED-based lighting replaced** 90 % of fluorescent systems, cutting emissions **by 38 tons CO₂/year**.

(reference: [A Meeting with UN Experts](#))

2. Research and Academic Innovation

- AzTU researchers completed six energy-related R&D projects focusing on **hydrogen technologies**, **AI-based grid optimization**, and **energy storage**.
- The joint “*Energy 4 Future*” project with partners in Germany and Israel explored hybrid solar-wind models for off-grid laboratories.
- Publications on renewable-energy integration increased by 25 % in 2025.
- The university hosted training sessions such as “*Databricks Engineer Seminar for AzTU Students*” and “*Artificial Intelligence in Energy Systems*”, enhancing data-driven energy analytics skills.

3. Education and Student Engagement

- The updated Renewable Energy Engineering curriculum now includes new courses on **Energy Economics**, **Smart Grids**, and **Sustainable Power Systems**.
- Over 850 students participated in 2025 energy-related workshops and hackathons
- The Student Energy Club launched pilot projects designing micro-solar charging stations on campus.
- Awareness sessions such as “*GreenTech II Startup and Green Technologies Competition*” promoted youth innovation in clean energy entrepreneurship.

4. Partnerships and Community Impact

- AzTU strengthened collaboration with industry leaders such as **Baykar Technological Azerbaijan** and **Azerenerji OJSC** on joint renewable-energy research.

- International cooperation was expanded through agreements with **Malatya Turgut Özal University, Holon Institute of Technology, and Namangan State Technical University.**
- In 2025, AzTU hosted the **Eurasia Universities Summit** on Sustainable Energy and Technology, attended by 150 delegates from 10 countries.

(related: [AzTU showcased at the Eurasia Universities Summit](#))

Future goals

1. **Expand Renewable Energy Capacity:** Install additional 300 kW of solar capacity and pilot a wind micro-turbine system by 2027.
2. **Establish a Clean Energy Research Center:** Create an interdisciplinary hub for advanced energy modeling, hydrogen storage, and sustainable design.
3. **Integrate Smart-Grid Training:** Introduce a Smart-Grid Simulation Laboratory for Electrical Engineering students.
4. **Achieve Carbon Neutrality:** Target 50 % reduction in campus emissions by 2030 via renewables and efficiency measures.
5. **Community Outreach:** Organize annual “Clean Energy Days” and renewable-energy workshops for high-school students nationwide.

Conclusion

In 2025, Azerbaijan Technical University strengthened its leadership in advancing affordable and clean energy solutions through infrastructure modernization, interdisciplinary research, and student participation.

AzTU’s initiatives reflect its strong commitment to SDG 7 targets—ensuring access to reliable, sustainable, and modern energy for all—and contribute significantly to Azerbaijan’s national sustainable-energy transition.