

Report on Sustainable Development Goal 7

Affordable and Clean Energy

2024



Foreword

At Azerbaijan Technical University, we recognize the critical importance of fostering sustainable development and protecting natural ecosystems. Renewable energy solutions are becoming cheaper, more reliable and more efficient every day. Our current reliance on fossil fuels is unsustainable and harmful to the planet, which is why we have to change the way we produce and consume energy. Implementing these new energy solutions as fast as possible is essential to counter climate change, one of the biggest threats to our own survival.

Introduction

Azerbaijan Technical University (AzTU) is engaged in one of the most responsible activities in the field of clean energy. Training of quality specialists in the field of clean energy is one of our primary goals. For this purpose, a separate department was established at the University, equipped with modern teaching and research equipment. The faculty members of the department conduct scientific research in the field of green energy and efficiency. Conferences are organized, scientific articles are presented at international conferences organized in other countries. Thus, the University contributes to SDG 7 by operating in the field of clean, green and affordable energy.

References

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

[AzTU Sustainability](#)

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

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	Green economy		

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.

SDG 7's Positive Impact on other SDGs

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 13 (Climate Action): Through energy-saving technologies and the adoption of renewable energy sources (e.g., solar and wind energy), AzTU is directly contributing to the reduction of greenhouse gas emissions and helping mitigate climate change. By shifting to clean energy and improving energy efficiency, AzTU is reducing its carbon footprint and promoting a model of climate resilience.

SDG 12 (Responsible Consumption and Production): AzTU's focus on energy-efficient practices, waste reduction, and sustainable building standards aligns closely with the objectives of SDG 12. Through initiatives like the reduction of plastic use, electronic waste management, and promotion of recycling, AzTU is contributing to more sustainable consumption and production patterns.

SDG 4 (Quality Education): AzTU's green energy initiatives and focus on sustainability not only contribute to environmental goals but also enrich educational programs. By embedding sustainable energy research into the curriculum and encouraging students to work on green energy projects, AzTU is preparing the next generation of leaders, innovators, and entrepreneurs to address global energy challenges.

SDG 11 (Sustainable Cities and Communities): AzTU's focus on energy-efficient campus development, including solar PV installations and the use of wind turbines, plays a key role in building a sustainable university community. These efforts also extend to urban planning, with AzTU's initiatives potentially informing sustainable urban energy strategies and contributing to greener cities.

SDG 8 (Decent Work and Economic Growth): AzTU's investment in energy-efficient technologies and green energy research is also driving economic growth through the development of new job opportunities in the renewable energy and energy efficiency sectors. By fostering innovation and training the next generation of energy experts, AzTU is contributing to sustainable economic growth.

SDG 6 (Clean Water and Sanitation): Through the use of solar-powered water heating systems and energy-efficient water management practices, AzTU is working to reduce its environmental footprint. The university's commitment to reducing energy consumption also helps to preserve water resources, as many water systems are energy-intensive.

Current situation

Reflecting AzTU's sustainable development as part of a broader environmental policy, it is committed to the energy potential of all renovation and construction projects. Within the Policy of Sustainable Waste Management, Prevention and Utilization, AzTU prioritizes energy-efficient practices that come with sustainable building standards. Energy renovation management at AzTU requires this policy to reduce energy-intensive waste, advocate for infrastructure optimized for low carbon emissions, and minimize carbon-heavy potential.

Initiated the Solar PV Project at AzTU with the aim of upgrading university buildings for higher energy efficiency. This initiative combines solar photovoltaic (PV) systems, detailed energy audits and advanced energy-saving technologies such as LED lighting and reinforced insulation. By aiming to significantly reduce energy consumption and carbon emissions, the project aligns AzTU with international sustainability goals, provides long-term economic savings and sets the standard for similar efforts globally. Two wind turbines were installed at AzTU. These projects highlight AzTU's commitment to environmental sustainability and improving energy efficiency at the scale of the laboratories' energy supply.

AzTU conducts small projects in the field of green energy, energy efficiency research for carbon management and emission reduction. The initiatives encourage students to think, design and implement projects focused on responsible consumption, recycling and sustainable design aimed at minimizing waste and reusing resources. By raising awareness, supporting innovative waste reduction projects and aligning with Sustainable Development Goal 7 on Affordable and Clean Energy, AzTU not only reduces carbon emissions but also promotes sustainable energy practices in academic buildings. This commitment to carbon reduction and waste management is proof of AzTU's commitment to a sustainable and environmentally friendly future. Key initiatives include minimizing the use of plastic, reducing reliance on single-use items, adopting energy-efficient practices and avoiding carbon-intensive industries. The Department of Agriculture oversees waste management, takes a preventive approach to minimize carbon emissions, and coordinates with municipalities and specialized agencies to dispose of various types of waste responsibly. Efforts are being made to manage documents electronically and reduce paper waste. By regularly monitoring recycled waste and reporting performance indicators, AzTU not only reduces carbon emissions, but also develops a healthier, more environmentally friendly environment, demonstrating a strong commitment to sustainability in line with global standards.

Plan to reduce energy consumption

AzTU has implemented a comprehensive energy efficiency plan to reduce overall energy consumption. The university focuses on creating an environmentally friendly environment by strengthening infrastructure and

optimizing the use of resources. Digital transformation initiatives further minimize dependence on physical resources, increase operational efficiency and reduce energy use. AzTU also promotes a culture of sustainability through wellness programs that promote energy-saving practices. Major actions include the installation of solar panels and wind turbines, the promotion of LED lighting, the study of solar water heaters and the integration of automatic controls. These initiatives aim to reduce energy consumption by 5-10% and highlight AzTU's commitment to environmental control and organizational excellence.

AzTU has made appearances in various mass media as part of its commitment to promote Sustainable Development Goal 7 (SDG 7) and renewable energy solutions in 2024. Associate professor Kalbiyev Ramiz, head of the Department of "Energy efficiency and green energy technologies" of AzTU, gave an interview to ARB TV channel about the importance of solar plants built on water bodies. (<https://www.youtube.com/watch?v=h6J90etF04k>).



In another interview, an interview was given about renewable energy, biomass and other types of clean energy in general, and the department's modern laboratory equipment for green energy was demonstrated.

(<https://www.youtube.com/watch?v=7ZKDuSlGp7Q>).



"Yaşıl texnologiya" - Ekoloji tərəqqiyə təkan

In the interview, it was mentioned about the huge projects implemented in the field of green energy in our country.





The use of land unsuitable for agriculture for green energy purposes has been discussed.

There are regular TV talks about the importance of green energy. There was a wide discussion about this on public television (<https://www.youtube.com/watch?v=E2m-rL081jQ>).



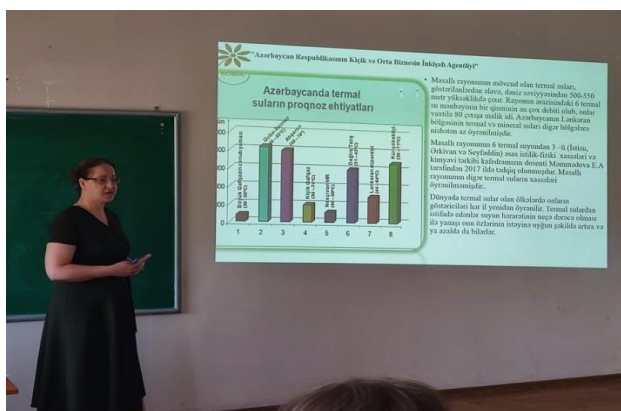
Günəşdən enerji necə alınır?

Seminars and Conferences

AzTU employees continue their research in the field of clean energy. Participates in seminars and conferences dedicated to local community engagement aimed at improving energy efficiency and promoting clean energy practices.

Employees of the Department of Energy efficiency and green energy technologies of AzTU participated in the 5th grant competition announced on the financing of education, science, research and support projects of SMEs organized by the Small and Medium Business Development Agency (SME). The project of the assistant professor of the department, Rena Hamidova, on the topic "Research of electricity and thermal energy production from low-temperature geothermal waters" was the winner of the grant competition. On 04.07.2024, the presentation of the project was held at the seminar at the Department of Energy Efficiency and Green Energy Technologies. The professor-teacher staff of the department, employees and students of AzTU's Technological Transfer, Strategic Development Departments took part in the presentation.

https://www.aztu.edu.az/sub_site/az/enerji-effektivliyi-ve-yasil-enerji-texnologiyalari-kafedresi-53/news/aztu-da-gazanilmis-grant-layihesinin-tegdimati-olub-178



Cooperation with other universities in the field of research and promotion of clean energy continues. Our employees participated in the event held at the Azerbaijan State Maritime Academy on the importance of COP 29, which will be held in our Republic this year.

<https://adda.edu.az/az/news/1773>



Future goals

- **Expand Renewable Energy Capacity.** Increase the share of renewable energy (solar and wind) in AzTU's total energy consumption to 40% by 2030.
- **Achieve Carbon Neutrality by 2040.** Transition to a carbon-neutral campus by 2040 through a combination of renewable energy adoption, energy efficiency measures, and carbon offset initiatives.
- **Enhance Energy Efficiency Across Campus.** Reduce overall energy consumption by 15-20% by 2030 through improved infrastructure and behavior change programs.
- **Integrate Clean Energy Solutions in Research and Education.** Foster innovation in green energy technologies and energy efficiency by supporting at least 15 new research projects annually focused on clean energy solutions and carbon management.
- **Foster Collaboration for Regional Clean Energy Development.** Build partnerships with regional governments, industries, and research institutions to develop clean energy solutions and energy-efficient technologies that benefit the broader community.

- **Reduce Waste and Promote Circular Economy Practices.** Eliminate 80% of campus waste through recycling, composting, and adopting circular economy principles by 2030.

Conclusion

Azerbaijan Technical University is committed to the promotion and wide application of clean and affordable energy through education, research and public relations. While the University has made significant progress in contributing to SDG 7, there is clear room for growth in formalizing policies and scaling up initiatives in sustainable practices of clean and affordable energy, energy efficiency. With future goals aimed at deeper public involvement, AzTU is ready to play an important role in promoting sustainable development at local, community and national levels.