BAKU
ENGINEERING
UNIVERSITY

REACHING NET-ZERO: A COMMITMENT TO SUSTAINABILITY AT BAKU ENGINEERING UNIVERSITY

Baku Engineering University (BEU), although a relatively young institution, has already made significant strides in creating a sustainable and environmentally efficient campus for our students. However, we recognize that our responsibility extends beyond the physical campus to contribute meaningfully to the broader community and environmental well-being. Our goal is not only to achieve net-zero carbon emissions for our campus but also to contribute to a healthier environment that benefits society at large. The university sector, which attracts a younger generation eager to make a positive impact, plays a critical role in advancing sustainable development and addressing climate change on both a local and global scale.

BEU'S COMMITMENT TO A HEALTHY ENVIRONMENT

BEU's students and staff have been actively engaged in addressing regional environmental challenges, working toward improving efficiency and sustainability in our immediate surroundings. As a young university, we aim to lead by example in reducing carbon emissions, establishing a solid foundation for achieving net-zero emissions in the future. Our campus's location outside the city provides unique opportunities to tackle sustainable development challenges, though the absence of historical carbon emission data presents some hurdles. Nonetheless, this also provides a valuable opportunity to pinpoint areas where we can improve.

While we have made significant reductions in scope 1 and 2 emissions this year, our aim is to further decrease these emissions through comprehensive, sustainable campus policies. However, challenges remain, especially in high-energy-consuming areas such as laboratories, where implementing low-carbon strategies is more complex.

ACTIONS TAKEN AND OUR STRATEGY

The university has already shown significant progress in managing scope 3 emissions through effective practices. Recent initiatives include:

- **Electricity Usage Reduction:** Implementing a policy of no electricity use between 22:00 and 6:00 to cut down on consumption.
- **Cloud-Based Systems:** Partially transitioning to cloud systems to reduce the need for printing and paper consumption.
- **Awareness Campaigns:** Organizing informational sessions to raise awareness among students, staff, and the wider community.
- **Tree Plantation Events:** Organizing tree planting initiatives to expand green spaces both on and off campus.

- **Sustainable Transportation:** Shifting campus transportation to bicycles and student-built electric vehicles to reduce reliance on high-carbon transport.

These measures are just the beginning. Looking ahead, our strategy includes:

- **Renewable Energy Transition:** Fully transitioning to renewable and sustainable energy sources, such as solar panels and wind turbines.
- **Fossil Fuel Divestment:** Gradually divesting our investments away from fossil fuel extraction and processing industries.
- **Plastic Waste Reduction Project:** Led by the Food and Biotechnology Department, this initiative focuses on recycling plastic waste within the campus and exploring biodegradable alternatives.

IMPLEMENTATION PLAN

Stage 1: Establishing Infrastructure for Waste Collection

- Placement of designated bins for plastic waste in high-traffic areas across campus, such as cafeterias and common spaces.
- Organizing awareness campaigns for students and faculty to encourage participation in waste collection efforts.

Stage 2: Research and Development

- Analyzing collected plastic waste to identify effective recycling methods.
- Developing reusable products, such as bioplastics or composite materials, from recycled plastic.
- Collaborating with laboratories and industry experts to design innovative recycling technologies.

Stage 3: Pilot Testing and Expansion

- Conducting small-scale tests to evaluate the effectiveness of the recycling process.
- Assessing the ecological impact of the produced materials.
- Expanding the project based on the results obtained from pilot tests.

Stage 4: Integration into Scientific Research

- Integrating findings into ongoing research on sustainability and waste management.
- Doubling research efforts on sustainable development to gather data for continuous improvement.
- Expanding outreach to other regions and schools in Azerbaijan to raise awareness about sustainable practices.

RESEARCH PROJECTS ALIGNED WITH SUSTAINABILITY GOALS

In addition to these initiatives, BEU is deeply involved in several research projects that align with our sustainability goals:

- **Project 1:** *Development and Characterization of Eco-Friendly IL-Type Surfactants for Enhanced Petroleum Spill Remediation*

  This project focuses on the creation of environmentally friendly ionic liquid-based surfactants designed to improve the efficiency of petroleum spill clean-ups, contributing to the broader goal of reducing environmental contamination.

- **Project 2:** *Development of Innovative Methods for Disinfecting Water Resources Using Strong Electric Fields and Discharges*

  The research aims to develop novel disinfection methods for water resources, leveraging strong electric fields and discharges to provide safer water for communities while minimizing environmental impact.

- **Project 3:** *Climate Action and Economic Growth: Creating a Sustainable Balance* This research explores strategies to balance climate action with economic growth, promoting sustainability without sacrificing economic stability, and addressing the challenges posed by climate change.

- **Project 4:** *The Role of Energy Efficiency in Reducing Greenhouse Gas Emissions* Focusing on evaluating the role of energy efficiency in reducing greenhouse gas emissions, this project seeks to highlight effective measures for industries and institutions to implement in their sustainability strategies.

- **Project 5:** *Plastic Waste Collection and Recycling Initiative*

  This project, spearheaded by BEU's Food and Biotechnology Department, focuses on reducing plastic waste and promoting recycling on campus. The initiative, supported by the scientific youth movement, is designed to lay the foundation for future research projects aimed at sustainability. Key objectives of the project include:

  - **Establishing a Waste Collection System:** Implementing a system for collecting plastic waste from university cafeterias and designated bins across campus.
  - **Developing Recycling Methods:** Identifying efficient methods for converting plastic waste into alternative materials, including bioplastics.
  - **Ensuring Ecological Sustainability:** Researching biodegradable plastic alternatives to reduce the long-term environmental impact of plastic waste.
  - **Engaging Students and Young Scientists:** Involving students and young researchers in the project to foster a culture of sustainability and innovation.

THE PATH FORWARD

By 2030, BEU aims to further reduce its carbon emissions and work toward achieving net-zero emissions by 2040. Our efforts will continue to focus on transitioning to renewable energy, reducing waste, and promoting sustainable practices both on campus and in the broader community. Through these efforts, Baku Engineering University aims to become a leader in sustainable development and environmental stewardship, setting an example for future generations of students and researchers.