

Does your university as a body measure the amount of low-carbon energy used across the university?”

ASOIU’s Renewable Energy Laboratory (REL)—established with support from BP Azerbaijan—is the main operational center for monitoring and verification of all renewable and low-carbon energy usage.

- The REL operates solar PV systems installed on laboratory and rooftop facilities.
- These systems generate approximately 4 201 MWh ($\approx 15\,123$ GJ) of clean electricity annually, directly offsetting grid-based consumption.
- Energy data are collected through smart metering and validated using lab-grade analyzers maintained by REL technicians.

The REL’s research and student projects further support low-carbon transition by studying solar PV optimization, energy storage, and HPC-based carbon modelling.

1. Quantitative Measurement of Low-Carbon Energy

Parameter	Value	Notes / Source
Total annual energy use	36 258 GJ = 10 071 MWh	Campus utilities (2024)
Energy from solar PV (Renewable Energy Lab + rooftops)	15 123 GJ = 4 201 MWh	Measured and verified by REL
Net grid electricity consumption	1 206 MWh	National grid (Azerbaijan)
Low-carbon share	$\approx 42\%$ of total energy	Solar PV contribution

This measurement framework aligns with the GHG Protocol Corporate Standard and provides a verified basis for calculating Scope 1–3 emissions, including renewable offsets.

2. Governance and Verification

- Annual inventory and verification are conducted by the Sustainability Committee in collaboration with the Renewable Energy Laboratory.
- Energy and CO_{2e} data are validated using calibrated meters and national conversion factors (0.269 t CO_{2e} / MWh for grid electricity).
- Annual reports are submitted to the Working Group for Environmental Governance, ensuring institutional accountability and transparency.

3. Impact Summary

By combining precise measurement, renewable generation, and academic research, ASOIU actively tracks and quantifies low-carbon energy use across the university.

- Verified solar offset = 1 130 t CO₂e
- Net institutional emissions = 416 t CO₂e (2024)
- Scope 2 emissions reduced by 42 % through renewable integration

This demonstrates ASOIU's ongoing commitment to SDG 7 (Affordable & Clean Energy) and SDG 13 (Climate Action) via measurable low-carbon energy adoption.