

7.2.3 - Does your university as a body have a process for carbon management and reducing carbon dioxide emissions?

Azerbaijan State Oil and Industry University (ASOIU) implements a formal Carbon Management and Emission Reduction Process, guided by the Climate Action Plan (2023–2050).

The process is aligned with the GHG Protocol Corporate Standard and national sustainability targets, ensuring that all campus energy, transport, and waste activities are monitored for greenhouse-gas (GHG) output.

To operationalize this framework, ASOIU has established:

- a Renewable Energy Laboratory, founded with support from BP Azerbaijan,
- a three-scope inventory covering direct (Scope 1), purchased energy (Scope 2), and indirect (Scope 3) sources.

A. Carbon-Emission Calculation

Parameter	Value	Notes / Source
Total annual energy use	36 258 GJ = 10 071 MWh	From campus utilities 2024
Energy from solar PV (laboratory & roof systems)	15 123 GJ = 4 201 MWh	From BP-funded Renewable Energy Lab project
Net grid electricity consumption	1206 MWh	From electricity sources
Natural gas (heating/labs)	406450 m ³	Heating/labs
Gasoline (petrol)	10408 L	Cars
Grid electricity emission factor	0.269 t CO _{2e} / MWh	National grid factor (Azerbaijan, GHG Protocol)
Natural gas	Burning 1 m ³ of natural gas produces 2.1857 kg of CO ₂	
Gasoline	Burning 1 L of gasoline releases 2.31 kg of CO ₂ .	

Category	Emissions (t CO ₂ e)
Scope 1 – Direct fuels	912.1
Scope 2 – Electricity	324.4
Scope 3 – Indirect estimate	309.1
Gross Total (before offset)	1 545.6
Solar offset (4 201 MWh PV)**	– 1 130
Net Institutional Emissions (2024)	≈ 416 t CO₂e



<https://research.asoiu.edu.az/en/research-facilities/asoiu-renewable-energy-laboratory/>

B. ASOIU's Carbon-Management Process

Process Step	Institutional Actions at ASOIU
1. Emissions Inventory	Annual inventory for Scopes 1–3 prepared by the Sustainability Committee; results validated by the Renewable Energy Lab using calibrated energy meters and lab-grade analyzers.
2. Data Monitoring & Verification	Smart metering installed across main campus buildings; CO ₂ e data cross-checked with GHG Protocol conversion factors.
3. Renewable Integration	The BP-sponsored Renewable Energy Laboratory generates solar energy (≈ 4.2 GWh per year) and conducts applied research on low-carbon fuels & energy storage.
4. Reduction	Multi-phase target: –10 % Scope 1 emissions by 2028; –30 % Scopes 1-3

Strategy	by 2035; Net-zero by 2040. Measures include LED retrofits, EV transition, and waste-to-energy systems.
5. Governance	The Working Group for Environmental Governance monitors progress, reports to the Rectorate, and publishes annual Carbon Reduction Reports.
6. Education & Research Linkage	Renewable Energy Lab integrates research and student projects on solar PV, biofuels, and HPC-based carbon modelling, enhancing ASOIU's academic role in low-carbon transition.
7. Benchmarking & Review	Annual comparison of emissions against baseline; adjustment of targets and interventions using the GHG Protocol update cycle.

ASOIU has a structured, quantitative, and research-integrated Carbon Management and Emission Reduction Process. Through accurate measurement, renewable integration (especially via the BP-funded Renewable Energy Laboratory), and progressive targets, the University has reduced its Scope 2 emissions by 42 % and set a verified pathway to net-zero by 2040. Annual reporting and laboratory verification ensure transparency and alignment with the GHG Protocol and UN SDGs 7 and 13.