



Executive Report on Sustainability Indicator Progress

Petroleum-Gas University of Ploiești – 2024–2026



1. Purpose of the report

This report summarizes the progress made by the Petroleum-Gas University of Ploiești in the field of sustainability, focusing on energy, environmental, infrastructure and academic indicators. The assessment examines the implementation status of the main measures and identifies the indicators that need to be monitored in order to confirm the results targeted for 2030.

The 2024–2026 period was mainly characterized by investments in renewable energy production, energy efficiency, infrastructure modernization, the development of green campus areas and the strengthening of academic programs related to the energy transition.

2. Main progress achieved

An important achievement is the installation of a photovoltaic park with a capacity of 140 kW. This investment contributes to increasing the University's own electricity generation, reducing the amount of electricity purchased from the grid and lowering indirect emissions associated with electricity consumption.

To effectively assess the performance of the photovoltaic park, the University must monitor annually the amount of energy produced, the share used for on-site consumption, the energy supplied to the grid, the avoided emissions and the financial savings achieved. The installed capacity can currently be confirmed, but the energy and financial impact must be supported by operational data.

Another major achievement is the implementation of a hybrid energy system comprising 10 heat pumps with a total thermal capacity of 690 kW. The system represents an important step towards diversifying energy sources and reducing dependence on natural gas for heating the University's buildings.

The performance of the system should be assessed by comparing natural gas consumption before and after the heat pumps became operational. This requires monitoring the thermal energy produced, the electricity consumed by the heat pumps, their coefficient of performance, the reduction in natural gas consumption and the greenhouse gas emissions avoided.

The energy system is complemented by the recovery of heat from the flue gases of the gas boilers. This solution allows part of the thermal energy that would otherwise be released into the atmosphere to be recovered and may increase the efficiency of the heating plant. The measure is considered implemented, although the energy savings and emission reductions still need to be quantified through regular measurements.

3. Building energy efficiency

The modernization of the lighting system with LED panels and sensors is a direct measure for reducing electricity consumption. Replacing the lighting fixtures and using sensors helps prevent unnecessary operation in unoccupied spaces and reduces maintenance costs.



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From the standpoint of physical implementation, the measure has been completed in the targeted areas. To confirm its impact, electricity consumption for lighting must be compared with the baseline year. The relevant indicators are annual energy consumption, the percentage reduction achieved and the resulting financial savings.

The construction of five new energy-autonomous teaching spaces represents an important investment in educational infrastructure. These spaces may become examples of efficient buildings and contribute to reducing the University's energy consumption, provided that the performance estimated during the design stage is confirmed during operation.

For this purpose, a post-occupancy technical evaluation should be carried out after at least one year of operation. The evaluation should examine the energy produced on site, the total consumption of each space, specific consumption per square metre, the share of energy autonomy and indoor comfort levels.

4. Development of the green campus

The development of parks and vegetated areas for students contributes to improving the quality of the university environment and creating a more attractive and climate-resilient campus. These spaces can reduce the urban heat-island effect, improve the local microclimate and provide better conditions for relaxation and social interaction.

To measure progress in this area, the University should record the total area of green spaces, the number of trees and shrubs planted, the number of relaxation areas and the amount of water used for maintenance. At present, the development of green areas may be considered complete; however, their ecological and social impact should be monitored through annual indicators.

5. Education and research

The development of the master's programme in **"Renewable and Green Energy"** strengthens the University's contribution to training specialists needed for the energy transition. The programme can make use of the existing infrastructure, including photovoltaic installation, the hybrid geothermal system and the energy-efficient teaching spaces.

To assess the academic results, the University should monitor the programme's authorization or accreditation status, the number of enrolled students, the number of graduates, the involvement of teaching staff and the graduates' employment rate.

The steps taken towards accrediting a doctoral field in **"Environmental Protection"** represent important progress in strengthening university research. Completion of the accreditation process would enable the development of research areas related to reducing the impact of the energy industry, resource efficiency, climate change and pollution-control technologies.

In this case, the main indicator is the status of the accreditation process. In addition, the University should monitor the number of eligible doctoral supervisors, the number of research projects, relevant publications and the available research infrastructure.

6. Priority indicators for the coming period



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For the 2027–2030 period, monitoring should focus on a limited set of indicators capable of demonstrating the actual impact of the investments. In the energy sector, these should include the electricity generated by the photovoltaic installation, the thermal energy supplied by the heat pumps, the reduction in natural gas consumption and the energy recovered from the flue gases.

In the environmental field, the University needs to prepare an official greenhouse gas emissions inventory. This will make it possible to calculate the University's total emissions and the reductions achieved through renewable energy use and energy-efficiency measures. The area of green spaces and water consumption for their maintenance should also be monitored.

In financial terms, the University should report annually on the savings resulting from reduced energy consumption, operating and maintenance costs, and the payback period of the investments. These data are necessary to assess the economic sustainability of the projects.

In the academic field, progress can be measured by the number of students enrolled in green energy programmes, the number of graduates, the research projects attracted and the partnerships developed with industry and public authorities.

7. Conclusion

During the 2024–2026 period, the Petroleum-Gas University of Ploiești made significant progress in implementing sustainability measures. The most important achievements include the installation of 140 kW of photovoltaic capacity, the integration of 10 heat pumps with a total capacity of 690 kW thermal, the recovery of heat from flue gases, the modernization of the lighting system, the construction of five new teaching spaces and the development of green areas on campus.

Progress was also made in the academic field through the development of the master's programme in **“Renewable and Green Energy”** and the initiation of procedures for accrediting the doctoral field of **“Environmental Protection.”**

The main priority for the next period is to move from reporting investments to measuring their actual effects. In order to achieve the objectives, set for 2030 and 2035, the University must continuously monitor the energy produced, energy saved, reduction in natural gas consumption, avoided emissions and financial savings. Preparing an official emissions inventory and carrying out post-occupancy technical evaluations will enable the establishment of more precise and verifiable targets for the next implementation stage.

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