

EXTENDED ANNUAL REPORT ON SDG 7 OF NAMANGAN STATE UNIVERSITY FOR 2024

In recent years, the rational use of energy resources, the implementation of renewable sources, and attention to environmental cleanliness have become pressing issues worldwide. From this perspective, Namangan State University (NamDU) has been consistently working on adapting its infrastructure to energy-efficient systems. This report analyzes the university's electricity consumption, the use of renewable energy sources, energy-saving measures, and indicators of ecological efficiency.

1. Analysis of total electricity consumption and consumption structure

As of the end of 2024, Namangan State University consumed a total of 965,696 kWh of electricity. This figure includes the main academic buildings, laboratories, student dormitories, administrative units, and auxiliary service facilities within the university. The university has a total of 6,728 lighting fixtures, 95% of which have been replaced with energy-efficient LED lamps. In addition, some academic buildings are equipped with temperature-sensing automatic lighting systems, which help reduce excessive energy consumption. The main share of energy consumption is attributed to laboratory equipment and heating/ventilation systems. The table below presents the consumption figures:

Departments	Average Monthly Consumption (kWh)	Annual Share (%)
Academic Buildings	51,200	53
Student Dormitories	22,800	23
Administrative Buildings	14,600	15
Laboratories	8,400	9

It is evident that more than half of the electricity consumption is attributed to academic buildings. Therefore, prioritizing the application of energy-saving technologies in this sector is of utmost importance.

2. Performance indicators of the solar panel system

At NamDU, a 755 kW solar panel system, installed at the end of 2023, was fully operational in 2024. The system occupies a total area of 3,020 m² and is installed on the roofs of the university's main buildings, student dormitories, and laboratories.

This system was implemented to increase energy independence and reduce the carbon footprint by utilizing renewable energy sources. The electricity generated by the solar panels over the year is presented in the table below:

Month	Energy Produced (kWh)	Sold to ETC (kWh)	University Consumption (kWh)	Revenue Generated (UZS)
January	23,626	–	23,626	61,128,000
February	36,004	27,868.6	8,135.4	–
March	57,768	10,228.8	47,539.2	–
April	63,532	21,299.2	42,232.8	27,430,704
May	75,182	24,992.6	50,189.4	9,662,256
June	89,880	59,257.8	30,622.2	15,267,888
July	73,389	70,820.6	8,568.4	94,503,360
Total	419,381	261,326.2	210,913.4	207,992,208

The highest production was recorded in June (89,880 kWh).

62% of the energy generated by the solar panels was sold to the electricity network (ETC), generating 207.9 million UZS in revenue over the year. The remaining 38% of the energy was used to meet the university's internal needs. This result demonstrates the economic benefit of the solar panel system.

3. Electricity Savings and Efficiency Indicators

During the energy audit, 6-day and 5-day work schedules were compared. As a result, the total consumption was found to decrease by 16.6%. The following table provides examples of some facilities:

№	Location	6-Day Consumption (kWh)	5-Day Consumption (kWh)	Savings (kWh)
1	161 Boburshoh Street	8,400	7,000	1,400
2	130 Boburshoh Street	480	400	80
3	Building 11	1,200	1,000	200
Total	–	10,080	8,400	1,680

These short-term results demonstrate the effectiveness of the university’s ongoing energy-saving policies.

4. Environmental and Social Efficiency

The 419,000 kWh of electricity generated from solar energy over the year reduced CO₂ emissions by over 350 tons, making a significant contribution to environmental protection. In addition, energy savings equivalent to 100 tons of coal highlight the ecological benefits of renewable energy sources.

Analysis of electricity use at Namangan State University shows a significant improvement in energy efficiency in recent years. The introduction of energy-saving technologies in academic and administrative buildings has reduced overall electricity consumption, providing both economic and ecological benefits.

In 2024, the 755 kW solar panel system installed by the university achieved important results: a total of 419,381 kWh of electricity was generated, of which 261,326 kWh was sold to the Regional Electric Networks Company (ETK). This generated 207.9 million UZS in revenue for the university budget.

The energy produced by the panels not only met the university’s internal needs but also allowed surplus electricity to be supplied to the power grid. According to

the energy audit, switching to a 5-day work schedule reduced weekly electricity consumption by an average of 16.6%. This approach optimized electricity use without affecting the educational process.

From an environmental perspective, the use of solar energy prevented over 350 tons of carbon dioxide (CO₂) from being released into the atmosphere, demonstrating the university's commitment to green energy principles.