



University : Northern Technical University
Country : Iraq
Web Address : <https://www.ntu.edu.iq>

SDG 7.2: University measures towards affordable and clean energy

7.2.5 Does your university as a body undergo energy reviews to identify areas where energy wastage is highest?

Energy Wastage Identification at Northern Technical University

Northern Technical University is committed to advancing its sustainability initiatives by conducting thorough energy reviews and audits to identify areas of significant energy wastage. Energy reviews are fundamental in the pursuit of energy efficiency, as they entail a comprehensive assessment of energy consumption patterns within campus facilities, including buildings, equipment, and systems. The primary objective is to pinpoint inefficiencies, highlight areas of high energy consumption, and uncover opportunities for improvement.

The energy review process at Northern Technical University typically involves the following key steps:

- ❖ **Data Collection:** The first step involves gathering relevant data on energy consumption, utility bills, occupancy patterns, and equipment usage. This foundational information serves as the basis for an accurate assessment of energy utilization across the campus.
- ❖ **On-Site Assessment:** A thorough on-site evaluation of the campus facilities is conducted to examine energy-consuming systems such as lighting, HVAC (heating, ventilation, and air conditioning), appliances, and other equipment. This hands-on analysis allows for the identification of practical energy-saving opportunities in real-world settings.
- ❖ **Analysis:** The collected data is meticulously analyzed to reveal trends and patterns in energy consumption. This analysis helps to pinpoint areas where energy usage is particularly high or inefficient, leading to actionable insights that inform subsequent recommendations.
- ❖ **Recommendations:** Based on the analysis, specific recommendations for energy-saving measures are proposed. These may include suggestions for upgrades, retrofits, behavioral changes, and the adoption of energy-efficient technologies designed to enhance overall performance.
- ❖ **Cost-Benefit Analysis:** A thorough evaluation of the potential costs and benefits associated with the recommended measures is performed. This analysis aids in prioritizing actions based on their economic feasibility and overall impact on reducing energy consumption.

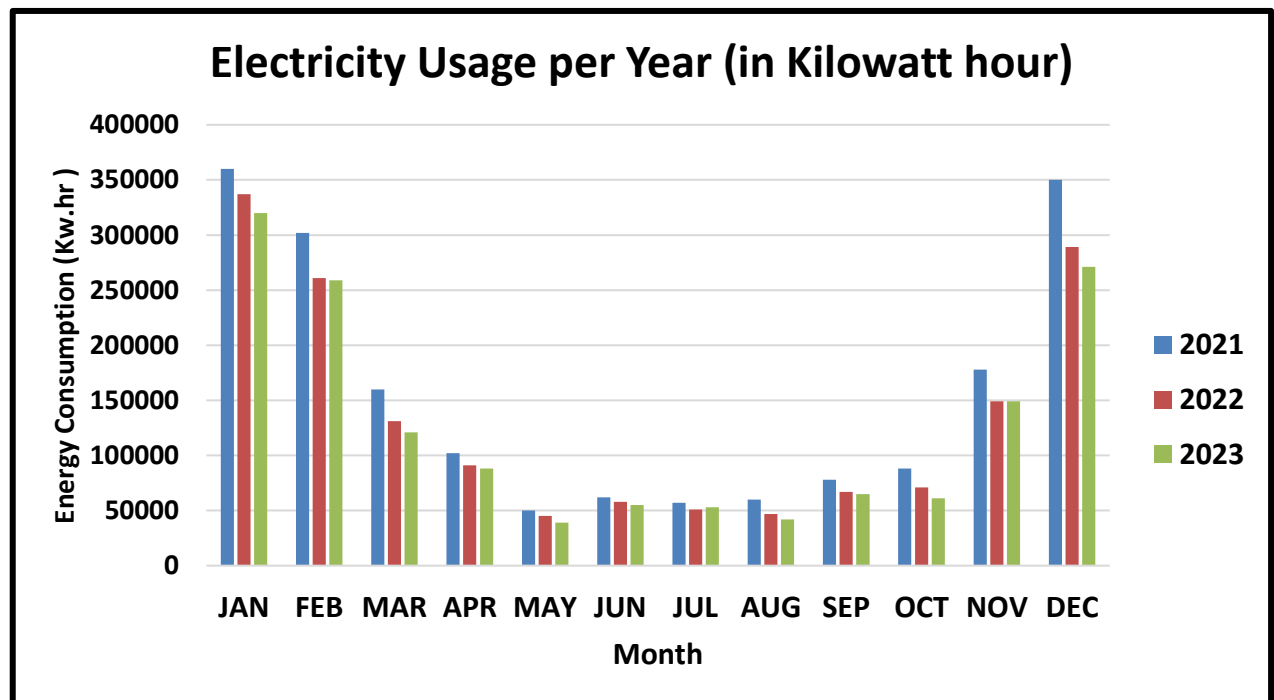
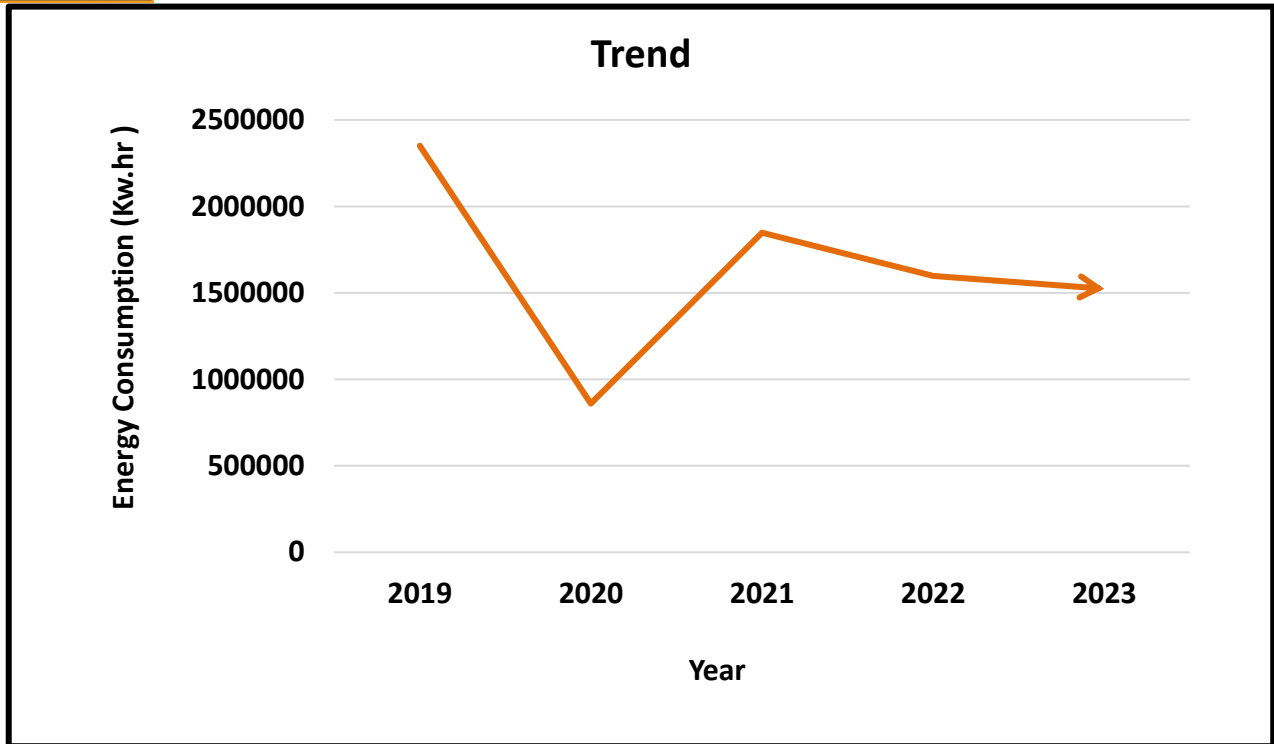


- ❖ **Action Plan Development:** A comprehensive action plan is created to outline the specific steps for implementing energy-saving measures. This plan includes timelines, designated responsibilities, and expected outcomes, ensuring accountability and clear direction for all stakeholders involved.
- ❖ **Implementation:** The final step involves executing the energy-saving measures as detailed in the action plan. This proactive approach ensures that Northern Technical University effectively advances its energy efficiency initiatives and realizes substantial benefits.

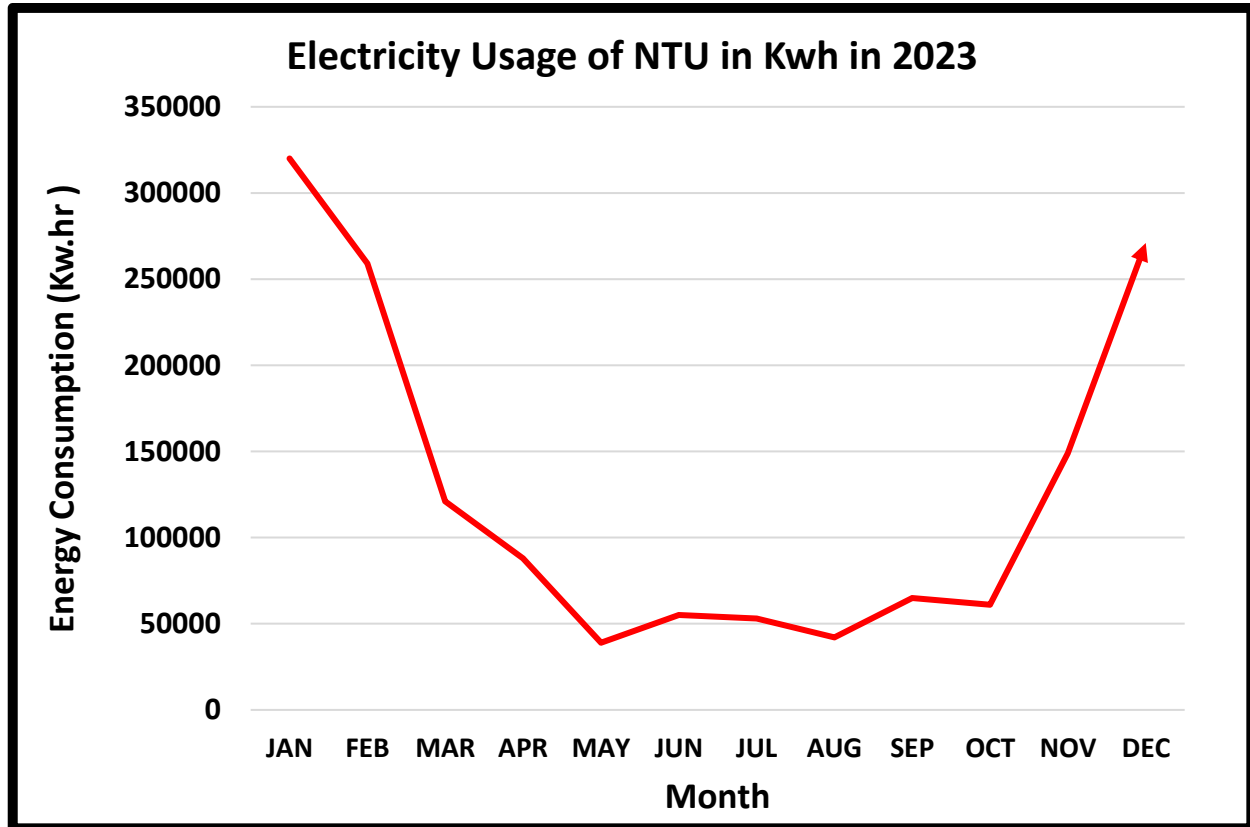
By following this systematic approach to energy reviews, Northern Technical University demonstrates its commitment to sustainability and resource optimization. These efforts not only contribute to reduced energy consumption and financial savings but also foster a culture of energy awareness and conservation among students, faculty, and staff across the campus community.

Total electricity usage at Northern Technical University (NTU) during the year in (kWh)

At Northern Technical University campuses, electricity plays a vital role in supporting various operations, including lighting, cooling, heating, and operating laboratory equipment. The analysis reveals trends in demand for electrical energy throughout 2019, showing a clear linear increase in electricity consumption. With the emergence of Covid-19 and the suspension of work as directed by the Iraqi Ministry of Higher Education and Scientific Research, the rate of electricity consumption decreased significantly, as shown in the figure below. At the beginning of 2021, universities began to return to work and students began to enroll. The table also shows an increase in energy consumption rates, but the Northern Technical University began using rationalization and awareness campaigns to reduce energy consumption and began using alternative energies, starting with solar energy and then wind energy. This actually led to a decrease in consumption rates and increased reliance on alternative energies, despite the increase in student enrollment numbers and the increased use of laboratories and classrooms.



The figure above illustrates the electricity consumption rates at Northern Technical University for the months of the year across the years 2021, 2022, and 2023. It shows a noticeable decline in consumption due to the university's implementation of a rationing and reduction policy, awareness campaigns, and the adoption of alternative energy sources such as solar and wind energy. These sources have been effectively combined to create a hybrid energy system.



Additionally, the university has improved its energy efficiency by using modern LED lighting, upgrading heating and cooling systems, and enhancing awareness of energy conservation in its buildings. This includes maximizing the use of natural lighting and incorporating advanced technologies alongside high-quality thermal insulation, which have all positively influenced electricity consumption rates.

This progress is largely attributed to the strong emphasis and leadership of the President of Northern Technical University, who encourages all members and students to support the initiative under the slogan "Towards a Green University."



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4	Energy Support and Emission Reduction	Staff and Surrounding communities	30	https://ntu.edu.iq/ar/%d9%88%d8%ad%d8%af%d8%a9-%d8%aa%d9%85%d9%83%d9%8a%d9%86-%d8%a7%d9%84%d9%85%d8%b1%d8%a3%d8%a9-%d9%81%d9%8a-%d8%a7%d9%84%d9%85%d8%b9%d9%87%d8%af-%d8%a7%d9%84%d8%aa%d9%82%d9%86-%d9%8a-%d9%83%d8%b1%d9%83-2/?lang=en	The Women's Empowerment Unit at the Kirkuk Technical Institute organizes a workshop entitled (Energy Support and Emission Reduction).

Furthermore, many research have been published by Northern Technical University under the caption of ""Northern Technical University, Iraq "& clean energy"" you can refer to the link below for more information:

https://scholar.google.com/scholar?q=%22Northern+Technical+University%2C+Iraq+%22%26+clean+energy%22&hl=ar&as_sdt=2007&as_ylo=2022&as_yhi=2023