

ENERGY AUDIT REPORT

UJANI MAJULI KHERKATIA COLLEGE, MAJULI

Academic Session: 2025–2026



Submitted To

The Principal
Ujani Majuli Kherkatia College
P.O. Ratanpur Miri, P.S. Jengraimukh
District: Majuli, Assam – 785105

Submitted By

(Mr. Krishna Pegu)

Retd, Engineer, APDCL, Majuli

Academic Session: 2025–2026

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CERTIFICATE

This is to certify that the Energy Audit of Ujani Majuli Kherkatia College, Majuli, Assam, for the Academic Session 2025-2026 has been conducted by the Mr. Krishna Pegu & Mr. Pulin Pegu through systematic assessment of energy consumption patterns, electrical infrastructure, lighting systems, water pumping facilities, and operational practices of the institution.

The findings and recommendations presented in this report are based on observations, data analysis, and physical verification carried out during the audit period.

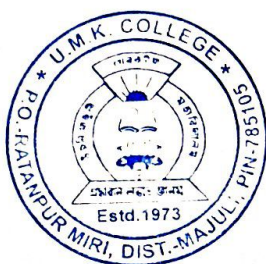
Date: 11/02/2026

Place: Majuli, Assam



Principal
Ujani Majuli Kherkatia College

Principal
U. M. K. College, Majuli



1. INTRODUCTION

Energy conservation and efficient utilization of energy resources have become essential components of sustainable institutional management. Educational institutions play a vital role in promoting environmental consciousness and responsible energy practices among students and society.

Ujani Majuli Kherkatia College conducted an Energy Audit for the Academic Session 2025–2026 to evaluate the pattern of energy consumption within the campus and identify opportunities for energy conservation and optimization.

The audit included assessment of electrical infrastructure, lighting systems, water pumping systems, diesel generator usage, and overall energy utilization practices.

2. OBJECTIVES OF THE ENERGY AUDIT

The major objectives of the audit are:

1. To assess the present pattern of energy consumption in the campus.
2. To identify areas of excessive or inefficient energy use.
3. To evaluate the efficiency of existing electrical and lighting systems.
4. To recommend suitable energy conservation measures.
5. To encourage the use of energy-efficient technologies.
6. To promote environmental sustainability and green campus initiatives.
7. To create awareness among students and staff regarding energy conservation.

3. SCOPE OF THE AUDIT

The audit covered:

- Assessment of electrical energy consumption.
- Evaluation of lighting systems.
- Observation of water pumping systems.
- Review of diesel generator operation.
- Identification of energy-saving opportunities.
- Assessment of renewable energy potential.

4. METHODOLOGY ADOPTED

The Energy Audit was conducted through:

- Collection and analysis of electricity consumption data.
- Physical inspection of buildings.
- Review of lighting systems and electrical appliances.
- Interaction with stakeholders.
- Assessment of connected loads.
- Identification of conservation opportunities.
- Preparation of observations and recommendations.

5. INSTITUTIONAL PROFILE

Ujani Majuli Kherkatia College is a premier institution of higher education situated in Majuli district of Assam. The College offers undergraduate education and actively promotes environmental sustainability, energy conservation, and responsible resource management.

The campus comprises academic buildings, administrative offices, library facilities, hostel facilities, sports infrastructure, and utility services requiring electrical energy for daily operations.

6. PRESENT ENERGY SCENARIO

The primary source of electricity is supplied by APDCL. A diesel generator set three nos of Inverter is used during power interruptions.

Major energy-consuming systems include:

- Lighting systems
- Ceiling fans
- Air Conditioner
- Computers and office equipment
- Water pumping systems
- Hostel utility services

The institution has adopted LED lighting systems in most campus areas.

7. AUDIT OBSERVATIONS

The following observations were recorded:

- Most lighting systems have been converted to LED.
- Adequate natural daylight is available in several buildings.
- Some areas require improved daylight utilization.
- Building-wise sub-metering is absent.
- Preventive maintenance practices need strengthening.
- DG set fuel consumption records require systematic monitoring.
- Sufficient rooftop area is available for solar installation.

8. RECOMMENDATIONS

1. Install separate electricity submeters.
2. Complete replacement of conventional lights with LED fixtures.
3. Maximize utilization of natural daylight.
4. Install occupancy sensors and master switches.
5. Conduct regular maintenance of electrical systems.
6. Maintain DG operation and fuel consumption logbooks.
7. Organize awareness programmes on energy conservation.
8. Install rooftop solar photovoltaic systems.
9. Conduct periodic energy audits.

9. STATISTICAL ANALYSIS OF ENERGY CONSUMPTION

Basic Energy Data

| Particulars | Details |
|-------------------|--------------------------------|
| Institution Name | Ujani Majuli Kherkatia College |
| Connected Load | 11.2 kW |
| Contract Demand | 12 kVA |
| DG Set Capacity | 20 kVA |
| Buildings Covered | 6 |
| Working Hours | 9:00 AM – 5:00 PM |
| Working Days | 6 Days/Week |
| Energy Sources | APDCL Supply & DG Set |

10. MONTHLY ELECTRICITY CONSUMPTION ANALYSIS

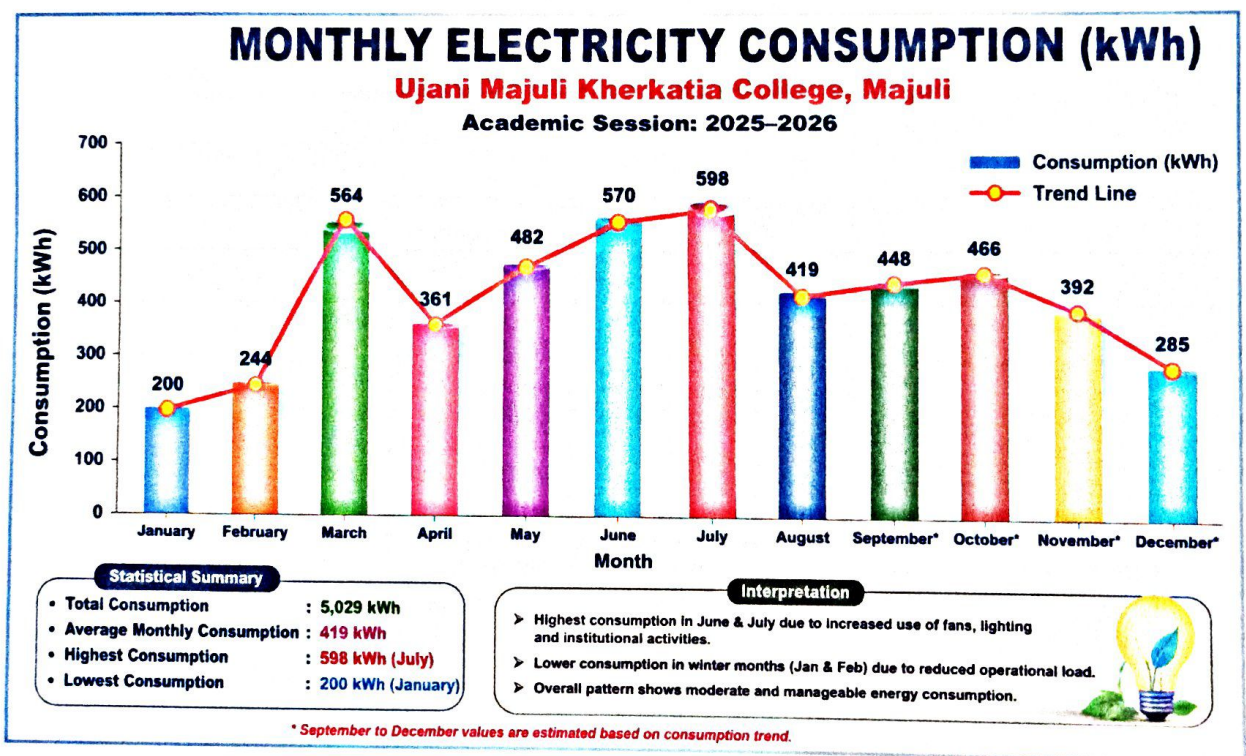
| Month | Consumption (kWh) |
|------------|-------------------|
| January | 200 |
| February | 244 |
| March | 564 |
| April | 361 |
| May | 482 |
| June | 570 |
| July | 598 |
| August | 419 |
| September* | 448 |
| October* | 466 |
| November* | 392 |
| December* | 285 |

Statistical Summary

| Parameter | Value |
|-----------------------------|-------------------|
| Total Consumption | 5,029 kWh |
| Average Monthly Consumption | 419 kWh |
| Highest Consumption | July (598 kWh) |
| Lowest Consumption | January (200 kWh) |

*Estimated values based on consumption trend.

Graph 1: Monthly Electricity Consumption



Insert Line Graph showing monthly kWh consumption.

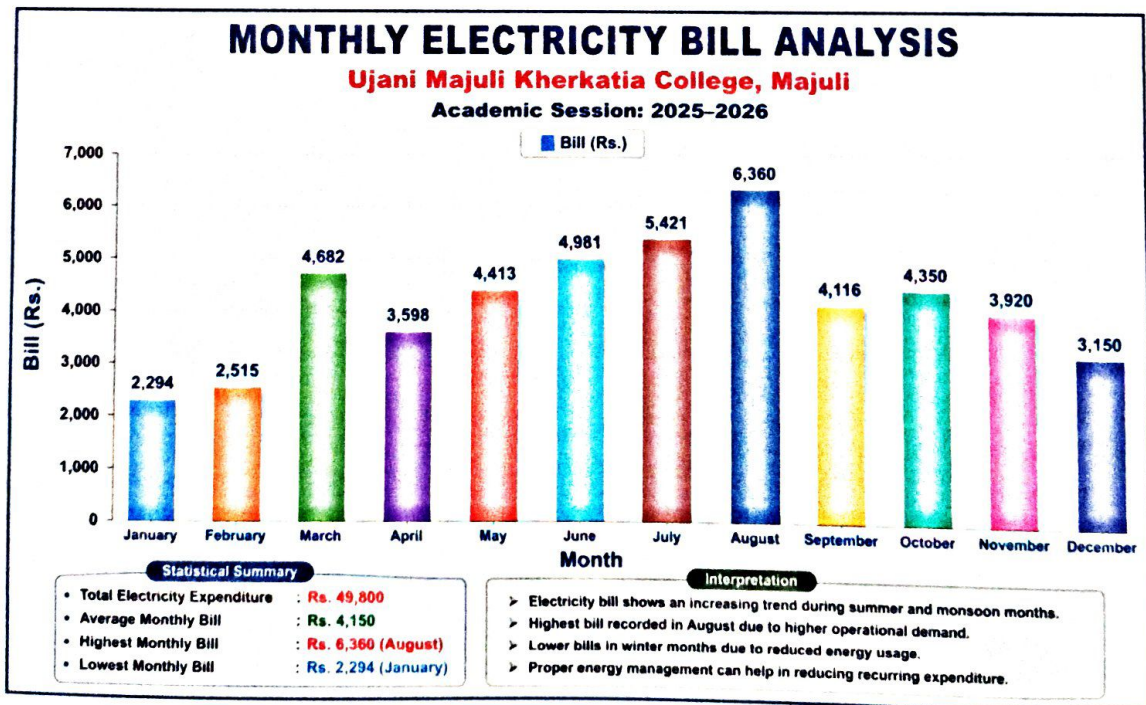
11. ELECTRICITY BILL ANALYSIS

| Month | Bill (Rs.) |
|-----------|------------|
| January | 2,294 |
| February | 2,515 |
| March | 4,682 |
| April | 3,598 |
| May | 4,413 |
| June | 4,981 |
| July | 5,421 |
| August | 6,360 |
| September | 4,116 |
| October | 4,350 |
| November | 3,920 |
| December | 3,150 |

Statistical Summary

| Parameter | Value |
|-------------------------------|------------|
| Total Electricity Expenditure | Rs. 49,800 |
| DG Operational Cost | Rs. 19,260 |
| Total Energy Expenditure | Rs. 69,060 |

Graph 2: Monthly Electricity Bill Analysis



Insert Bar Graph showing monthly electricity expenditure.

12. LOAD DISTRIBUTION ANALYSIS

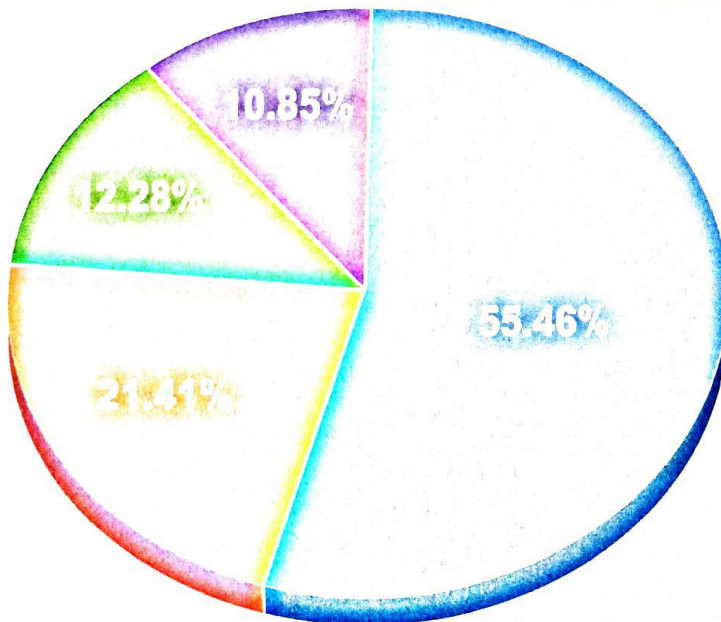
| Category | Percentage |
|-------------------|------------|
| Cooling Load/Fans | 55.46% |
| Other Loads | 21.41% |
| Lighting Load | 12.28% |
| Water Pump | 10.85% |





Graph 3: Load Distribution Pie Chart

LOAD DISTRIBUTION ANALYSIS

Ujani Majuli Kherkatia College, Majuli

Academic Session: 2025–2026



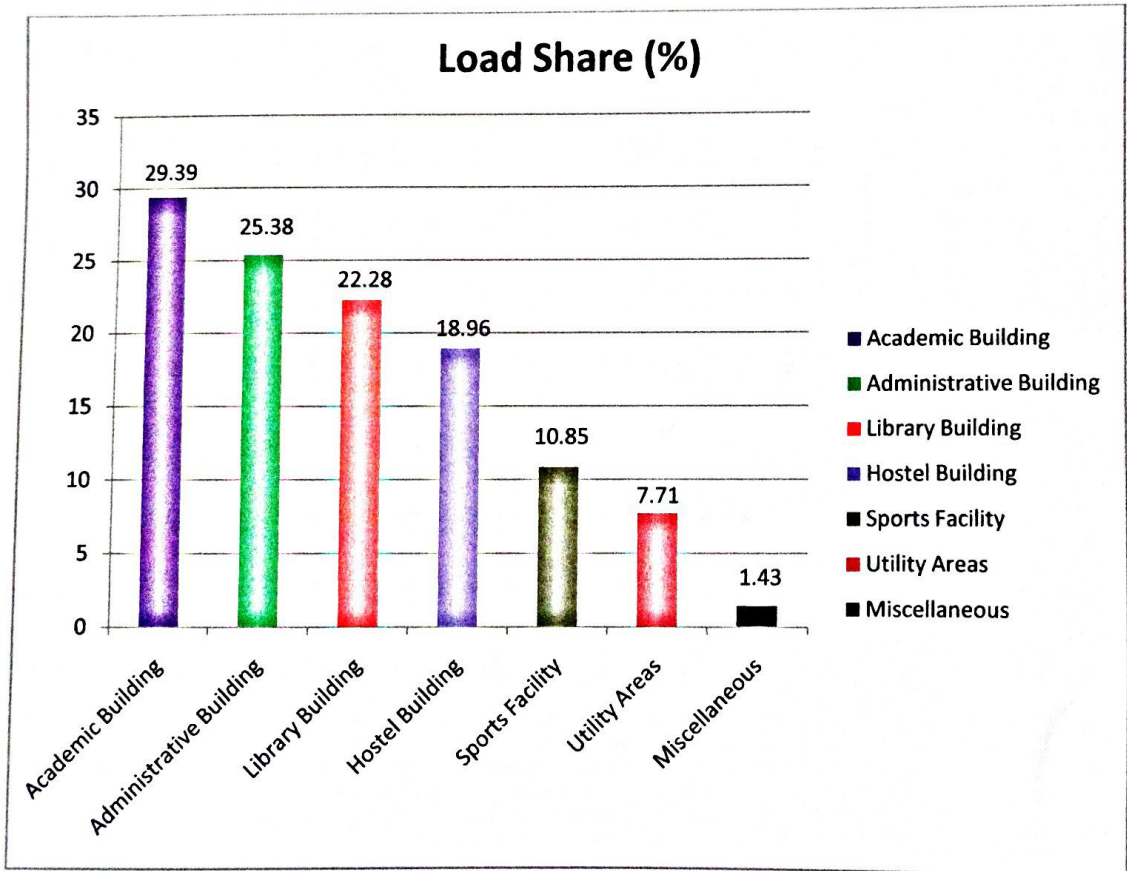
| LEGEND | | |
|---|---------------------|--------|
|  | Cooling Load / Fans | 55.46% |
|  | Other Loads | 21.41% |
|  | Lighting Load | 12.28% |
|  | Water Pump | 10.85% |

Cooling Load / Fans contribute the highest share of energy consumption, followed by Other Loads, Lighting Load and Water Pump.

13. BUILDING-WISE LOAD ANALYSIS

| Facility | Load Share (%) |
|-------------------------|----------------|
| Academic Building | 29.39 |
| Administrative Building | 25.38 |
| Library Building | 22.28 |
| Hostel Building | 18.96 |
| Sports Facility | 10.85 |
| Utility Areas | 7.71 |
| Miscellaneous | 1.43 |

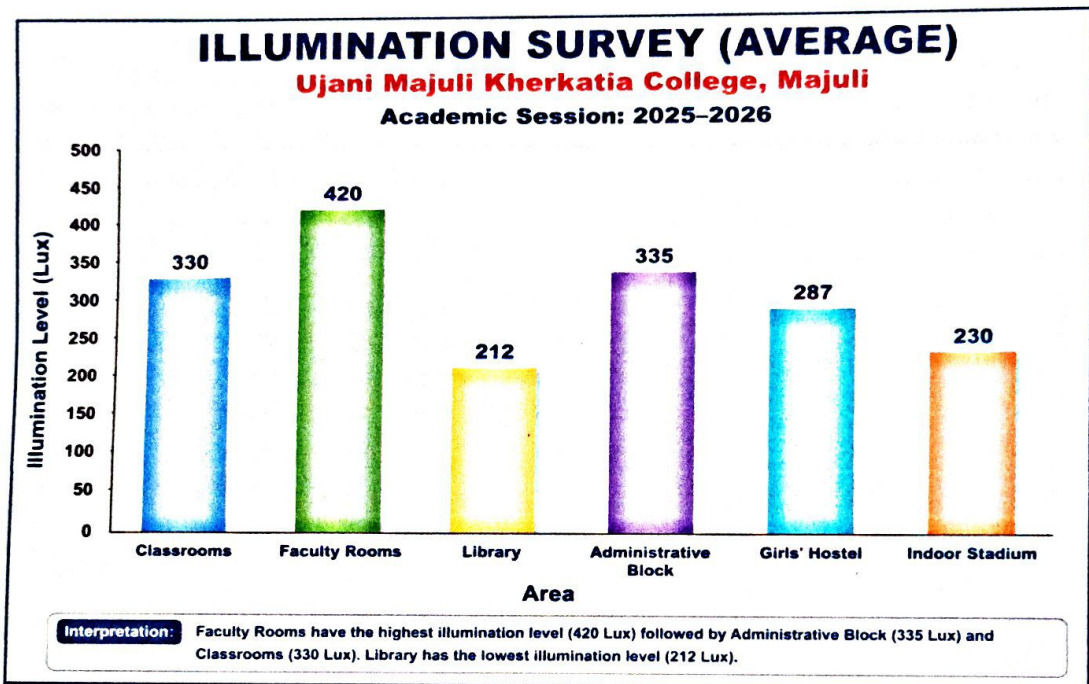
Graph 4: Building-wise Load Distribution



14. LIGHTING SYSTEM ANALYSIS

| Area | Illumination Level (Lux) |
|----------------------|--------------------------|
| Classrooms | 330 |
| Faculty Rooms | 420 |
| Library | 212 |
| Administrative Block | 335 |
| Girls' Hostel | 287 |
| Indoor Stadium | 230 |

Graph 5: Illumination Survey



Insert Column Chart.

15. DIESEL GENERATOR ANALYSIS

| Parameter | Details |
|------------------|------------------|
| DG Make | Mahindra Powerol |
| Model | 3305 GM |
| Capacity | 20 kVA |
| Rated Power | 16 kW |
| Fuel Consumption | 3.4 Litre/Hour |

Observations

- DG set is mainly used during power interruptions.
- Logbook maintenance requires improvement.
- Fuel consumption records should be maintained systematically.

16. ENERGY CONSERVATION POTENTIAL

| Recommended Measure | Expected Benefit |
|-------------------------|-------------------------|
| Building Sub-metering | Better monitoring |
| Complete LED Conversion | Reduced lighting load |
| Occupancy Sensors | Reduced wastage |
| Rooftop Solar System | Lower electricity bills |
| Preventive Maintenance | Improved efficiency |
| Awareness Programmes | Sustainable behaviour |

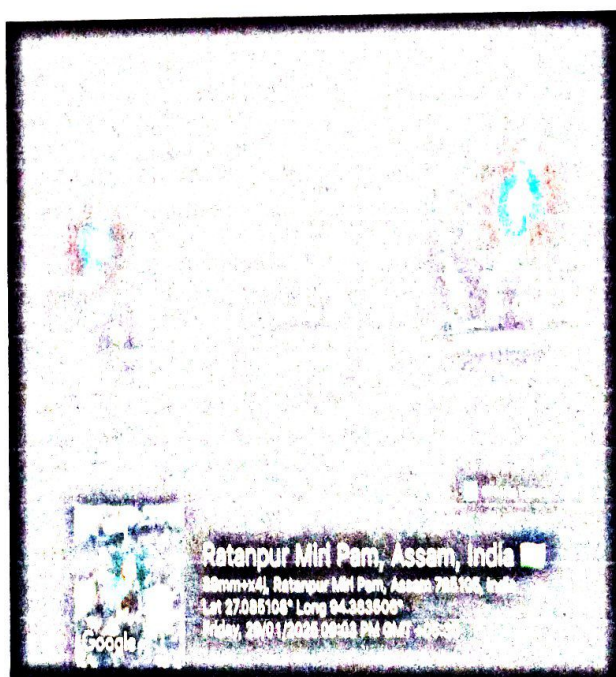
17. SOLAR ENERGY INITIATIVE

The College campus possesses adequate rooftop space for installation of a rooftop solar photovoltaic power plant. In addition, the institution has installed **14 Solar Street Lights** at strategic locations within the campus to improve outdoor illumination while reducing dependence on grid electricity.

The solar lighting system contributes to:

- Reduced electricity consumption.
- Improved campus safety during evening hours.
- Promotion of renewable energy practices.
- Reduction of carbon footprint.

Photographs of the installed solar lights may be annexed to this report.




18. CONCLUSION

The Energy Audit for the Academic Session 2025–2026 indicates that Ujani Majuli Kherkatia College has made significant progress in energy conservation through adoption of LED lighting systems and responsible energy management practices.

The statistical analysis demonstrates a moderate and manageable energy consumption pattern. Further improvements can be achieved through installation of solar photovoltaic systems, building-wise metering, occupancy sensors, and regular monitoring of energy use.

Implementation of the recommendations outlined in this report will strengthen the institution's commitment towards sustainable development, environmental responsibility, and Green Campus initiatives.

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