



ENERGY AUDIT REPORT FOR R.K. VIGYAN (P.G.) MAHAVIDYALAYA



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Acknowledgement

Elion Technologies and Consulting Pvt Ltd places on record it's thanks to R.K. Vigyan (P.G.) Mahavidyalaya, Jaipur, Rajasthan for entrusting the task of conducting energy audit study.

We acknowledge with gratitude the whole hearted support and cooperation extended by all team members while carrying out the study.



Site Information

Name of College	R.K. Vigyan (P.G.) Mahavidyalaya
College Address	Behind Kalwar Police Station, Kalwar, Jaipur, Rajasthan – 303706
Execution Partner	ELION Technologies & Consulting Pvt Ltd
Communication Address	307, 3rd Floor DDA Lal Market H-Block Vikas Puri, New Delhi-110018
Date of Audit	06 th March 2024
Year of Audit	2022 – 2023
Site Team who participated in the Study	R.K. Vigyan (P.G.) Mahavidyalaya
Main Energy Consuming Machines/Equipment's considered for Energy Audit	<ul style="list-style-type: none">• Lighting & Fans• Air Conditioners• Motors & Pumps• Desktops & Printers



Executive Summary

R.K. Vigyan (P.G.) Mahavidyalaya is highly reputed, philanthropic education trust, serving as the "Educational Oasis" in Jaipur Region since long. The trust is spear-headed by the trustees who are known for their high energy level, vision and devotion to the cause of furthering educational opportunities for students of the new age. R.K. Vigyan (P.G.) Mahavidyalaya began its glorious journey from July 2003, after the approval of Govt. of Rajasthan with faculties of arts and commerce at present the students are benefitted with all the three faculties' arts, commerce and science. We are also running PG Courses in Geography, Pol. Science, Drawing & Painting, Chemistry, Botany, Zoology, Physics.

R.K. Vigyan (P.G.) Mahavidyalaya Kalwar is a renowned educational institution located in Kalwar, Rajasthan. Established with the vision of promoting education and knowledge, our college offers a wide range of undergraduate and postgraduate programs in various disciplines.

List of courses offered by the institute:

- B.A: - (Hindi Lit., Sanskrit Lit., Urdu Lit., English Lit., Political Science, Public Adm., D & P., Econ., Home Sci., Socio., History., Geography)
- B.Sc.: - (Botany, Zoology, Chemistry, Physics, Mathematics, Home Science)
- B.COM.: - (ABST, BADM, EAFM)
- M.A.: - (Political Science, Drawing Painting, Hindi Lit., History)
- M.Sc.: - (Botany, Zoology, Chemistry, Physics, Mathematics)
- M.A./M.Sc.: - Geography

Electricity is supplied by Jaipur Vidyut Vitran Nigam Limited.

The energy audit included detailed data collection, analysis of data and identification of specific energy saving proposals.



Chapter 01: Introduction

R.K. Vigyan (P.G.) Mahavidyalaya, Jaipur evinced interest in availing the services of Elion Technologies and Consulting Pvt Ltd for conducting energy audit of their premises.

Elion Technologies and Consulting Pvt Ltd team conducted the Detail Energy audit on 06th March 2024.

This report is on the energy audit carried out in R.K. Vigyan (P.G.) Mahavidyalaya, Jaipur. The detailed energy audit comprised of the following activities:

- Data collection of power consuming equipment's.
- A brief session on energy management was conducted to seek more inputs from the personnel engaged in operation and maintenance of electro mechanical services.
- Analysis of collected data.
- Discussion with the officials on the identified proposals.
- Discussion and reporting of the findings of energy audit with the Engineers and management staff.

All the identified energy savings proposals have been discussed with the executives concerned before finalizing the projects.

The contents of the report are based solely on the data provided by R.K. Vigyan (P.G.) Mahavidyalaya, Jaipur officials during the energy audit.

The management should implement the suggestions made in the report after verifying requisite safety aspects.

Methodology for Energy Audit:

The following is a list of general procedure and information undertaken during the energy audit:

- General information of the site.
- Baseline energy description.
- Past energy consumption bills which include electricity bills.



- On site data collection
- Energy analysis of different sectors.
- Recommendation of energy conservation measures.

The primary goal of the energy audit was to identify sources and areas of potential energy savings and cost saving throughout the Plant by measures of optimization, replacement, retrofitting, and on the other hand, to also provide recommendations on operational and maintenance practices improvements.



Chapter 02: Energy Consumption Details

List of equipment present in the campus:

Rating of Transformer (in KVA)	10 KVA
Year of installation of the Transformer	2023
Rating of DG Set (in KVA)	-
Rating of Capacitor Bank (if present)	NA
Capacity of Solar Power Plant (if installed)	-

The main areas of energy consumption as observed during the audit are as follows:

- Air Conditioners
- Lighting & Fans
- Motors & Pumps
- Desktops & Printers

The main sources of energy to meet the required consumptions are as follows:

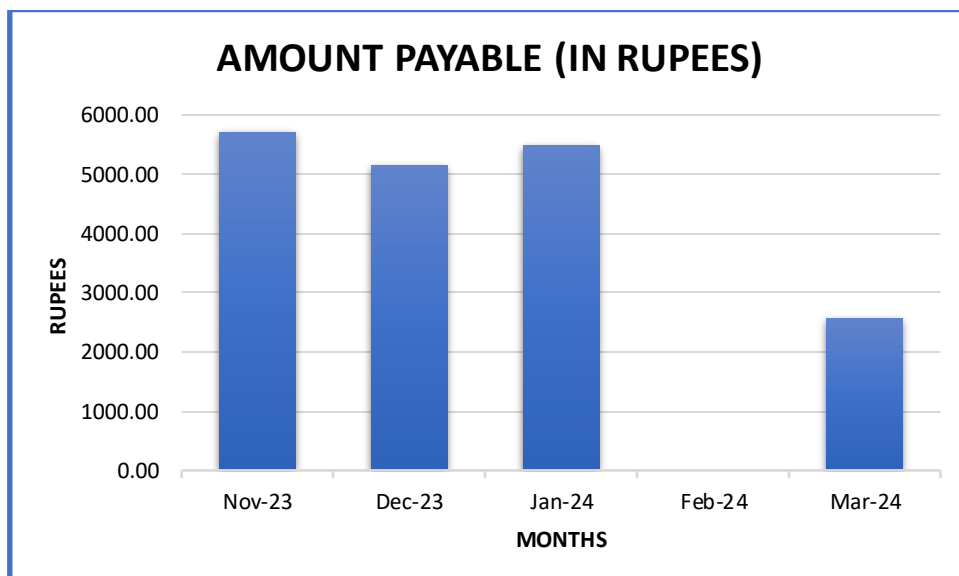
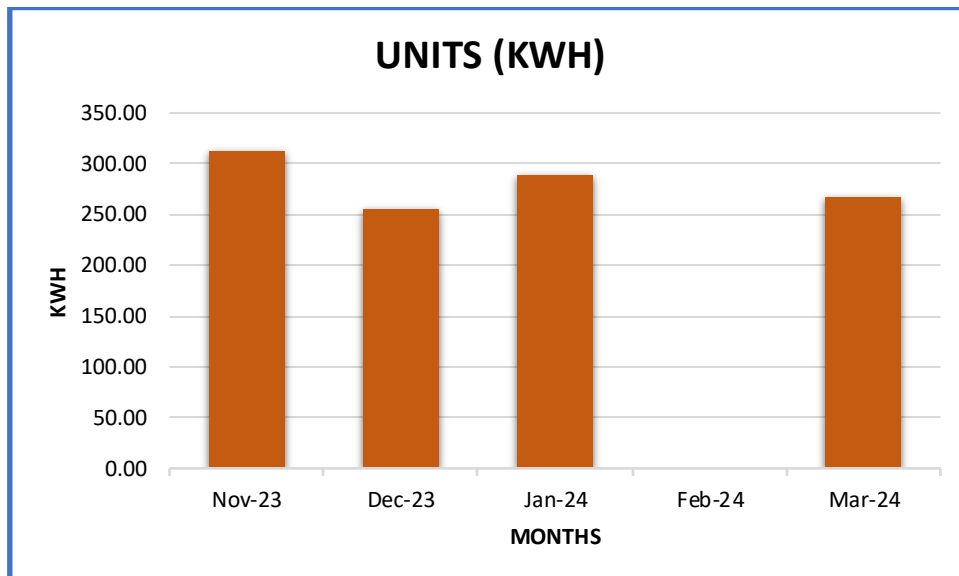
- Electricity supply from Jaipur Vidyut Vitran Nigam Limited.



Consumption pattern for energy is given below:

Available electricity bills for the year were collected and following is the summary for energy meter.

MONTHS	UNITS (KWH)	AMOUNT PAYABLE (IN RUPEES)
Nov-23	312.00	5708.00
Dec-23	255.00	5145.00
Jan-24	289.00	5481.00
Mar-24	267.00	2564.00





Chapter 03: Lighting System

The lighting inventory of the colleges present in the university were collected and following is the summary:

Type of lights (LED/CFL/Conventional Bulb/Tube Light)	Location	Rating	Quantity	Number of Hours being turned on
LED Tube lights	Ground floor	10-20W	30	06
LED Bulbs and Tube lights	1 ST Floor	10-20W	35	06
LED Bulbs and Tube lights	2 ND Floor	10-20W	39	06
Ceiling LED	3 rd Floor	15-25W	15	06

Observation:

It was observed that energy efficient LED lights are installed in the campus. College management has replaced all the conventional lights with LED lights.

Recommendation:

- Occupancy sensors can be installed in cabins and spaces where continuous lighting is not required.
- Sticker to SWITCH OFF LIGHT and SAVE ENERGY to be displayed.
- Regular cleaning of light fixtures to be done to get maximum lux level.





Chapter 04: Pumps and Motors

Pump is generally used for pumping of ground water to the water tank. The details of the pumps are given below:

Name of Pump and make	Running Hours	Rated Capacity in KW	RPM
Tarataxmo Single Phase submersible	2 hrs.	5 HP	2800

Name of Pump and make	Measured Power/Current	Discharge Pressure
Tarataxmo Single Phase submersible	240 Voltage	17.5 LPS

Name of Motor and make	Running Hours	Rated Capacity in KW	Ampere	RPM
Lubi Three phase Mono block	1 hrs.	3 HP	21	2800

Observation:

All pumps and motors are functioning properly and well maintained.

Recommendation:

Proper maintenance and upkeep of pump and motor to be done.



Chapter 05: Air Conditioning

Split ACs are used in facility for air conditioning. Following is the list of ACs present in the campus:

Type of AC (Windows/Split/Package and Location)	Capacity in Ton	Whether any star rating available	Set Temperature	Running Hours	Whether AC performance is satisfactory (Yes/No)
Panasonic split AC – Principal Office Room	1	2	26	13	Yes

Observation:

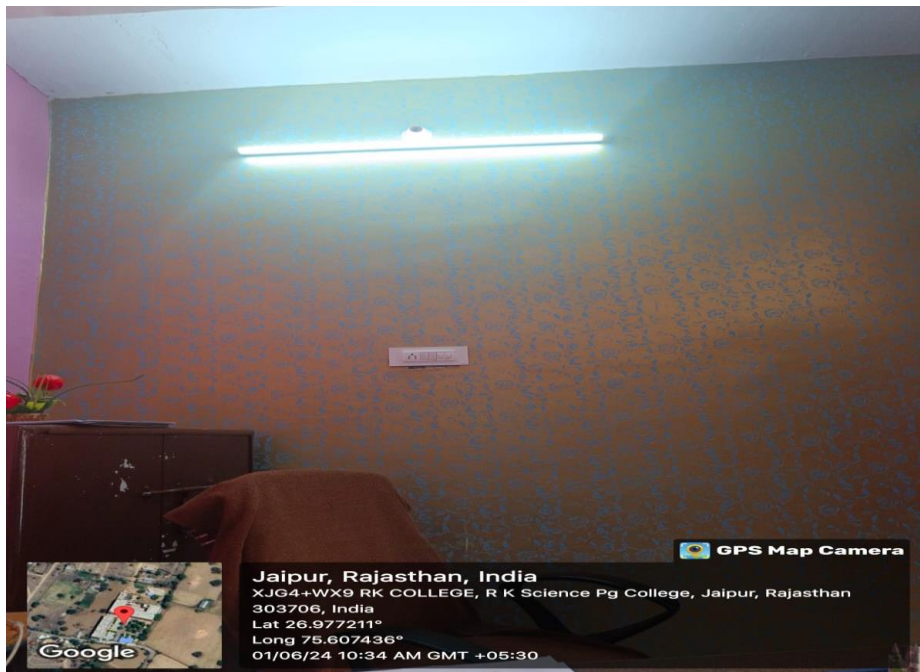
- Air conditioner found to be functioning properly and well maintained.
- Air conditioner used is 2-star which is a good practice.

Recommendation:

- All doors to be kept closed while using the air conditioners and regular annual service of AC's should be carried out.
- Set Temperature of Air Conditioner shall be maintained at 26°C.
- A reduction in 1°C set point temperature, the energy cost comes down by 5%. By carefully selecting the seasonal temperature in different areas as per requirement considerable saving on account of power consumption can be achieved.
- Whenever Air Conditioners are replaced in future, BEE 5 star rated air conditioners shall be considered which are energy efficient.
- University management should consider installation of programmable microprocessor-based energy saver for air conditioners to achieve savings up to 30%.

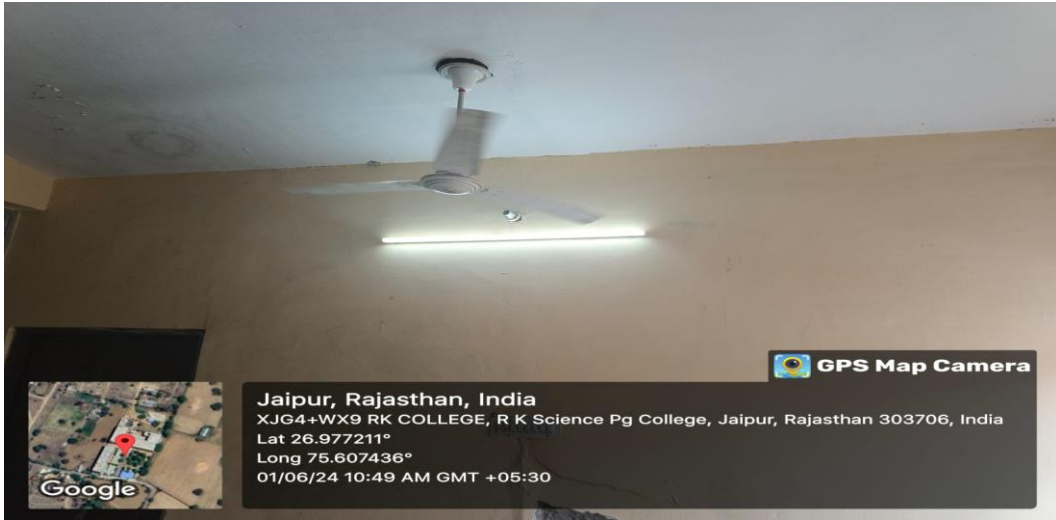


Chapter 06: Photographic Evidence



LED LIGHTS





LED LIGHTS



AC OUTDOOR UNIT



AC INDOOR UNIT



MOTORS



Conclusion

The energy audit conducted at R.K. Vigyan (P.G.) Mahavidyalaya, Kalwar, Jaipur, Rajasthan has revealed that college is doing good work in having sustainable college. Energy efficient LED lights are installed in the entire campus. To further reduce energy consumption, college should implement the recommendation made in report.

End of Report



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DISCLAIMER

All information contained in this report is based on the data available and observations made during the audit. All recommendations made in this audit report should be duly evaluated by the management before implementation.

Elion Technologies and Consulting is not liable for any damages incurred by the organization through implementation of the energy saving proposals either to it or to any third party getting impacted by the implementation of this report.

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