



**ENERGY AUDIT REPORT
FOR
GURU GOBIND SINGH EDUCATIONAL
SOCIETY'S TECHNICAL CAMPUS**



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Acknowledgement

Elion Technologies and Consulting Pvt Ltd places on record it's thanks to Guru Gobind Singh Educational Society's Technical Campus 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	Guru Gobind Singh Educational Society's Technical Campus
College Address	Guru Gobind Singh Educational Society Guru Gobind Singh Public School, Sector - V/8, Bokaro Steel City - 827006
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	19 th April 2024
Year of Audit	2023 - 2024
Site Team who participated in the Study	Dr. Priyadarshi Jarohar (Director) Dr. R.P. Verma (Dean)
Main Energy Consuming Machines/Equipments considered for Energy Audit	<ul style="list-style-type: none">• Lighting & Fans• Air Conditioners• Motors & Pumps• Desktops & Printers



Executive Summary

The Guru Gobind Singh Educational Society's Technical Campus (GGSESTC) has started its journey of academic excellence in the year 2011. The Technical Campus is promoted by Guru Gobind Singh Educational Society.

The Guru Gobind Singh Educational Society established in 1979, is non-profit organisation working in the field of technical education. The Society has many schools running under its umbrella at various parts of the country. After 32 years of service to the society nationwide, it has been decided by the society to establish a Technical Campus in the name of Guru Gobind Singh Educational Society's Technical Campus at Bokaro, Jharkhand.

The institute has a lush green sprawling campus spread over about 20 acres of land within the vicinity of twin city of Chas and Bokaro at Jharkhand. It is a fully self-financed institute. We are paving the path for significant development & tremendous growth of our budding professionals graduating from GGSESTC for global perspective for sustainable impact on the society. We feel the amount of time our students spend here should be focussed on developing them to be a professional with never ending zeal to learn, innovate & experiment. Our faculty members have humongous knowledge base in their field of work. They facilitate transfer of learning very well with the kind of experiences & distinguished qualifications they possess. We focus on individual development of our students in Technical as well as soft skills by conducting & organizing various training programmes, workshops, seminars, guest lectures & industrial visits by eminent professionals from well renowned Institutes, Colleges & Industries.

We have one of its kinds of State-of-the-art Infrastructure and facilities with well-equipped labs, advanced & developed Technologies.

Our alumni have performed remarkably well in their fields of interest. We believe that they have always made us proud and they are the flag bearers of our brand's excellence. We wish you a pleasant navigation through our website.

VISION

To provide world class education, training and research opportunities in fields of Technology Management and other disciplines.

MISSION

To be centre of academic excellence and an ecosystem vehicle for aspiring technologists and entrepreneurs.



OBJECTIVE

To be amongst top institutions in Jharkhand in terms of:

- Engaging with Indian corporates and institutions for knowledge sharing and development of the institute.
- Dissemination of knowledge through Research & Training.
- Improving through Rankings and Accreditations.
- Adoption of Contemporary Technology in Teaching, Learning and other processes.

List of courses offered by the institute:

Following are the list of courses offered by the institute-

- Bachelor of Technology (CSE, ECE, EEE, ME, CE)
- Master in Business Administration
- Bachelor of Business Administration
- Bachelor of Computer Applications

Electricity is supplied by Jharkhand Bijli Vitran Nigam Limited.

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



Chapter 01: Introduction

M/S Guru Gobind Singh Educational Society's Technical Campus 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 19th April 2024.

This report is on the energy audit carried out M/S Guru Gobind Singh Educational Society's Technical Campus. 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 PTVA's Institute of Management 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 includes 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

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

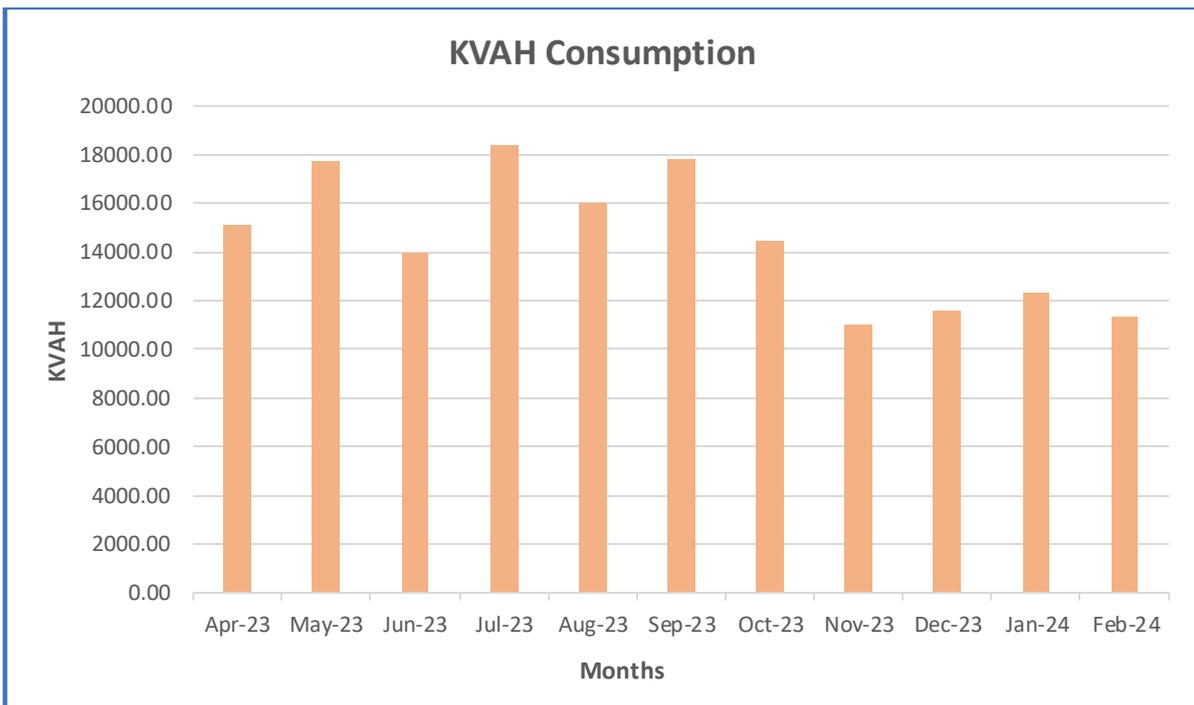
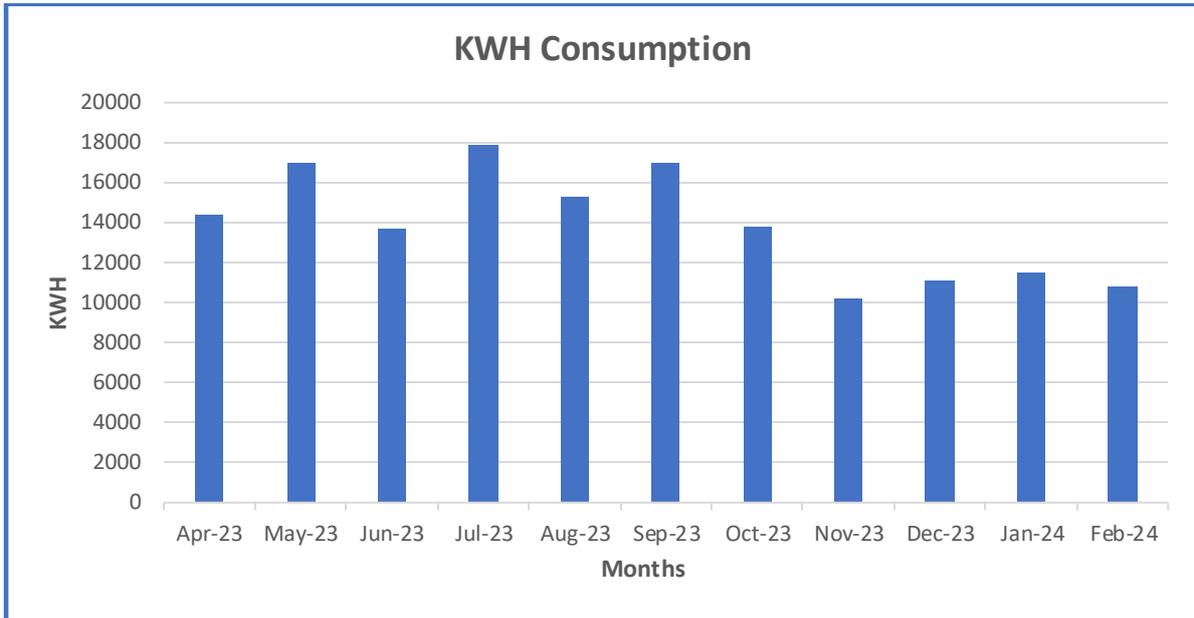
- Air Conditioners
- Lighting & Fans
- Motors & Pumps
- Desktops & Printers

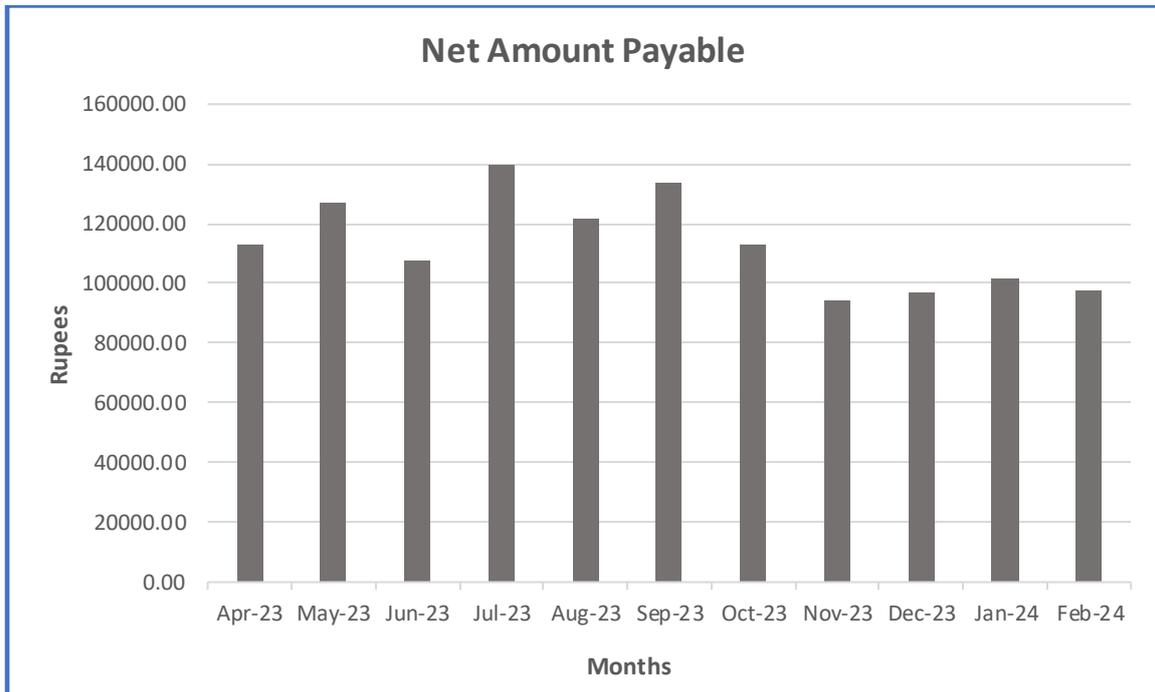
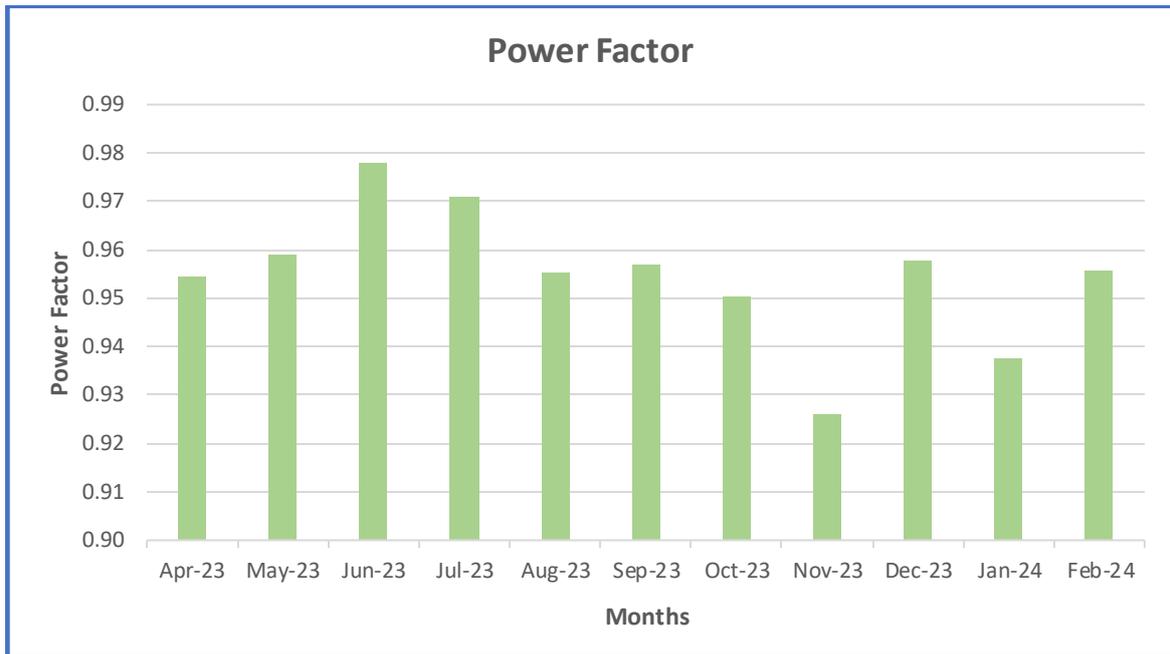
The main sources of energy to meet the required consumptions are as follows:

- Electricity supply from Power Distribution Company.
- Solar Power Plant.

Consumption pattern for energy is given below:

Months	KWH	KVAH	Power Factor	Net Amount Payable
Apr-23	14392.19	15075.69	0.95	112935.00
May-23	16989.83	17718.67	0.96	126746.00
Jun-23	13675.1	13983.28	0.98	107736.00
Jul-23	17899.34	18432.26	0.97	139895.00
Aug-23	15283.34	16000.43	0.96	121978.00
Sep-23	17029.4	17794.07	0.96	133572.00
Oct-23	13754.62	14474.59	0.95	113245.00
Nov-23	10173.31	10984.95	0.93	94232.00
Dec-23	11080.53	11568.13	0.96	96832.00
Jan-24	11532.49	12298.20	0.94	101938.00
Feb-24	10810.05	11309.60	0.96	97704.00







Chapter 03: Lighting System

Following is the summary of lights installed at various locations of the college campus:

Type of lights	Location	Rating (W)	Quantity	Number of Hours being turned on
LED Bulbs	Campus	12	350	08
Flood Light	Campus	200	13	10
Flood Light	Auditorium	150	04	04
LED Tube Lights	Campus	20	32	08
Tube Lights	Boys Hostel	40	96	08
Tube Lights	Girls Hostel	40	80	08
Tube Lights	Campus	40	640	08
Flood Lights	Auditorium	50	04	05

Observation:

Most of the lights used in the campus are LEDs. Campus has replaced all the conventional lights with energy efficient LED lights which is a good practice.



LED tube lights



LED Bulbs

Recommendation:

- 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: Air Conditioning

Total 28 numbers of Split Air Conditioners 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	Quantity	Set Temperature	Running Hours	Whether AC performance is satisfactory (Yes/No)
Split AC's	1.5	3	26	3-4	Yes

Observation:

- All air conditioners are found to be functioning properly and well maintained.



Split ACs

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.



Conclusion

The energy audit performed at Guru Gobind Singh Educational Society's Technical Campus showcased commendable efforts towards sustainability within the college. The replacement of conventional lights with energy-efficient LED alternatives marks a significant stride in reducing energy consumption. Additionally, the integration of a fully functional solar system underscores the commitment to renewable energy sources. Despite these advancements, there remains untapped potential for further enhancing energy efficiency. The audit report likely contains specific recommendations aimed at maximizing sustainability efforts. Implementing these suggestions could significantly bolster the college's energy-saving initiatives, continuing the positive trajectory towards a more environmentally conscious campus.

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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