ENERGY AUDIT REPORT
FOR
ST. WILFRED COLLEGE OF ARTS, COMMERCE & SCIENCE

Elion Technologies & Consulting Private Limited

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Acknowledgement

Elion Technologies and Consulting Pvt Ltd places on record it's thanks to St. Wilfred College of Arts, Commerce & Science, Panvel 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	ST. WILFRED COLLEGE OF ARTS, COMMERCE & SCIENCE
College Address	Old Mumbai-Pune Highway, near Panvel Toll Plaza, Panvel, Shedung, Maharashtra - 410206
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	17th January 2024
Year of Audit	2024 – 2025
Site Team who participated in the Study	St. Wilfred College of Arts, Commerce & Science
Main Energy Consuming Machines/Equipment's considered for Energy Audit	• Lighting & Fans • Air Conditioners • Motors & Pumps • Desktops & Printers

Executive Summary

St. Wilfred's College of Arts, Commerce & Science stands as a beacon of excellence in Mumbai's educational landscape. Affiliated with Mumbai University, our institution prides itself on fostering a dynamic learning environment that cultivates not just academic prowess but also critical thinking, creativity, and effective communication skills. Through our interactive teaching approach, we inspire students to explore beyond textbooks, encouraging them to delve into the realms of innovation and problem-solving. With a keen eye on nurturing future entrepreneurs and globally competent individuals, our curriculum is designed to instill a sense of adaptability and resilience. Whether pursuing a Bachelor of Arts, Bachelor of Science, Master of Science, Bachelor of Management Studies, Bachelor of Commerce, or any other program, students are provided with holistic education that prepares them for the challenges of the modern world.

At St. Wilfred's, education extends beyond the confines of classrooms. Our state-of-the-art facilities, including a well-stocked library, seminar hall equipped with cutting-edge technology, spacious auditorium, and provisions for various sports activities, complement the academic journey by providing avenues for holistic development. The library serves as a treasure trove of knowledge, offering resources spanning various disciplines to aid students in their quest for learning. Our seminar hall serves as a platform for interactive sessions, guest lectures, and workshops, facilitating the exchange of ideas and experiences. The auditorium, with its modern amenities, is the stage for cultural events, seminars, and academic presentations, enriching the college experience.

Furthermore, recognizing the importance of extracurricular activities in shaping well-rounded individuals, we provide ample opportunities for students to engage in sports and other recreational pursuits. Whether it's honing leadership skills through participation in college clubs and societies or showcasing athletic prowess on the field, students are encouraged to explore their interests and talents beyond academics. St. Wilfred's College of Arts, Commerce & Science is not just an institution of learning but a community where students are nurtured, challenged, and empowered to realize their full potential, emerging as confident and competent individuals ready to make a positive impact on society

List of courses offered by the institute:

- B.A.
- B. Com
- B. Com
- B. Com
- B.Sc.
- B.Sc. Information Technology
- B.Sc. Computer science
- B.M.S.
- M.Sc. (physics)
- M.Sc. (Organic Chemistry)
- M.A.

Electricity is supplied by Maharashtra State Electricity Distribution Co. Ltd. and for backup power supply - DG set of rating 125 KVA (Kirloskar) is available.

Also, solar power plant of capacity 80KW is installed in the college.

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

Chapter 01: Introduction

St. Wilfred College of Arts, Commerce & Science, Panvel 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 17th January 2024.

This report is on the energy audit carried out in St. Wilfred College of Arts, Commerce & Science, Panvel. 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 St. Wilfred College of Arts, Commerce & Science, Panvel 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

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

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

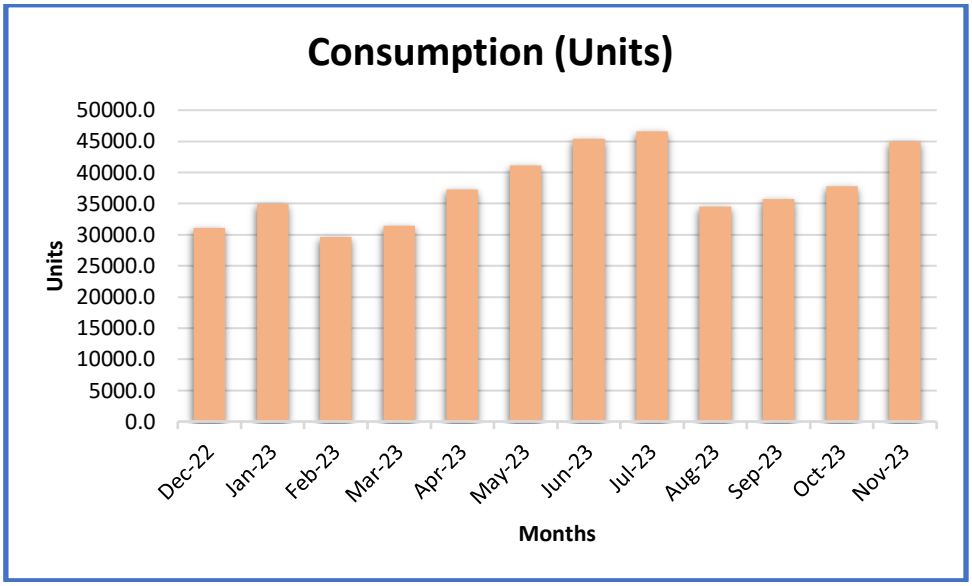
The main sources of energy to meet the required consumptions are as follows:

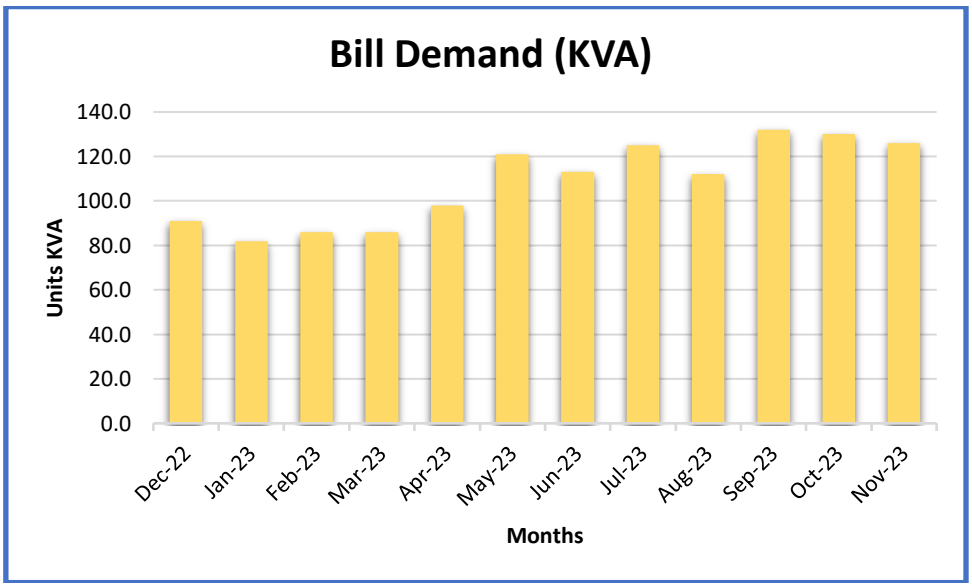
- Electricity supply from Maharashtra State Electricity Distribution Co. Ltd..
- Four DG sets of rating 125 KVA (Kirloskar).
- Solar power plant of capacity 80KW.

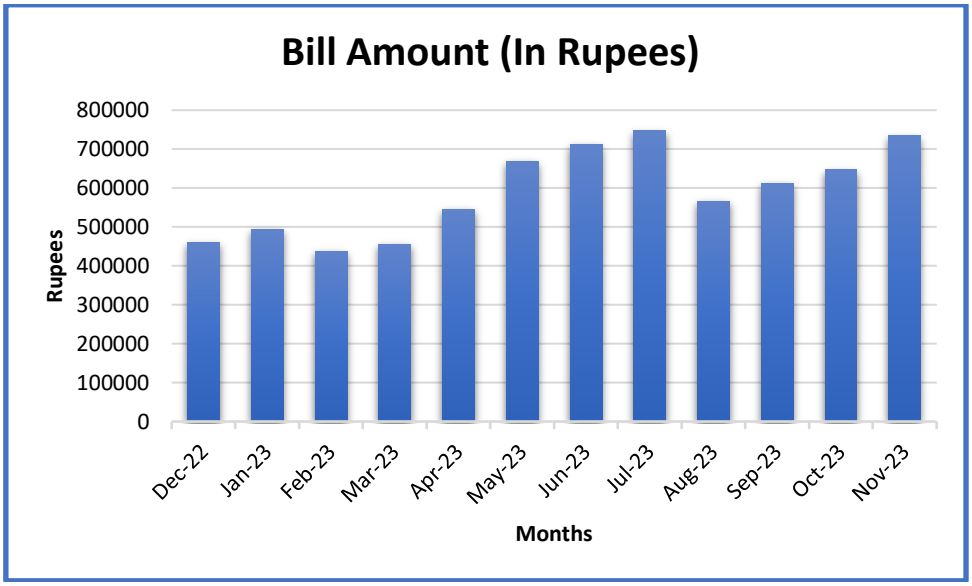
Consumption pattern for energy is given below:

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

Bill Month	Consumption (Units)	Bill Demand (KVA)	Bill Amount (In Rupees)
Dec-22	31104.0	91.0	459215.58
Jan-23	34948.0	82.0	492232.32
Feb-23	29611.0	86.0	436735.14
Mar-23	31429.0	86.0	455934.32
Apr-23	37290.0	98.0	546052.15
May-23	41147.0	121.0	668311.36
Jun-23	45408.0	113.0	711679.62
Jul-23	46633.0	125.0	746836.81
Aug-23	34514.0	112.0	565979.52
Sep-23	35701.0	132.0	612231.28
Oct-23	37809.0	130.0	646336.93
Nov-23	44965.0	126.0	734325.95


Consumption (Units)
Units
50000.0
45000.0
40000.0
35000.0
30000.0
25000.0
20000.0
15000.0
10000.0
5000.0
0.0
Dec-22
Jan-23
Feb-23
Mar-23
Apr-23
May-23
Jun-23
Jul-23
Aug-23
Sep-23
Oct-23
Nov-23
Months


Bill Demand (KVA)
Units KVA
140.0
120.0
100.0
80.0
60.0
40.0
20.0
0.0
Dec-22
Jan-23
Feb-23
Mar-23
Apr-23
May-23
Jun-23
Jul-23
Aug-23
Sep-23
Oct-23
Nov-23
Months


Bill Amount (In Rupees)
800000
700000
600000
500000
400000
300000
200000
100000
0
Rupees
Dec-22
Jan-23
Feb-23
Mar-23
Apr-23
May-23
Jun-23
Jul-23
Aug-23
Sep-23
Oct-23
Nov-23
Months

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	32 Room	10-20 W	86	7

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	Flow Rate	Head	RPM
Crompton motor	2	220	-	-	30

Name of Pump and make	Flow Rate	Measured Power/Current	Suction Pressure	Discharge Pressure
Crompton motor	2	Automatic	220	High

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)
Windows AC	2	3	26	7	Yes

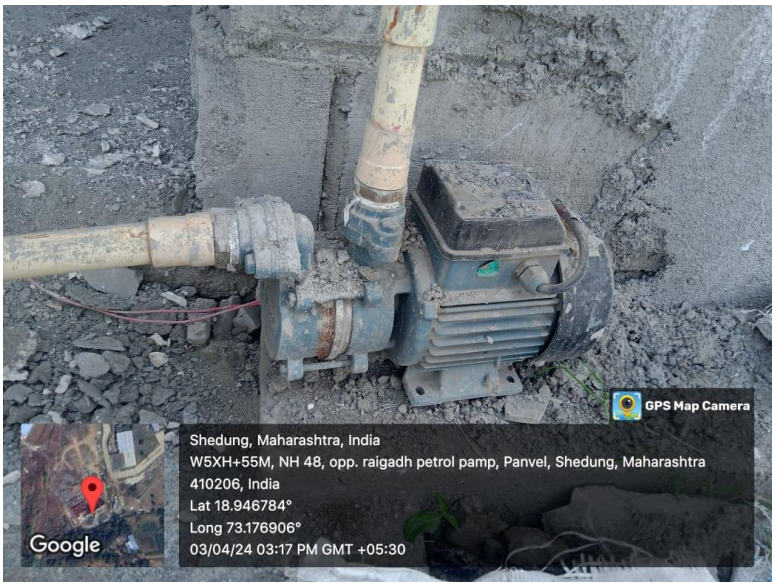
Observation:

- All air conditioners are found to be functioning properly and well maintained.
- Most of the air conditioners used are 3-star which is a good practice.

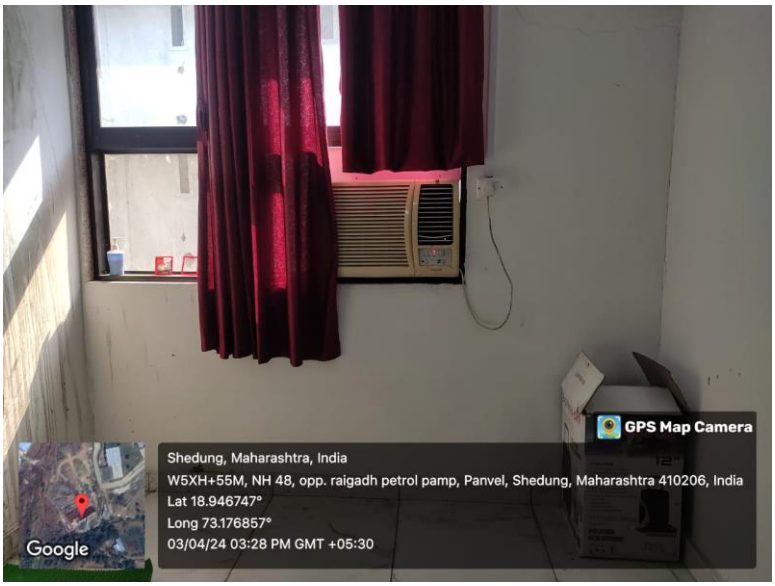
Recommendation:

- 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%.

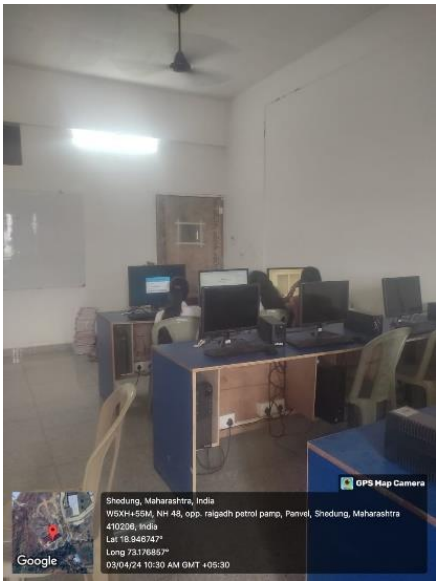
Chapter 06: Photographic Evidence



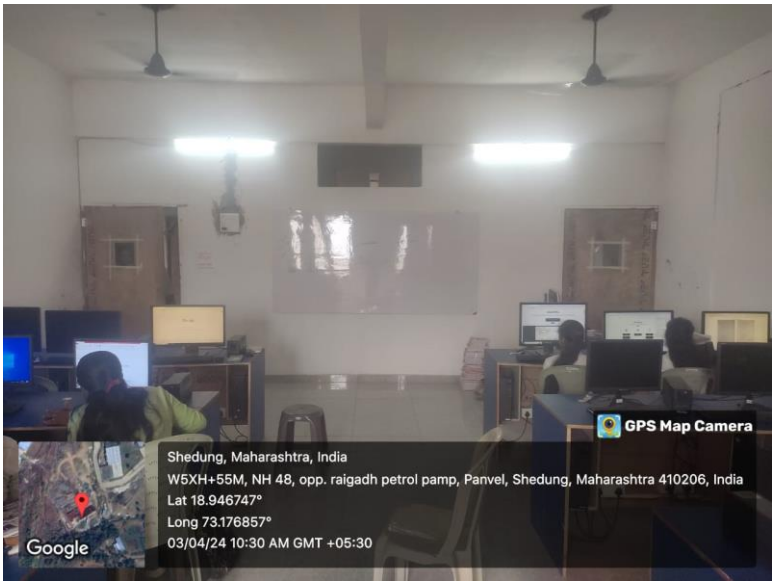
Pump



Window AC



LED Lights in Labs



LED Lights

Conclusion

The energy audit conducted at St. Wilfred College of Arts, Commerce & Science, Panvel 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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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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