



# ENERGY AUDIT REPORT FOR ST. WILFRED'S INSTITUTE OF PHARMACY



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## Table of Contents

<b>Content</b>	<b>Page No.</b>
Acknowledgement	3
Site Information	4
Executive Summary	5
Chapter-01 Introduction	6
Chapter-02 Energy Consumption & Analysis	8
Chapter-03 Lighting System	11
Chapter-04 Pumps and Motors	12
Chapter-05 Air Conditioning	13
Chapter-06 Photographic Evidence	14
Conclusion	17
Disclaimer	18



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## Acknowledgement

Elion Technologies and Consulting Pvt Ltd places on record it's thanks to St. Wilfred's Institute of Pharmacy, 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

<b>Name of College</b>	ST. WILFRED'S INSTITUTE OF PHARMACY
<b>College Address</b>	Near Shedung Toll Plaza, Old Mumbai Pune Highway, Shedung, Panvel - 410206
<b>Execution Partner</b>	ELION Technologies & Consulting Pvt Ltd
<b>Communication Address</b>	307, 3rd Floor DDA Lal Market H-Block Vikas Puri, New Delhi-110018
<b>Date of Audit</b>	16 <sup>th</sup> April 2024
<b>Year of Audit</b>	2023 – 2024
<b>Site Team who participated in the Study</b>	Dr. Rajendra Panditrao Marathe - Convener Dr. Harshal Ashok Pawar – Member Dr. Mushtaque Ahmad Shamsuddin Shaikh- Member
<b>Main Energy Consuming Machines/Equipment's considered for Energy Audit</b>	<ul style="list-style-type: none"><li>• Lighting &amp; Fans</li><li>• Air Conditioners</li><li>• Motors &amp; Pumps</li><li>• Desktops &amp; Printers</li></ul>



## Executive Summary

"St. WILFRED'S INSTITUTE OF PHARMACY - PANVEL of Pharmacy (SWIP) was established in the year 2016 by St. Wilfred's Education Society. The institute is approved by UGC, AICTE, DTE and PCI with affiliation from the University of Mumbai. The institute is situated in a spacious campus and has well equipped spacious laboratories, advanced instrumentation room, well stacked library, huge auditorium and a playground with provision for many sports. The institute aims for the overall development of the student and regularly conducts various inter-collegiate events in cultural and sports. A team of dedicated and well qualified teachers are involved in imparting quality education to the students"

### List of courses offered by the institute:

- Diploma in Pharmacy
- Bachelor in Pharmacy
- Master in Pharmacy (Pharmaceutics)
- Master in Pharmacy (Pharmaceutical Chemistry)

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's Institute of Pharmacy, 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 16<sup>th</sup> April 2024.

This report is on the energy audit carried out in St. Wilfred's Institute of Pharmacy, 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's Institute of Pharmacy, 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.



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- 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)	630KVA
Year of installation of the Transformer	2024
Rating of DG Set (in KVA)	-
Rating of Capacitor Bank (if present)	NA
Capacity of Solar Power Plant (if installed)	80 KW

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.
- Solar power plant of capacity 80KW.

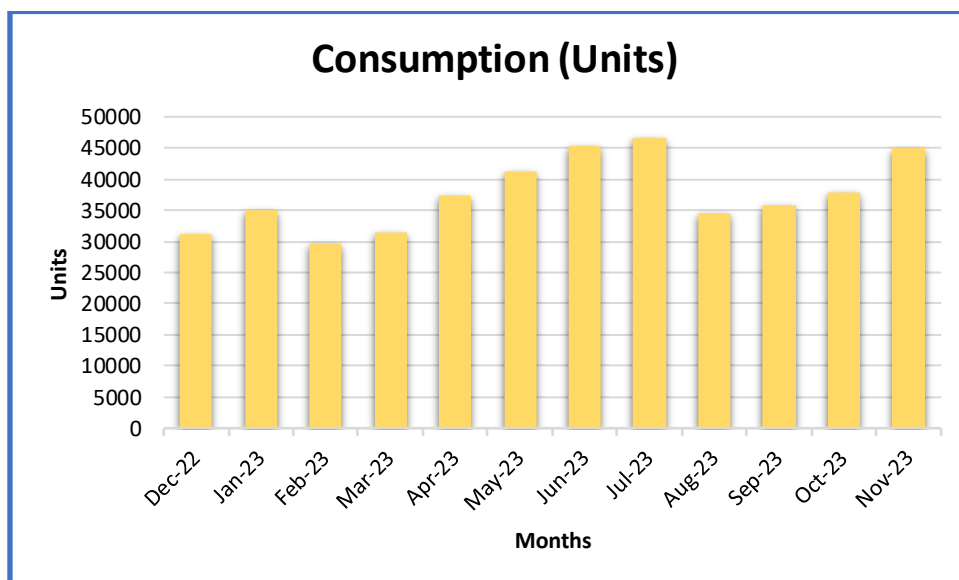


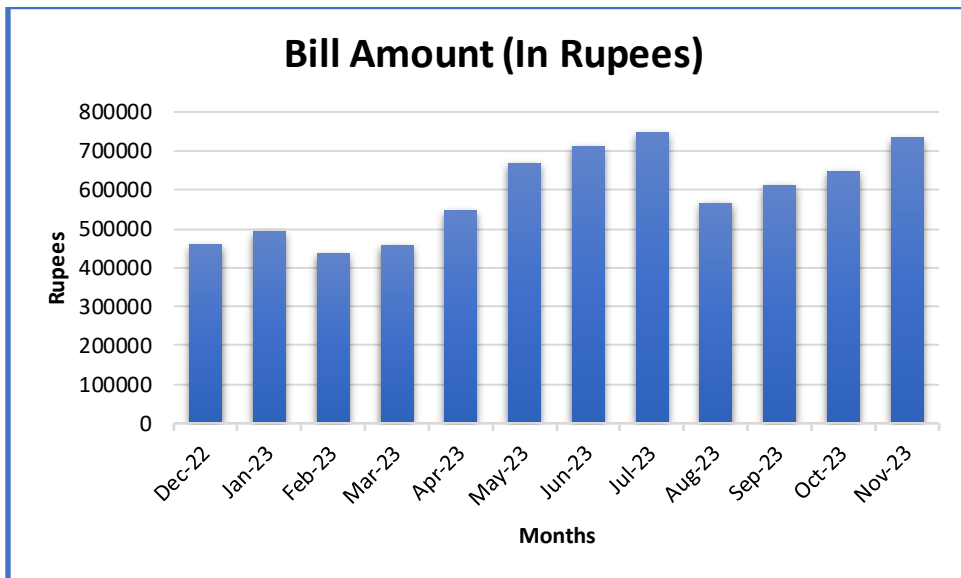
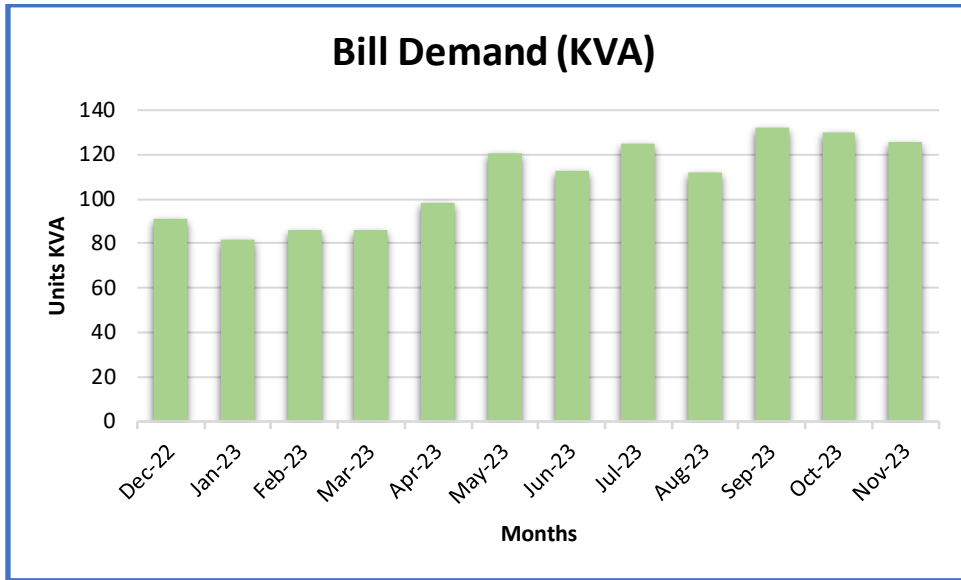


**Consumption pattern for energy is given below:**

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	91	459215.58
Jan-23	34948	82	492232.32
Feb-23	29611	86	436735.14
Mar-23	31429	86	455934.32
Apr-23	37290	98	546052.15
May-23	41147	121	668311.36
Jun-23	45408	113	711679.62
Jul-23	46633	125	746836.81
Aug-23	34514	112	565979.52
Sep-23	35701	132	612231.28
Oct-23	37809	130	646336.93
Nov-23	44965	126	734325.95







## 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
TUBE LIGHT	Ground floor	40 W	21	07
TUBE LIGHT	First floor	40 W	30	07
TUBE LIGHT	Second floor	40 W	26	07
TUBE LIGHT	Third floor	40 W	23	07
TUBE LIGHT	Fourth Floor	40 W	23	07

### 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
Kirloskar three Phase Monoblock	6.5	---	10 KP	---	1500

Name of Motor and make	Running Hours	Rated Capacity in KW	Efficiency	Ampere	RPM
Kirloskar three phase Monoblock	6.5	10 KP	--	173.9	1500

### 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)
Split AC- Principal's cabin	1.5	2	24	07	Yes
Split AC- Instrumentation Room	1.5	3	24	24	Yes

### Observation:

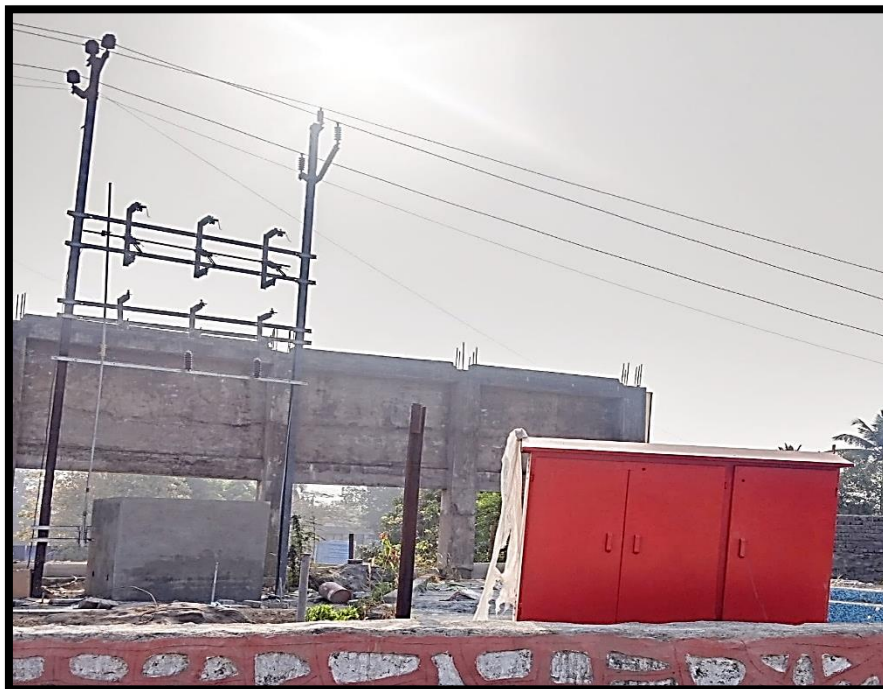
- All air conditioners are found to be functioning properly and well maintained.
- Most of the air conditioners used are 3-star which is a good practice.

### 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



Transformer



LED Tube Lights



LED Tube Lights



Split AC Indoor Unit





Water Borewell



Water Pump





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## Conclusion

The energy audit conducted at St. Wilfred's Institute of Pharmacy, 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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### **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.

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