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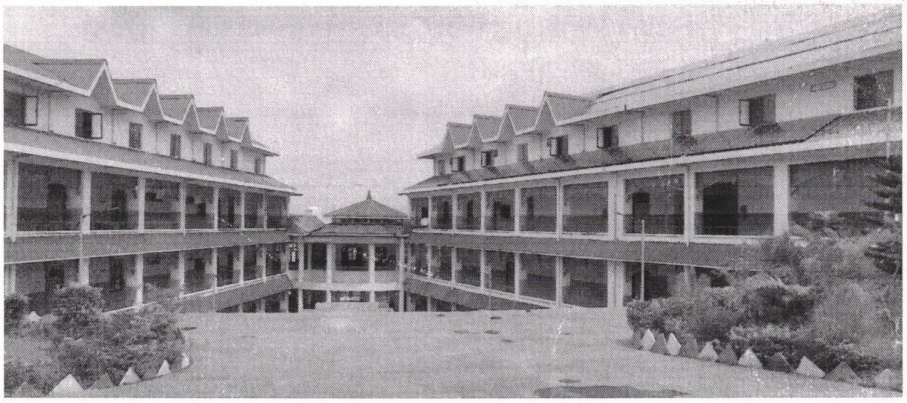
Energy Audit Report for Session 2022–2023



DR. YASHWANT SINGH PARMAR GOVERNMENT POST GRADUATE COLLEGE

Nahan, District Sirmaur (Himachal Pradesh)

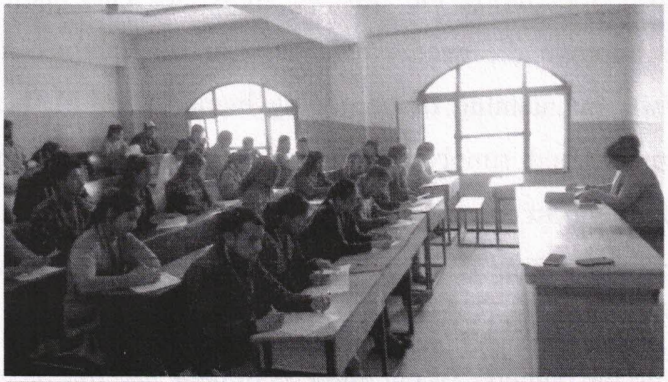
Energy Audit Report for Session 2022-2023

INTRODUCTION:

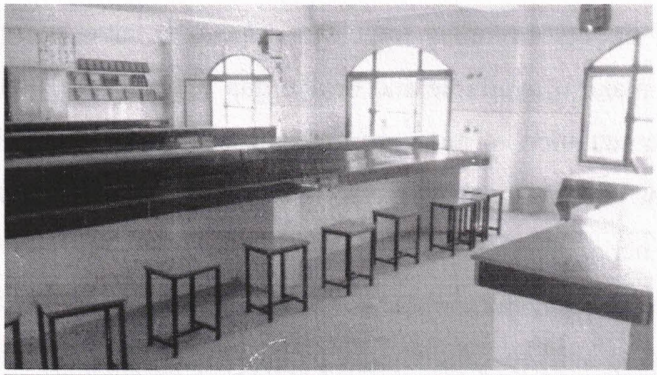
Energy auditing is an on-going process, a part of a larger procedure to ensure long- term sustainable development. Energy audit has been conducted at Dr. Y.S. Parmar Govt. P.G. College Nahan to estimate and analyze the energy consumption and also to propose energy conservation measures. The audit is aimed to make our college more energy efficient by balancing it's load, identifying the wastage areas etc. This audit was conducted to seek opportunities to improve the energy efficiency of the campus. The reduction of energy consumption while maintaining or improving human comfort, health and safety were of primary concern. Beyond simply identifying the energy consumption pattern, this audit sought to identify the most energy inefficient appliances that were in the premises. Moreover, some improvements to some daily practices relating to common appliances are also to be provided which may help in reducing the energy consumption. We have enlisted compatible solutions based on the outcome of our analysis of data, and our recommendations, which can be implemented wholeheartedly in the campus in order to ensure minimizing energy waste and maximizing energy potential. We hope in all earnest that these will be given its due and that the audit will be fruitful in terms of energy conservation. With energy demand increasing day by day, a gap is being created in demand and availability of energy. Therefore, conservation of energy becomes important aspect to save energy. With conservation of energy, we can make it available and bridge gap between availability and demand. For the successful implementation of an energy efficient campus, our College has focused a lot on the enhancement and awareness among the students, teachers, and other members of the institution on Energy alternatives such as solar energy. With the rising awareness on the necessity to save energy, the college has resorted to ways and means for saving electricity. Efforts are made to shift to solar energy phase wise. The classrooms and laboratories are in such manner that they allow sufficient light and air during class hours and as a result, much electricity is saved. The college has adopted means to switch over from conventional source of electricity to renewable resources. Solar Energy Plant has been set up in the college to cater to the dire needs of various departments during power cuts. The energy produced is sufficient to generate power for minimum number of lights and fans. With a larger green

coverage, the college has always adopted all possible means to create a carbon neutral environment.

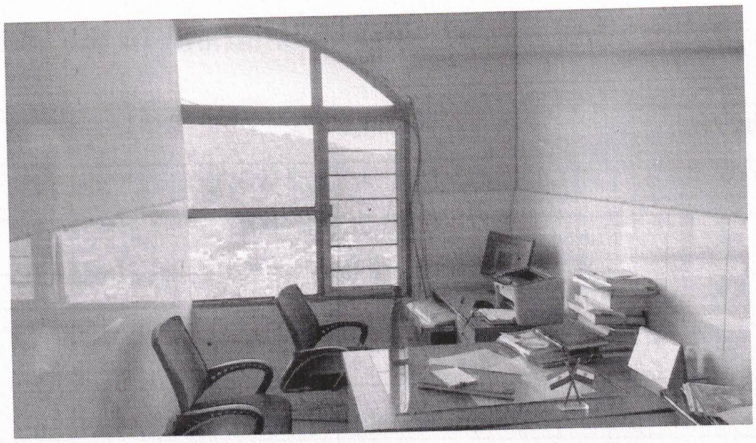
Energy Audit is important to assess use of energy, energy management, and reducing maintenance costs. It helps in reducing consumption and reduces energy bills. Solar energy produced through the installed solar panel is supplied to the grid also, when in surplus ,thus making a lot of savings on the electricity consumption of the institute.



Classroom with large windows, good ventilation and ample natural light



A spacious lab with exhaust fans, large windows and sufficient natural light



Ample Natural light and good ventilation through large window in a cabin

Electricity Savings Practices Adopted in the College:

- Turn off electrical equipment when not in use
- Use of energy efficient (light emitting diode) LED bulbs instead of incandescent and CFL bulbs
- Maintain fault free appliances and replacing old appliances
- Using computers and electrical appliances in power saving mode
- Installed Solar panels
- Artificial lighting is avoided during day time.
- Unplug overhead Projectors, Interactive Panels when not in use.
- Keeping doors and windows closed to maintain the temperature and setting room temperature to 24°C–27°C , while using Air Conditioners.
- while using AC and
- Students are motivated to turn the lights, fans and any other electrical appliances off while leaving a class room.
- Timely switch off water motor installed in campus.
- Number of lights and fans are used as per requirement.

Observations :

Solar energy produced through the installed solar panel is supplied to the grid also ,when in surplus ,thus making a lot of savings on the electricity consumption of the institute. The college has assessed the electrical load calculation. Looking at the range of college activities and working hours, monthly use of electricity in the college is very high. There are fans of older generation and non energy efficient which can be phased out by replacing with new energy efficient fans. Regular monitoring of equipment and immediate rectification of any problems. Awareness on conservation of energy, water and fuel consumption needs to be communicated among the stakeholders. The total energy consumption of the campus,

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Major electrical installations in the college

Sr. No.	Device No.	Quantity
1	LED lights	470
2	Fans	304
3	Air Conditioners	5
4	Computer	125
5	Printer	25
6	Podium	8
7	Projector	12
8	Interactive board	9
9	wi-fi modem	18
10	Photocopy machine	3
11	Duplicator	1
12	Refrigerator	4
13	Geyser	5
14	Spectrophotometer	4
15	Hot air oven	5
16	Microwave oven	4
17	Shaker	5
18	Hot plate	6
19	Tread mill	2
20	Exercise cycle	2

renewable energy use (solar panel of 50kwh capacity), energy saving methods were documented. Administrative block, library, principal's room and computer labs were newly connected to Solar. Due to this a drastic shift obtained in the current bill by saving almost ten thousand rupees per month. A proposal was also made as to how much energy we can save if the replace fluorescent tubes by LED tubes, older fans by star rating new fans. About 20 LEDs were installed during the year and older Fluorescent tubes were replaced by LEDs

Total power required in one month =1700 KVah

Total annual power required= 20400 KVah

Total Energy obtained from renewable energy source (Solar) per month = 440KVah

Total solar Energy for one year =5280 KVah

Percentage of annual power obtained from solar energy: 25.8 %

- D. G. Set -62.5 KVa
- Diesel consumption per month -25 litres
- Total Energy cost @85/litre per month-Rs.2125.00

LED tubes and star rating appliances

- conversion of ordinary tubes into LED tubes can save a major share of power consumption
- Effective use of classrooms and laboratories by switching off electrical gadgets after use Replacement of low power consuming equipment in laboratories instead of old ones.
- Encouraging the application of solar energy

Energy Audit Committee:

1. **Prof. Richa Kanwar, Assistant Professor in Physics**
2. **Sh.Suresh Kumar Sharma Supdt. G-I**

Principal
Dr. Yashwant Singh Parmar
Govt. P.G. College, Nahan

Principal
Dr. Y. S. Parmar Govt. college Nahan

Energy Audit Certificate

It is certified that an Energy Audit has been conducted in Dr. Y.S. Parmar Govt. P. G. College Nahan, Dist. Sirmaur (H.P.) for the session 2022-2023. Energy costs, Energy supply reliability and methods to reduce energy consumption has been assessed.

Auditor

Assistant Engineer
Elect. Sub-Division No.1
HPSEBL, Nahan