SRI SIDDHARTHA ACADEMY FOR HIGHER EDUCATION

(A Constituent College of Sri Siddhartha Academy of Higher Education, Accredited by NAAC with 'A' grade)
Agalakote, Tumakuru -572 107, Karnataka, India.

REPORT ON ENERGY AUDIT OF SSAHE CAMPUS 2021

Submitted to:

The Registrar,
SSAHE, Tumakuru

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PREFACE

An energy audit is a study of a plant or facility to determine how and where energy is consumed and to identify methods for energy savings opportunities. There is now a universal recognition of the fact that new technologies and much greater use of some that already exist provide the most hopeful prospects for the future. The opportunities lie in the use of existing renewable energy technologies, greater efforts at energy efficiency and the dissemination of these technologies and options.

This energy audit of the Sri Siddhartha Academy of Higher Education campus area was carried out by the members of the Energy auditing team. The presented report is a starting step, a mere mile marker towards our destination of achieving energy efficiency and we would like to emphasize that an energy audit is a continuous process. We have compiled a list of possible actions to conserve and efficiently utilize our scarce resources and identified their savings potential. The next step would be to prioritize their implementation. We look forward with optimism that the Sri Siddhartha Academy of Higher Education campus authorities, staff and students shall ensure the maximum execution of the recommendations and the success of this work.

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1. INTRODUCTION:

For the development of any country the first important requirement needed is energy. To develop both socially and economically no option is getting prior without energy, but nowadays energy overview of the world is not in pleasurable condition. Though quantity of natural resource is decreasing day by day, wastage of natural resource in different field is not controlled due to lack of proper management. Energy Auditing will be possible strategy in energy management case to control such type of wasting in some fields like industries, power plants, houses, different types of shops and Hospitals. The fundamental goal of energy management is to produce goods and provide services with the least cost and least environmental effect. The term Energy Management means, the strategy of adjusting and optimizing energy, using systems and procedures so as to reduce energy requirements per unit of output while holding constant or reducing total costs of producing the output from these systems.

The Objective of Energy Management is:

- The analysis of building and utility data, including study of the installed equipment and analysis of Energy Bills.
- The survey of the real operating Conditions.
- The understanding of the building behaviour and of the interactions with weather, occupancy and operating schedules.
- The selection and the evaluation of energy conservation measures.
- The estimation of energy saving potential.
- The identification of customer concerns and needs.

- To achieve and maintain optimum energy procurement and utilization throughout the organization.

- To minimize energy costs and waste without affecting production and quality.

- To minimize environmental effects.

The Purposes of Energy Management are Mentioned below:

- Improving energy efficiency and reducing energy use, thereby reducing costs.

- Reduce greenhouse gas emissions and improve air quality.

- Cultivating good communication on energy matters.

- Developing and maintaining effective monitoring, reporting and management strategy for wise energy usage.

- Finding new and better ways to increase returns from energy investments through research and development.

Energy conservation could protect the present reserve of energy from the culture of wasting. This energy audit has been focused to assess the state of energy usage. The technical survey for the energy audit to monitor the consumption in SSMC campus has been studied. All attempts are taken to the total energy input as per consumption. As a result of the study the areas where the energy is wastefully used and the improvements are felt, are identified and

corrective measures are recommended so that the overall field efficiency could be improved. Energy sovereignty of the country could be ensured through the effective practice of energy audit which would determine the way to set increasing energy efficiency of all resources crucial with respect to both environment and economy of the country. Energy auditing is a must for the energy sovereignty of our organization & country.

2. Electrical Energy Consumption:

2.1 Power Consumption as per Electricity Bill-2021

Sl .No	Month	Consumption Unit (kWhr)
1	Jan-21	1,15,575
2	Feb-21	1,20,916
3	Mar-21	1,04,076
4	Apr-21	1,28,816
5	May-21	1,15,851
6	June-21	1,28,745
7	July-21	1,15,955
8	Aug-21	1,10,455
9	Sept-21	1,21,795
10	Oct-21	1,22,260
11	Nov-21	1,21,578
12	Dec-21	1,20,540
Yearly Total Power Consumption		**14,26,562**
Monthly Average Power Consumption		**1,18,880**

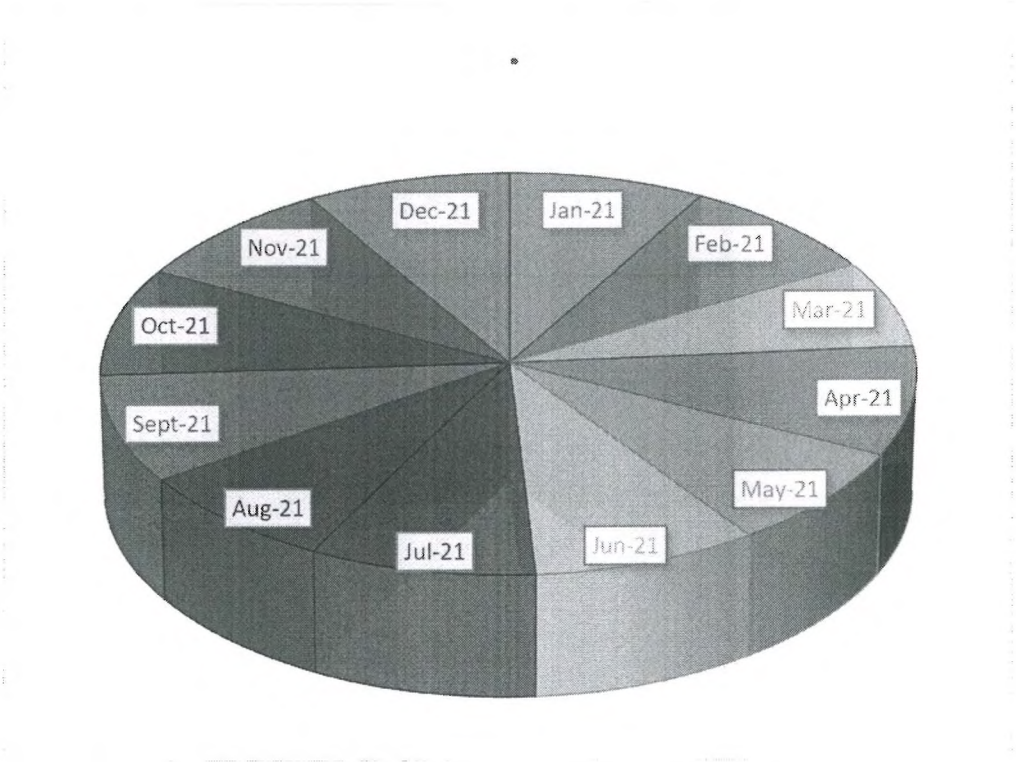
2.2 Power Consumption as per Energy Audit–2021

Sl .No	Month	Consumption Unit (kWhr)
1	Jan-21	93,615
2	Feb-21	95,766
3	Mar-21	79,618
4	Apr-21	98,863
5	May-21	89,668
6	June-21	97,331
7	July-21	96,011
8	Aug-21	90,462
9	Sept-21	97,010
10	Oct-21	98,603
11	Nov-21	98,566
12	Dec-21	96,018
Yearly Total Power Consumption		**11,31,531**
Monthly Average Power Consumption		**94,294**

- **By adopting energy measures, the total number of units saved per annum = 14,26,562 kWhr - 11,31,531 kWh = 2,95,031 kWhr**

- **Total money saved per annum as per audit = Rs 16,22,671**

2.3 Graphical Representation of Monthly Electrical Power Consumption (kWhr) year 2021 : -



3. Recommendations for Better Energy Efficiency:

- Replace all old motors by energy efficient motors.
- Replacing conventional choke of all FTL's by Electronic choke.
- Use of motion sensors in corridors and toilets, Avoiding Using photocopier Machine in the Sleepy Mode when not in use.
- Replacing all FTL's by LED lights of equal similarities.
- Replacing all Laser Printers by Ink-jet Printers.
- Replacing CRT monitors of PC's with LED monitors.
- Replacing old UPS by energy efficient UPS.
- Regular maintenance of batteries.
- Automate your appliances with smart assistants.
- Bring in more natural light with mirrors and bright walls.
- Switch out incandescent lights.
- Unplug battery chargers when not in use.
- Automate thermostat according to the time of day.
- Set your computer to sleep or hibernate mode when not in use.
- Use electric kettle to boil water instead of a microwave in hostels and guest houses.
- Install low-flow shower heads in hostels.
- Additional APFC been recommended to maintain quality power.

4. Conclusion:

Energy audit is an effective tool in identifying and pursuing a comprehensive energy management program. A careful audit of any type will give the organization a plan with which it can effectively manage the energy system optimally leading to economic advantages.

In this report, a detailed study has been made to optimal use of the electrical energy consumption in the complete campus of SSMC, Tumakuru. Considering the data for four years and the numerical results presented. It highlights the amount of energy savings that can be obtained in an educational Institution, thereby energy crisis can be reduced considerably.