

ENERGY AUDIT OF SGK GOVERNMENT DEGREE COLLEGE, VINUKONDA

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1. INTRODUCTION

The purpose of an energy audit is to quantify electrical energy consumption and recommend where savings are possible. A 'walk through audit' or 'site survey' involves looking at every piece of light and equipment that consumes energy, recording power ratings and estimating operating hours. Obvious energy wastes and inefficiencies are identified as items requiring maintenance or replacement. An action plan for an energy management strategy can be formulated as a result of the audit. For the planning of new and renovated buildings, the audit includes an assessment of all proposed energy consuming equipment, which enables the preparation of an energy budget. An energy audit of SGK Government Degree College campus was conducted with these objectives and to develop an energy management plan for the college.

2. AIM

Conducting energy audit and suggesting energy conservation measures in SGK Govt. Degree College campus.

3. OBJECTIVES

- To assess the current pattern of electrical energy consumption on the college campus
- To know the ways of energy loss
- Suggesting and implementing energy saving program

4. METHODOLOGY

The energy audit was conducted through a walk-through survey of the college campus. College areas are allotted to two groups of two members each.

4.1. SITE SURVEY

In each location, members typically visited the rooms to estimate the number of lamps, the types of lamps (incandescent or fluorescent, CFL and LED) and the lamps' power rating (number of watts) and hours of daily use. The same procedure is repeated for equipment, instruments and other electrical installations. Energy meter readings of the college were taken by a batch of members on all site survey days.

5. RESULTS AND OBSERVATIONS

ROOM NO	NO.OF LED LIGHTS	Type of Light	Avg.No . of Hours used/day	Units of Consumption/day	NO. OF FANS	Avg.No. of Hours/day	Units of Consumption/day
1	4	Incandescent	0.5	0.06	2	1	0.1
2	0	LED	0.01	0	0	0	0
3	4	Incandescent	1	0.12	2	2	0.2
4	4	Incandescent	0.01	0.0012	2	1	0.1
5	3	LED	0.01	0.0006	2	1	0.1
6	1	Incandescent	0.01	0.0003	1	1	0.05
7	3	Incandescent	0.01	0.0009	1	1	0.05
8	1	Incandescent	0.01	0.0003	2	4	0.4
9	4	LED	7	0.56	5	4	1
10	2	Incandescent	0.01	0.0006	2	4	0.4
11	1	LED	0.01	0.0002	1	4	0.2
12	2	LED	0.01	0.0004	2	2	0.2
13	2	Incandescent	0.01	0.0006	2	4	0.4
14	2	LED	0.01	0.0004	2	4	0.4
15	5	Incandescent	6	0.9	4	4	0.8
16	1	LED	0.01	0.0002	0	0	0
17	0	LED	0.01	0	0	0	0
18	0	Incandescent	0.01	0	0	0	0
19	2	Incandescent	0.01	0.0006	0	0	0
20	1	Incandescent	0.01	0.0003	0	0	0
21	0	LED	0.01	0	0	0	0
22	6	LED	0.5	0.06	3	2	0.3
23	2	Incandescent	0.01	0.0006	3	2	0.3
24	1	LED	0.01	0.0002	0	0	0
25	1	LED	0.01	0.0002	0	0	0
26	0	Incandescent	0.01	0	0	0	0
27	4	LED	2	0.16	1	3	0.15
28	1	Incandescent	2	0.06	1	5	0.25

29	2	LED	1	0.04	2	3	0.3
30	4	LED	0.01	0.0008	3	3	0.45
31	2	Incandescent	2	0.12	3	2	0.3
32	2	LED	0.01	0.0004	0	0	0
33	2	Incandescent	0.01	0.0006	0	0	0
34	2	Incandescent	0.01	0.0006	0	0	0
Open area	1	LED	7	0.14	1	2	0.1
Total	72		29.25	2.23	47	59	6.55

Consumption in other Electrical and Electronics Equipment

S.No	Item	No. of items	Usage in hours/day	Units of Consumption/day
1	Refrigerator	3	24	3.6
2	Computer	30	2	6
3	Computer	40	2	2
4	Xerox Machine	1		2
5	Printers	1		0.2

Total Consumption per day in units: 22.58

6. CONCLUSION AND RECOMMENDATIONS

In the energy audit conducted at SGK Government Degree College, it was found that incandescent bulbs consume the most electricity. The usage pattern of ceiling fans also contributes significantly to the high cost of electricity. Age and condition of fans should also be checked and controlled for significant reduction in energy consumption. Instead of using incandescent bulbs, LED bulbs can be used. Instead of conventional fans, BLDC fans could be used for reduced consumption. Outdoor energy consumption can be significantly reduced by using solar lights in all such areas.

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