GOVERNEMNT DEGREE COLLEGE, CHEBROLE
Guntur District, Andhra Pradesh, Pin 522212
Affiliated to Acharya Nagarjuna University
Email: jkc.chebrole@gmail.com Phone No. 08644-254221

ENERGY AUDIT OF GOVERNMENT DEGREE COLLEGE, CHEBROLE – 2018-19

1. INTRODUCTION

Date: 04-01-2019

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 ***Government Degree College, Chebrole*** campus was conducted with these objectives to develop an energy management plan for the college.

2. AIM

Conducting energy audit and suggesting energy conservation measures in Government Degree College, Chebrole, Guntur district.

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 campus of Government Degree College, Chebrole, Guntur district. 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 i.e., incandescent or fluorescent, CFL and LED and the lamps' power rating i.e., 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.

CALCULATION OF AVERAGE ELECTRICAL ENERGY CONSUPTION PER DAY

Location (Room No. / veranda / open space / Main gate	*Description of electrical equipment*	*Quantity*	*Wattage of the each equipment (in Watts)*	*Average No. of hours used per day (in hours)*	*Electrical energy consumption per day (kWh)*
Room No. 01	Tube lights	4	36	7	1.008
Room No. 01	Ceiling fans	4	75	7	2.1
Room No. 01	Xerox machine	1	1500	1	1.5
Room No. 01	Desktop computers	2	200	7	2.8
Room No. 01	hp LaserJet Printer	2	2000	0.5	2
Room No. 02	LED tube lights	4	20	7	0.56
Room No. 02	Tube light	1	36	2	0.072
Room No. 02	0.5 HP water motor	1	380	1	0.38
Room No. 02	Ceiling fans	2	75	3	0.45
Room No. 02	Air conditioner	1	2000	1	2
Room No. 03	LED tube lights	6	20	7	0.84
Room No. 03	Ceiling fans	5	75	7	2.625
Room No. 04	LED tube lights	4	20	7	0.56
Room No. 04	Ceiling fans	4	75	7	2.1
Room No. 04	Desktop computers	7	150	3	3.15
Room No. 05	LED tube lights	1	20	7	0.14

Room No. 05	Ceiling fans	1	75	7	0.525
Room No. 06	Tube lights	2	36	6	0.432
Room No. 06	Ceiling fans	4	75	6	1.8
Room No. 07	Tube lights	3	36	6	0.648
Room No. 07	Ceiling fans	4	75	7	2.1
Room No. 08	Tube lights	2	36	6	0.432
Room No. 08	Ceiling fans	2	75	6	0.9
Room No. 08	Laptops	30	55	3	4.95
Room No. 09	LED tube lights	2	20	7	0.28
Room No. 09	Ceiling fans	2	75	7	1.05
Room No. 10	Tube lights	2	36	5	0.36
Room No. 10	Ceiling fans	2	75	5	0.75
Room No. 11	LED tube lights	4	20	3	0.24
Room No. 11	Ceiling fans	3	75	3	0.675
Room No. 12	LED tube lights	2	20	3	0.12
Room No. 12	Ceiling fans	1	75	3	0.225
Room No. 13	LED tube lights	2	20	3	0.12
Room No. 13	Ceiling fans	1	75	3	0.225
Room No. 14	LED tube lights	2	20	3	0.12
Room No. 14	Ceiling fans	1	75	3	0.225
Veranda (ground floor)	LED tube lights	3	20	12	0.72
Veranda (first floor)	LED tube lights	1	20	10	0.2
Open campus	LED street lights	2	20	12	0.48
Main gate	LED street light	1	20	12	0.24
Total units of consumption per day (kWh)					**40.102**

The above calculated average consumption of electrical energy units per day were approximately coincided with average daily consumption units of electrical energy as per invoice issued by the power supply authorities.

6. CONCLUSION AND RECOMMENDATIONS

Energy audit was conducted in the campus of ***Government Degree College, Chebrole, Guntur district*** during the period from ***04-01-2019 to 05-01-2019*** for a period of 02 days. In the energy audit conducted at ***Government Degree College, Chebrole, Guntur district,*** following conclusions were arrived.

- It is observed that there are fluorescent tube lights in use which must be replaced with LED tube light to save energy.
- It was found that fans 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 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. Necessary steps must be taken to install Solar Power unit in the campus.

Chebrole,
Dt. 05-01-2019.

05/01/2019
ASSISTANT ENGINEER
OPERATION, APCPDCL
CHEBROLU