Energy audit report (2020-21)
Morigaon College
Morigaon

(Submitted to the Principal, Morigaon College, Morigaon Assam)

Submitted by

Babul Talukdar 08/4/2021
Mr Babul Talukdar
Associate Professor
Department of physics,
Morigaon College

8/4/2021
Mr. N. I. Ali Ahmed
Associate Professor
Department of Physics,
Morigaon College

Introduction

Energy audit is the key to a systematic approach for the decision making in the area of energy management. It attempts to balance the total energy inputs with its use and serves to identify all the energy streams in a facility. The primary objective of energy audit is to determine ways to reduce energy consumption per unit of product out put or to lower operating cost.

Data collection and cost

The energy audit survey was completed by Department of Physics, Morigaon College. All data collected from each class room, laboratory, canteen, auditorium, indoor stadium etc., I.e. from the entire college campus. The work was completed by considering the number of lights (LED or Tube), Fans, AC etc, incorporating its power consumption.

In this report, we have summarized a comparative analysis of the total electrical load available in the college campus and the latest electricity bills (received from ASEB/APDCL) of the campus.

Result and discussion

Data Collection

Serial No	Name of the electrical equipment	Quantity	Average Energy consumption in each per hour	Total power consumption in 5 hours
1	CFL light	07	20 Wh	700 Wh
2	LED bulbs	149	08 Wh	5,960 Wh
3	LED tubes	162	20 Wh	16,200 Wh
4	General Tube	167	40 Wh	33,400 Wh
5	Fans	456	80 Wh	1,82,400 Wh
6	Exhausted Fan	13	65 Wh	4,225 Wh
7	Computers	56	70 Wh	19,600 Wh
8	Printers	25	80 Wh	10,000 Wh
9	Air Conditions	06	1500 Wh	45,000 Wh
10	LCD notice	03	60 Wh	900 Wh
11	CCTV	15	50 Wh	3750 Wh
12	TV	1	60 Wh	300 Wh
13	Xerox Machine	02	200 Wh	2000 Wh
14	Projector	19	100 Wh	9500 Wh
15	Fridge	07	500 Wh	17500 Wh
16	Water purifier	06	25 Wh	750 Wh
17	Electrical motors	07	02 Nos. 0.5 HP 04 Nos. For 1 HP 01 No. for 1.5 HP	24,000 Wh

Total power consumption per day: 193785 Wh= 193.8 kWh

Total power consumption in one month = 5814 kWh

Review of Documents and records

Power consumption as received from ASEB/APDCL

Serial No	Billing Month	Consumption unit (kWh)
1	July 2020	2481 kWh
2	August 2020	2430 kWh
3	September 2020	2483 kWh
4	October 2020	2667 kWh
5	November 2020	2509 kWh
6	December 2020	2547 kWh
7	January 2021	2510 kWh
8	February 2021	3498 kWh
9	Mars 2021	5726 kWh
10	April 2021	4350 kWh
11	May 2021	4120 kWh
12	June 2021	3410 kWh

Total Power consumption in one year=38731 kWh

Average power consumption in one month= 3227.6 kWh

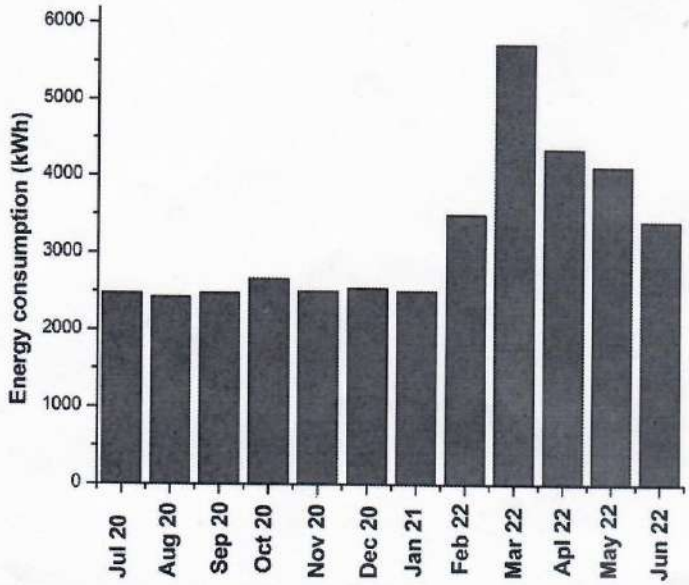

Fig: Data representing the energy consumption throughout the year 2020-21

Conclusion

Here, we estimate total load from all the electrical equipment ~ 5814 kWh in a month, considering 5 hours of working in each day. As received from the ASEB/APDCL energy consumption report, average utilization of power in one months is calculated to a value of 3227.6 kWh.

In case of unwanted power failure, the college is facilitated with a generator, which can generate 75 KVA.

In addition, our college campus has 12 solar street light, which generates ~28 kWh in a month.

Recommendation

* Replacing CFLs by more efficient LED lamps
* As we know, in our college campus, there is a huge consumption of electrical energy which is not economical, instead of electrical energy we can switch to a alternate energy source, like solar energy as much as possible.
* There may be some notice board in the college campus displaying the energy saving awareness.
* We can run SWITCH OFF drills at the college campus.

Acknowledgement

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Babul Talukdar
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