

ENERGY AUDIT

As per Energy Conservation Act, 2001; the Energy Audit must include verification, monitoring, and analysis of the use of energy including submission of a technical report containing recommendations for improving energy efficiency with cost-benefit analysis and an action plan to reduce energy consumption. The scope of the energy audit hence includes the collection of all relevant data, documents, electricity bills, log books relating to electricity use & operations etc., inspection of the buildings & installations and then, to analyze the data to evaluate and assess energy use and also, to suggest measures to reduce energy use and improvement of performance. The present audit therefore aimed to cover the aggregate consumption of electrical and natural gas energy in Lakhipur College covering all academic and administrative blocks and hostels. Energy use is clearly an important aspect of campus sustainability and thus, requires no explanation for its inclusion in the assessment.

Source and consumption of Energy

In Lakhipur College, energy is mainly used to manage and run the 1) lighting's load, 2) laboratory equipments, 3) office equipments, 4) air conditioners, 5) water cooler 6) fan, 7) water pump and 8) Cleaning and construction gadgets.

The primary source of the energy for Lakhipur College is the electricity received from Assam Power Distribution Company Limited supplied through a 14 KW connected load under the Consumer No. 041010115125 under the LT Category. The College has also 01 Diesel run generator set of 25 KW capacity which is mainly used during power failure in the Examination seasons. LPG is utilised in Canteen and office kitchen only.

Table 7: Energy consumption in Lakhipur College

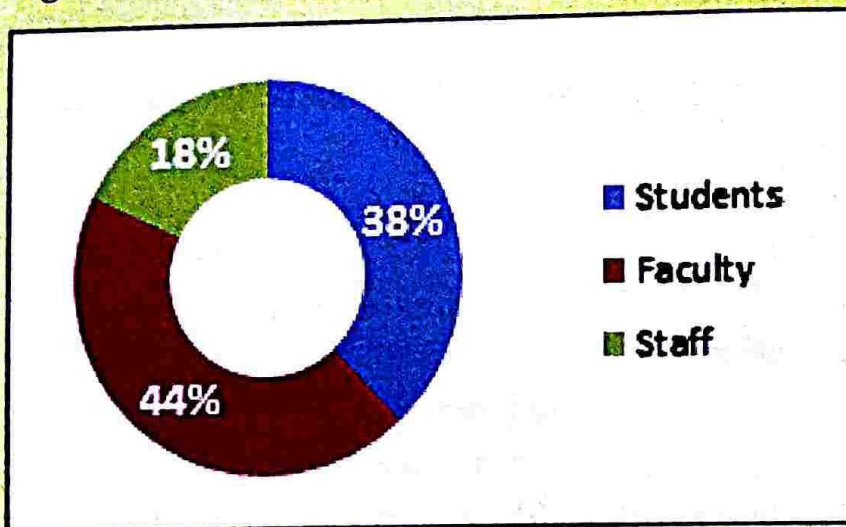
Annual Electrical Energy consumption (2021-2022)	: INR 10121.00 per month (In terms of money)
LPG requirement per year	: 60 Nos
Fuel (Diesel)	: 330 L/ year (Average 27.5 L./month)
Water Pump	: 03 (1.0 HP)
No of energy efficient AC	: Nil
Refrigerator	: Nil
Xerox machine	: 03 Nos
Water Cooler	: 01 Nos
Inverter	: 02 Nos
Online UPS	: Nil
Fan	: 85 Nos
Percentage replacement of Non- energy efficient machines in last 2 years	: 0%
Installation of energy installation machine in last 2 years	: 2 Nos.
No of LED installation at present:	: 88 (Bulb/Tube)
Percentage of increase of LED installation in last 2 years	: 100%
Building energy performance index	: 10.13 Kwh/m ² /year

Energy efficiency assessment

The Energy efficiency assessment was conducted for the load connected to the mains supply of college buildings. The entire campus including common facilities is equipped with LED lamps and LED tube lights. All computers are set to automatic power saving mode when not in use.

A good habit of the stakeholders was observed that all the electrical appliances including the bulbs are usually shut down when not in use, more specifically during the vacations excluding a few essential points which are essential to illuminate the campus. Monitoring mechanism exists in put-on and put-off the electrical appliances is a laudable eco-friendly effort of the College (Fig 4)

Fig 4: Stack holders' involvement in energy conservation



Suggestions and recommendations

- Looking at the energy consumption rate, the College must think for energy conservation practices along with exploring of green energy in future.
- Augmentation of solar power will make the college self sufficient in energy consumption and production.
- Old and non efficient electrical gadgets are to be replaced as far as practicable.
- 5 star rated ACs, Fans and other electrical appliances should be used in the campus to reduce further loss of energy.
- Cleaning of tube lights and bulbs to be done periodically to remove the dust over it.
- Regular maintenance of electrical gadgets be done.