

NILAMBAZAR COLLEGE, NILAMBAZAR, ASSAM

Estd. 1988



Nilambazar College



ENERGY AUDIT REPORT

**NILAMBAZAR COLLEGE, NILAMBAZAR
KARIMGANJ (ASSAM) – 788722**

Email ID - nilambazarcollege@gmail.com

Website - www.nilambazarcollege.ac.in





1. About the College:

Nilambazar College was established in the year 1994 by some eminent social activist, educationist as well as philanthropist of the locality. This college is the only higher educational institution in South Karimganj Constituency located nearby NH - 8 and about 15 kms away from Karimganj town. It has started the teaching - learning process following the course curriculum of Assam University, Silchar in the temporary campus of S.V. Vidyaniketan, Nilambazar, Karimganj. After that on 16th July of 1997 the college shifted to its permanent address which is located at vill -Bidyanagar near the NH - 8.

The college is permanently affiliated to Assam University, Silchar and the core subjects offered by the college are - Arabic, Bengali, Economics, Education, English, History, Philosophy, Political Science & Sanskrit. Out of these subjects Arabic, Bengali, Philosophy & Political Science departments have major course. The college has been registered under sections 2(F) & 12 (B) of the UGC Act, 1956. Since its inception, the college has been rendering quality higher education to students, following participatory methods in a friendly and learner centric atmosphere.

2. Concept :

Energy is one of the most important inputs for the overall economic development of any country. In the case of the developing countries, the energy sector assumes a critical importance in view of the ever increasing energy needs requiring huge investments to meet them. In Indian context also it plays a crucial role in almost all major sectors of the economy including agriculture, industry, transport, commercial, residential (domestic) and educational institutions. As a result the consumption or use of energy in different forms has been steadily rising all over the country, which has shown a steady growth rate in the past few years. This has led to the sudden increase in the dependence of the state on fossil fuels and electricity. The Government of India enacted the Energy Conservation Act, 2001 in October 2001. The energy conservation Act, 2001 became effective from 1st March. 2002. The Act provides for institutionalizing and strengthening delivery mechanism for energy efficiency programs in the country and provides a framework for the much-needed coordination between various Government entities.

Nilambazar College, Nilambazar is an educational institute in Karimganj district of Assam taking oath of reducing energy intensity in the College Campus by conducting Energy Audit. An assessment of energy consumption, energy sources used, energy management, lighting devices used and other appliance used be the college campus community in an important aspect of sustainability of the community. Hence, this is a relevant aspect of the assessment. The audit team assessed the number of electrical appliances and their respective uses in terms of consumption of energy per month in KWh. This indicates the energy management of the campus. Based on the assessment, we made suggestions and recommendations.



Objective of Audit :

The overall objective of the report is to quantify energy saving in existing system and achieve reduction in energy consumption pattern. The objectives of the Audit are as follows :-

- To carry out the rate of energy consumption.
- To evaluate the performance of the equipment.
- To find out the energy saving opportunities.
- To find out the ways to achieve energy efficiency
- To quantify the total energy savings.

3. Scope of the Work :

- a. Assessment of electrical load base on electrical fittings.
- b. Review the existing energy consumption capacity of the college campus.
- c. Review the generator set operation along with the consumption details.

4. Methodology Adopted for Conducting the Audit

a. Interview with Key Facility Personal

At the time of primary audit, a meeting is organized between the auditor and key operating personal to start the assignment. The agenda of the meeting focus on: audit objectives and scope of work, facility rules and regulations, roles and responsibility of project team members and description of schedule project activities.

b. Document Review

During the initial visit by the facility representatives, the available documentation are reviewed which includes all facility operation and maintenance procedures and logs – sheets/ registers for the previous years, electricity bills etc.

c. Facility Inspection

After a thorough review of the operating documentation of the institution, the major energy consuming processes in the facility are further investigated by the representatives.

d. Utility Analysis :

The utility analysis is a detailed review for the previous months. Data reviewed includes energy and energy consumption pattern.

e. Prepare a Report Summarizing Audit Findings :

The findings and recommendations are summarized in this report. The report includes a description of the facilities and their operation and a discussion of all major energy consuming systems.

5. Building Description :

The following Tables show the basic information about the building and the utilities of Nilambazar College, Nilambazar.



Table 1

Sl. No	Basic Building Data	Value
1.	Connected Load	5 KW
2.	Contract Demand	25 KVA
3.	Installed Capacity of DG Set	30 KVA
4.	Annual Electricity Consumption (from 1 st April, 2021 to 31 st March, 2022)	3636 Units
5.	Annual Cost of Electricity Consumption	Rs. 39,680.00
6.	Total Numbers of building Covered	Entire Campus
6.1	Working hours (Academic and administration building)	8.30 Hrs (8.30 AM to 5.00 PM)
6.2	Working Days/ Week	6 Days
6.3	Whether sub-metering of electricity consumption of each building	No

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Table 2

Electricity Bills for the Academic Year 2021-2022

Sl. No.	Period of the Bill	Cheque No. with Date	Amount (Rs)
1.	01/04/2021 to 20/04/2021	107422/ 21.04.21	3625.00
2.	21/04/2021 to 11/05/2021	107424/ 09.06.21	1694.00
3.	12/05/2021 to 09/07/2021	107427/ 20.07.21	1969.00
4.	10/07/2021 to 09/08/2021	107429/ 09.08.21	6007.00
5.	10/08/2021 to 10/09/2021	107436/ 18.09.21	3517.00
6.	11/09/2021 to 12/11/2021	107441/ 12.11.21	6703.00
7.	13/11/2021 to 13/12/2021	107448/ 15.12.21	3824.00
8.	14/12/2021 to 09/03/2022	107450/ 10.03.21	8486.00
9.	10/04/2022 to 30/04/2022`	107454/ 20.04.22	3855.00
Total Amount – 39,680.00			

S.B: It is observed that the Electricity Bill of the audited period could be justified properly as it were under Lock Down for COVID-19 Pandemic. The monthly bill may increase after Lockdown period.

M. Hoque
25/4/2022
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Table 3

Power consumption of Electrical/ Electronic appliances of Nilambazar College.

Ground Floor

Year	Sl. No.	Name of the Electric Device	Quantity	Remarks
2021 -2022	1.	Tube lights	08	
	2.	LED Lights	59	
	3.	Celling Fans	47	
	4.	Table Fans	04	
	5.	Inverter	03	
	6.	Printer	06	
	7.	Xerox Machine	03	
	8.	CC Camera	02 set (42 Nos)	
	9.	Punching Machine	01	
	10.	LED TV	02	
	11.	Computer/Laptop	35	
	12.	Aqua Guard Water Filter	02	
	13.	Water Pump (1 HP)	02	
	14.	Projector	01	
	15.	Sound System	02	
	16.	Power Generator 30 Kilowatt	01	

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1st Floor

Year	Sl. No.	Name of the Electric Device	Quantity	Remarks
2021-2022	1.	LED Lights	14	
	2.	Celling Fans	12	
	3.	Table Fans	02	
	4.	LED TV	01	
	5.	Computer/Laptop	01	
	6.	Projector	01	
	7.	Sound System	01	

2nd Floor

Year	Sl. No.	Name of the Electric Device	Quantity	Remarks
2021-2022	1.	LED Lights	04	
	2.	Celling Fans	13	
	3.	Sound System	01	

M. H. S. S.
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Observation on Electricity Bill Analysis

1. The average monthly energy consumption of the college campus is 303 units.
2. Annual Electricity Bill is Rs. - 39,680.00

6. Diesel Generator (DG) Set :-

Review of present Diesel Generator (DG) Set :

There is one (1) no of DG set with capacity of 30 KVA, which aims used to provide backup power during load shading hours.

Table 4

Make :	KOEL POWER
Model	3R1040T/G1
Rated KVA	30 KVA
Rated KW	24 KW
Voltage	230v
Frequency	50Hz
Phase	1 Phase
RPM	1500
HP	70
PF	0.8

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7. Water Pumping System

The campus has total two (2) numbers of water pumps which are used to meet the daily water requirement in the entire campus.

Observation

The percentage of looking for the 1HP motor is 100% and for the 0.5 HP motor is 0% is acceptable as per the energy conservation measure.

8. Conclusion and recommendations :

Energy Management :

Following recommendations are made for eco-friendly energy consumption-

1. Natural light should be used as far as possible to meet the required illumination level. Especially requirement of artificial light is less during daytime. While using the artificial lights care should be taken so as the lights in each area can be switched off partially when not in use. Also proper naming or numbering of the switches will facilitate the use of them by occupants or staff.
2. Maintenance & operating staff should be trained/informed about the energy management issues & procedures. To implement an effective preventive maintenance program, the operational staff must be given comprehensive training on each type of equipment, regarding system fundamentals, use of reference materials & manuals, maintenance procedures, service guidelines & warranty information. Proper maintenance schedules could be supplied to them for different equipment.
3. Replacement of remaining 20% tube lights by LED lights can help the institute to save a huge amount of electricity consumption.
4. Awareness can be created among the students for the efficient use of electricity and safety precaution and signboards may be hanged in the college campus for the efficient use of electricity.
5. Presently there is no personal transformer for college. It is recommended to install an extra transformer of at least 25 KVA for the college campus.
6. Open lid found in main panel box and need to be closed.
7. Earthing should be taken through the panel instead of wall connection.
8. Rusted wiring found in some place which needs to be replaced.
9. One (1) set solar LED Street lights are seen in the campus. Required solar energy to minimize electricity bill.
10. Load unbalancing found during field visit in electrical distribution system of campus area and hence load needs to be balanced.
11. Distribution panel boxes need to be cleaned.

For the safety purpose, less number of fire extinguisher are seen in the campus area hence; new fire extinguishers need be made available for every floor of the college buildings.



etc



NILAMBAZAR COLLEGE

(PERMANENT AFFILIATED TO ASSAM UNIVERSITY HAVING GOVT. CONCURRENCE)

(RECOGNISED UNDER SECTION 2(f) & 12 (B) OF UGC ACT 1956)

P.O. - Nilambazar, Dist: - Karimganj, Assam - 788722.

Estd: 1994

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Website: - <https://www.nilambazarcollge.ac.in> Mob.9435596311/8753842188.Ph.& Fax No.03843-258484

Memo. No. NBC/22/10

Date. 20/04/2022

To,

The Proprietor
M/S. ASIA DISTRIBUTER
(Govt. Regd. Electrical Contractor)
Anipur, Karimganj
Assam, Pin - 788806

Sub : An appeal to act as an External Auditor of the energy consumed in the College.

Sir,

In response to the subject cited above I am pleased to request you to perform as an external auditor of energy that is consumed in the college from 1st April - 2021 to 31st March - 2022.

I, therefore like to request you to accept the proposal and perform the duty as an External Auditor of energy.

Hoping you will submit the audit report at an earliest convenience.

Principal
Nilambazar College

Principal
NILAMBAZAR COLLEGE
P.O. Nilambazar, Dist. Karimganj





Office of the

M/S. ASIA DISTRIBUTERS

Govt. Regd. Electrical Contractor . Registration No. 7073
Address Vill:- Sunairpar P.O.:- Anipur, Dist:- Karimganj, Assam Pin:- 788734
Mobile :- +917002291379 / +917086919381 GST. No. 18BAHPA4435P2ZF

Nilambazar College
Dist-Karimganj, 788722
Guard File No. N.A. Ad 2/11
Date.. 25.04.2022

Ref. No.:- AD/03

Date:- 25/04/2022

To

The Principal,

Nilambazar College, Nilambazar, Karimganj, Assam – 788722

Subject : Submission of Energy Audit Report.

Dear Sir,

As per your prayer, the energy audit of Nilambazar College, Nilambazar was conducted in the month of April, 2022 to collect data and instantaneous measurement. During the inspection, the College's major mechanical equipment, Fans, Tube Lights, LED lights Computers, Xerox machines, Punching machine, projectors, power generator and all electric devices were evaluated. We also conducted several diagnostic tests on the college to help us quantify the energy efficiency of the institution. After collecting the required data and analyzing those data, Energy Audit Report has been prepared which includes our finding and necessary recommendation to explore energy conservation opportunities. The energy consumption is costing approximately Rs. 63,680/- Per year. The college also facilitated to improve opportunities that will lower energy consumption of the college.

The Report has been attached along with this letter for your consideration. We hope that this activity reduce the overall energy consumption of the college campus and improve the energy efficiency.

Thanking You


25/04/2022

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Assam Pin 788806

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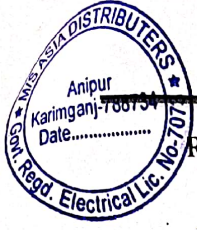
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Ref. No.:- AD-4

Date:- 25/04/2022

ENERGY AUDIT REPORT

NILAMBAZAR COLLEGE, NILAMBAZAR, KARIMGANJ, ASSAM

We are grateful to be a part of the preparation of Energy Audit Report of Nilambazar College, Nilambazar, Karimganj, Assam for the year 2021-22 (from 1st April 2021 to 31st March 2022). As a part of Audit methodology, we have visited Nilambazar College, Nilambazar, Karimganj, Assam on 24/04/2022 to collect data and to take some instantaneous measurements. We have studied the present energy consumption pattern, assessed the actual operating load, illumination study and energy conservation in lighting system. The summary of the Report is as follows -

1. The average monthly energy consumption of the college campus is 303 units.
2. Annual bill is Rs. 39,680.00/-
3. Average unit rate is Rs. 6.56/- (Grid Power)
4. Cost of Generator fuel for the year 2021-22 is Rs. 24,000/-
5. No A/C is found in the campus.
6. Tube lights used should be replaced by LED lights.
7. Presently there is no personal transformer for college. It is recommended to install in extra transformer of at least 25 KVA for the college campus.
8. College has 30 kilowatt Diesel Generator set for uninterrupted power supply in case of supply failure from APDCL.
9. Open lid found in main panel box and need to be closed.
9. Earthing should be taken through the panel instead of wall connection.
10. Rusted wiring found in some place which needs to be replaced.
11. One set Solar LED Street lights is seen in the campus. Required solar energy to minimize electricity bill.
12. The campus area is well facilitated with CCTVs for security purpose.
13. Load unbalancing found during field visit in electrical distribution system of campus area and hence load needs to be balanced.
14. Distribution panel boxes need to be cleaned.

For the safety purpose, fire extinguisher are not sufficient in number in the campus area, hence; new fire extinguishers need based to be made available for every floor of the college buildings.

We, hope that this activity will improve the energy efficiency and reduce the overall energy consumption of the college campus.

Internal Auditor:

Dr. Altaf Hussain
Asst. Prof. Dept. of Economics,
Nilambazar College

External Auditor:

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