

To
The Principal
Nabajyoti College, Kalgachia
Barpeta, 781319

Date: 05 April 2023



SUB: Energy Audit Report

Respected Sir,

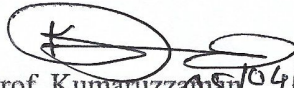
The data collected after completing the study on the college's electrical infrastructure from **November 2020** to **November 2022** has been analyzed and presented in the enclosed report verified by Mridul Hussain, Electrical Supervisor, Barpeta. The report focuses on recommendations to increase productivity, save energy, improve power quality, and reduce failure, thereby improving the Power, Productivity, and Profitability of our plant.

A concerted attempt has been made to depict the current situation as it may be improved. We trust you will find our observations and recommendations valuable and will make a serious effort to put the recommended ideas into action and reap the anticipated advantages.

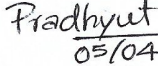
We use this occasion to show our gratitude and thanks to the authorities and management for retaining trust in our potential and taking a constructive attitude.

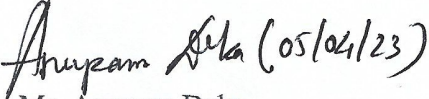
Thank you once more, and we look forward to a long and fruitful association with your efforts to increase dependability and minimize energy losses in our institution.

Yours sincerely


Prof. Kumaruzzaman
HoD & Associate Professor
Department of Physics
Nabajyoti College, Kalgachia
Barpeta, 781319


HoD
Department of Physics
Nabajyoti College, Kalgachia


Dr. Pradhyut Rajkumar
Assistant Professor
Department of Physics
Nabajyoti College, Kalgachia
Barpeta, 781319


Mr. Anupam Deka
Assistant Professor
Department of Physics
Nabajyoti College, Kalgachia
Barpeta, 781319

1. Analysis of the Electrical Distribution System

Sl. No.	Particulars	Observation	Remarks
1	Is the distribution of load satisfactory?	YES	
2	Condition of electrical wiring	Good overall. In some rooms, worn-out wiring was observed	New ones must replace worn-out wiring
3	Type of wiring	Concealed and open	Casings must be put on loose wire connections
4	Whether electrical equipment pieces operating at a specified voltage or current?	YES	
5	Rating of fuses/junction boxes as per standards	YES	
6	Whether a single isolating switch is available for the whole premises	YES	Rating: 100 A MCCB
7	Earth pits identified	YES	13 No. of pits identified
8	Condition of earthing	FAIR	Needs to be improved
9	Earth connection to equipment	Proper in most of the rooms	Needs Improvement
10	Cable laying condition	GOOD	
11	Cable terminations	PROPER	
12	Meter and Main condition	GOOD	
13	Panel Board condition	GOOD	
14	LED lights and energy-saving appliances	FAIR	LEDs must replace all the old energy-consuming Incandescent and CFL bulbs.
15	Rating of cables as per standards	YES	
16	Generator capacity and condition	10 kVA and GOOD	



 Electrical Supervisor
 Regd No.- 11124

2. Analysis of incoming grid supply


Parameters		Reading	Normal Range	Remarks
The voltage at the incoming panel	L1-L2 → R-N	373.08 V	380-430 V	Needs to be improved
	L2-L3 → Y-N	389.97 V	380-430 V	Satisfactory
	L3-L1 → b-N	377.24 V	380-430 V	Needs to be improved
	R-N	215.94 V	200-240 V	Satisfactory
	Y-N	225.15 V	200-240 V	Satisfactory
	b-N	217.80 V	200-240 V	Satisfactory
	N-E	0 V		Satisfactory
Frequency of supply		50 Hz		Satisfactory

3. Energy Consumption

Consumer's room description	Light			Fan		Socket		Exhaust fan	Inverter
	Bulb	Tube light	Halogen	Ceiling	Wall mounted	6 A	16 A		
Administration									
Principal's chamber	8	-		6		3	11	-	1
Principal's office	8	1		6	1	12	18		
Exam Zone	11	-		6		3	3	2	
Conference Hall	6	2	2						
Vice Principal's chamber	2	1		1		2	3		
Exam cell	9			6	1	6	10		
IQAC	5			2	1	9	3		
Student's Union Cell	2			2		1	2		
Academic									
Physics	22	3		25		8	40	2	1
Zoology	20	2		19		23	9		1
Chemistry	26	2		14		11	7	5	1
Botany	28	1		19		6	13		1
Mathematics	10			10		4	31		
Arts Building (English, Economics, History, Arabic, Philosophy)	11			8		3			


 Electrical Supervisor
 Regd No.- 11124

Political Science	2			2		1	1		
Assamese	2			2		1			
Education	2	4		1	1	4			
Library (Ground floor)	19			17		11	26		
Library (1 st floor)	3			3		3	22		
Dept. of Yoga	4			6		2			
Computer lab		6		6		77	2		
Classrooms									
Room 1	3			8			2		
Room 2	3			6		1			
Room 3	2			6					
Room 4	3			4		1			
Room 5	6			9		2			
Room 6	4			9					
Room 7	6			18		3			
Room 18	2			4		1			
Room 19	4			8		2			
NB-001	4			7		2	1		
NB-002	4			7		2	1		
NB-003	4			7		2	1		
NB-101	5			7		2	1		
NB-102	5			7		2	1		
NB-103	5			7		2	1		
DB-01		6		6		10			
DB-02		6		6		10			
DB-03	2	6		6		4			
DB-04	6	4		7		6			
DB-05	4	4		6	1	10			
Non-academic									
Career Guidance Cell	2			1		1			
Student's Union	2			2		1	2		
Gymnasium	8			2		2			
Canteen	6			4		2	2		
Hostels									
Boy's Hostel	109			40		22	5		
Girl's Hostel	37	5		17		16	3		
Outskirts of the College									
	59		3						



 Electrical Supervisor
 Regd No.- 11124

4. Analysis of Power Consumption

1. The **Consumer Account No.** for Nabajyoti College, Kalgachia is **64000003012**.
2. The total power consumption of the Nabajyoti College, Kalgachia, and the Boy's Hostel of the college from November 2020 to November 2022 is **50,373.48 kWh**. The corresponding average power consumption during the same period is **2014.94 kWh**.
3. The total power consumption of the Girl's Hostel of the Nabajyoti College, Kalgachia from November 2020 to November 2022 is **19,957 kWh**. The corresponding average power consumption during the same period is **798.67 kWh**.
4. The average power factor from November 2020 to November 2022 is **97.47**, which is satisfactory.
5. The maximum demand is **71 kVA** during the period November 2020 – November 2022.
6. The connected load is **60 kW**.
7. The contracted load is **71 kW**.

5. Recommendations:

1. Open wiring is often observed, which should be replaced with concealed wiring.
2. Although thirteen earth pits have been created, they may not be enough to accommodate all of the equipment and gadgets used in laboratories and workplaces. As a result, it is proposed that extra earthing pits be included. The earthing connections should be examined regularly.
3. The bulk of the lights used are constituted by CFLs or filament type, which should be replaced with LED lights to reduce power usage.


Electrical Supervisor
Regd No.- 11124