

# ENERGY AUDIT REPORT

2021 - 2022

## KAMRUP COLLEGE

BALIPATHAR, CHAMATA, DISTRICT: NALBARI

ASSAM, PIN: 781306

*Audited by*

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### **To Whom It May Concern**

This is to certify that the undersigned has successfully completed the audit of energy utilization of Kamrup College, Chamata, Dist. Nalbari, Assam for the year 2021 – 2022.

The college has been taking lot of initiative to create awareness amongst the students, teachers and other stakeholders to make the college campus an energy efficient campus. Effort has been made to replace conventional electrical gadgets with energy efficient devices in a phased manner. The college has been planning to install roof-top solar plant as an alternative source of energy for producing electricity to meet certain demand in the near future.

I wish that Kamrup College will emerge as an institute of Green Campus in the near future.

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## I. Introduction:

Kamrup College was established in the year 1966 and one of the oldest institutions of Higher Education in West Nalbari of Nalbari district, Assam.

Energy Auditing is a routine procedure of monitoring energy consumption and conservation of industry/organization/institute and its analysis.

This report presents the energy audit of the Kamrup College after verifying all electrical loads, its connections, protection schemes and optimal utilization of electricity.

## II. Electrical Load of the Campus:

The electricity supply to Kamrup College is provided by the Assam Power Distribution Company Limited. A 63 kVA 3-phase transformer is installed to transfer power to the college.

Consumer No.: 064000066323      Connected Load: 20 kW

Contracted Demand: 20 kVA      Tariff Category: HT- IV Bulk Supply (Others)

Supply Voltage Level: HT      Average Power Factor: 0.85

The following sections give details of electrical gadgets used by different academic and administrative blocks of the college.

### 1. Girls Hostel Building (Temporary Departmental Block)

SL NO	AREA (Ground floor)	Ceiling fan	Wall fan	LED Tube light	Fluorescent tube light	LED bulb	CFL bulb
1	Sanskrit dept.	2	1	2		1	
2	Arabic dept.	2	1	2		1	
3	Mathematics dept.	2	2	2			
4	Maths classroom	1				1	
5	Sanskrit classroom 1	2		2			1
6	Sanskrit classroom 2	2	1	1	1	1	
7	KKHSOU office	2	1	2		1	
8	Corridor			3			
9	Toilet					1	



SL NO	AREA (First floor)	Ceiling fan	Wall fan	LED Tube light	Fluorescent tube light	LED bulb	CFL bulb
1	Botany dept.	2		1		2	
2	Physics dept.	2		1		2	
3	Botany laboratory	2		1		2	
4	Chemistry laboratory	2		1		2	
5	Physics laboratory	4		4			
6	Zoology laboratory	2				2	
7	Dark room	2		1		1	
8	Botany classroom	2		1		1	
9	Zoology classroom	2		1		1	
10	Toilet			1		3	
11	Corridor					5	

SL NO	AREA (2 <sup>nd</sup> floor)	Ceiling fan	Wall fan	LED Tube light	Fluorescent tube light	LED bulb	CFL bulb
1	Zoology dept.	2		1		2	
2	Chemistry dept.	2		1		2	
3	Classroom 1	2		2			
4	Classroom 2	2		2			
5	Classroom 3	2		2			
6	Classroom 4	2		2			
7	Classroom 5	2		2			
8	Classroom 6	2		2			
9	Toilet			2		2	
10	Corridor					5	

**Laboratory equipment:**

Laboratory	Name of Equipment	Number of equipment
Botany laboratory	Universal hot air oven	2
Zoology laboratory	Digital microscope	1
	Digital Ph meter	1
	Oven	1
	Micro oven	1
	Centrifuge	1
Chemistry laboratory	Oven	1
	Calorimeter	1
	Ph meter	1
	Weight Balance	1
	Melting point apparatus	1
	Distillation set up	1
Physics laboratory	Sodium light	1

**2. Auditorium Block**

SL NO	AREA	Ceiling fan	Wall fan	LED Tube light	Fluorescent tube light	LED bulb	CFL bulb
1	Student union office	6				6	
2	Auditorium	12	6	3	2		
3	Auditorium corridor			1		1	
4	Boy's common room	3	2	1		2	

### 3. Assam Type Block

SL NO	AREA	Ceiling fan	Wall fan	LED Tube light	Fluorescent tube light	LED bulb	CFL bulb
1	Economics classroom	2		2			
2	History classroom	2		2			
3	Political classroom	4		2			
4	Philosophy classroom	2		2			
5	Assamese classroom	5		2			
6	Classroom hall 1	14		12			
7	Classroom hall 2	12		8			
8	Classroom 1	2				2	
9	Room No. 11	6		4			
10	Girl's common room	3		1			





SL NO	AREA (2nd floor)	Ceiling fan	Wall fan	LED Tube light	Fluorescent tube light	LED bulb	Computer	Printer	UPS
1	Digital classroom						1		
2	English dept.	2		2					
3	English classroom	3			3				
4	Gents toilet					2			
5	Ladies toilet					2			
6	Corridor			5					

#### 5. Education Department Block:

SL NO	AREA	Ceiling fan	Wall fan	LED Tube light	Fluorescent tube light	LED bulb	Computer	Printer	UPS
1	Education dept.	2	2	3					
2	Classroom	4	2	3					
3	Education Lab	2			1	1			
4	IQAC						2	1	2



## 6. RUSA Block

SL NO	AREA	Ceiling fan	Wall fan	LED Tube light	Fluorescent tube light	LED bulb	CFL bulb
1	Classroom 1	8			1	8	
2	Classroom 3	8			2	2	
3	Classroom 4	4				4	
4	Classroom 5	4				4	
5	Classroom 6	4			1	3	
6	Classroom 7	4				4	
7	Teacher's toilet					1	

## 7. ARTS Block

SL NO	AREA	Ceiling fan	Wall fan	LED Tube light	Fluorescent tube light	LED bulb	CFL bulb	Computer	Printer	UPS
1	Examination room	2		4						
2	Philosophy dept.	2			1			1		1
3	History dept.	2		2		1		1		1
4	Political science	2		2		1		1	1	1
5	Assamese dept.	2		1	1			1		1
6	Economics dept.	2			2		1	1		1
7	Teacher unit room	4		4						
8	Toilet				1	2				

## 8. College Canteen Block

SL NO	AREA	Ceiling fan	Wall fan	LED Tube light	Fluorescent tube light	LED bulb	CFL Bulb
1	Canteen	14	4	2	3	7	

## 9. Some major electrical components

SL NO	NAME	Number of items	DATE OF PURCHASE	DESCRIPTION
1	DG	1	MARCH 2018	62.5 kVA Koel Green
2	Water pump	2	2018	1.5 KW
3	Exhaust fan	3		
4	Photocopy machine	2		
5	Digital scanner	1		
6	AC	3		1.5 ton , 5 star
7	Projector	1		
8	LED TV	1		53 inch
9	Sound system	3		
10	Podium	3		
11	Speaker	1		
12	Amplifier	1		
13	Biometric	1		

## 10. Size of rooms

Room	Length	Breadth
All departments & ARTS block	23.7 ft.	12 ft.
RUSA block & Classroom 1 & 3	58 ft.	23 ft.
Assam type house & Classrooms	43 ft.	32 ft.

### Power Backup:

A 62.5 kVA Diesel Generator set was installed in the year 2018 to provide power to the college during power cut by the supply authority or during any maintenance work.

### Switches:

There are appropriate and sufficient numbers of MCBs and Isolators for maintaining and protecting the equipments.

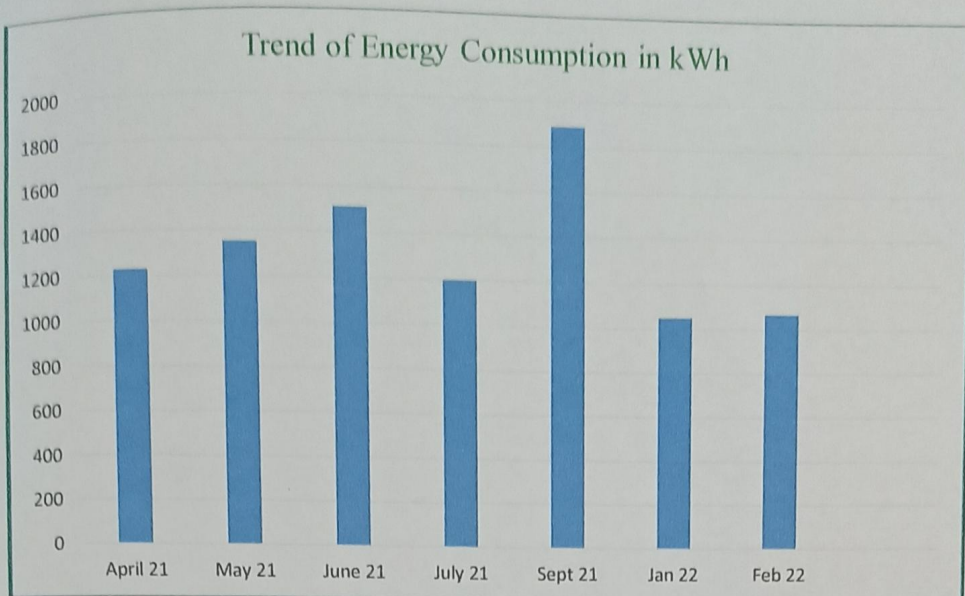
### Outdoor Lighting:

There are sufficient lights for outdoor. It covers the entire college campus.

## III. ENERGY CONSUMPTION DATA:

The trend of utilization of electrical gadgets and other appliances are reflected in the monthly bills of energy consumption. The energy consumption data are presented below for few months for the period 2021 - 2022. The trend is also illustrated pictorially.

Month	Energy bill in units (kWh)	PF
April 2021	1230.00	0.85
May 2021	1350.00	0.85
June 2021	1510.00	0.85
July 2021	1200.00	0.85
Sept 2021	1890.00	0.85
Jan 2022	1050.00	0.85
Feb 2022	1070.00	0.85



#### IV. CONCLUSION

It has been observed from the sample bills that the college has been saving electricity by replacing many conventional gadgets by energy efficient one. There are 23 fluorescent tube lights in the entire campus. It is suggested to replace all fluorescent tube lights by LED bulbs to save more energy.

The college has been taking initiatives to create awareness among the students, teachers and other stakeholders to make an energy efficient campus. With the rising awareness on the necessity to save energy, the college has resorted to ways and means for saving electricity. Efforts have been made to shift to renewable energy phase wise. The location of many class rooms, departments and office rooms are such that sufficient natural light and air available during day time and as a result significant amount of electricity is saved. The e-waste of the college has been disposed as scrap and given away to concerned agencies for recycling.

*b.c.*

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