

# ENERGY AUDIT REPORT

2022 - 2023

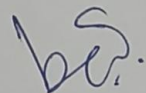
## KAMRUP COLLEGE

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 2022 – 2023.

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				2			
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				9	
2	Classroom 3	8				9	
3	Classroom 4	4				4	
4	Classroom 5	4				4	
5	Classroom 6	4				4	
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					3				

### 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	6		8	

### 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.

### Switches:

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

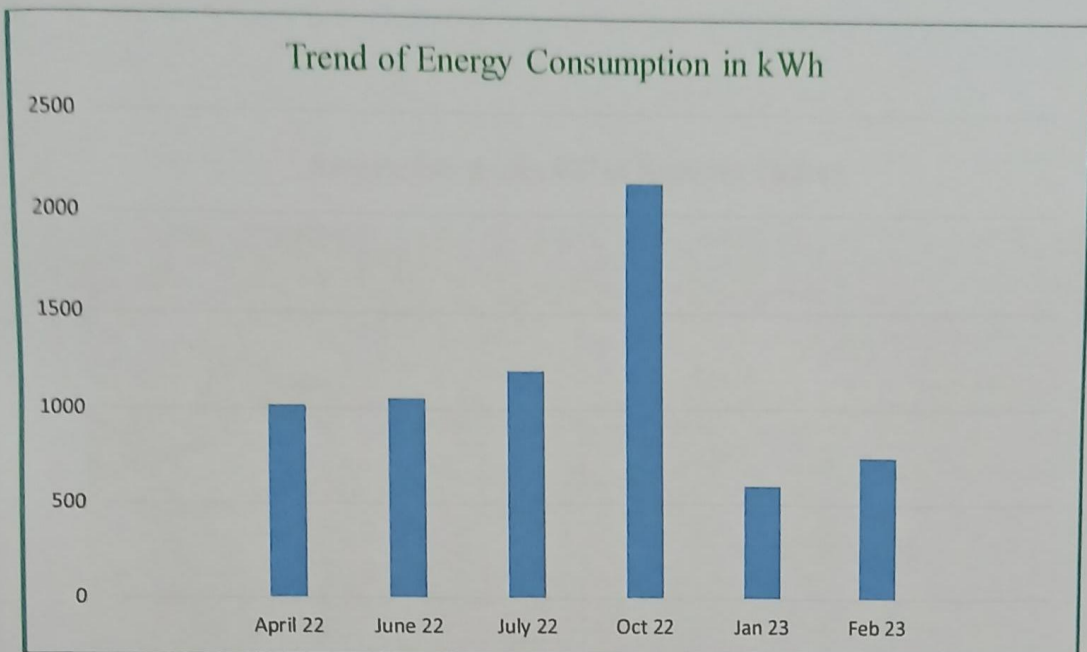
### Outdoor Lighting:

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 2022 - 2023. The trend is also illustrated pictorially.

Month	Energy bill in units (kWh)	PF
March 2022	1152.00	0.85
April 2022	1023.00	0.85
June 2022	1056.00	0.85
July 2022	1202.00	0.85
Oct 2022	2159.00	0.85
Jan 2023	597.00	0.85
Feb 2023	753.00	0.85



#### IV. CONCLUSION

It has been observed from the sample bills that in comparison to the previous year's consumption the college has been saving electricity by replacing many conventional old gadgets by energy efficient one. The number of fluorescent tube lights has been reduced to 10 from 23 in the previous year. It is suggested to replace all fluorescent tube lights by LED bulbs to save more energy in the next year.

The college has been taking initiatives to create awareness among the students, teachers and other stakeholders to make an energy efficient campus. The Green Energy Initiative is another sincere effort of the college for carbon neutrality. 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.



2024/3/23 12

# Sample Electricity Bill of Kamrup College

V.No-15

July/22

**Power Distribution Company Limited**  
 NAME OF ELECTRICAL SUB-DIVISION/AREA: CHAMATA  
 CRI: 148199482063056087242  
 CTR: 14AARCL1358122  
 ELECTRICITY BILL

Certified Customer Code Number: 1512

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**Consumer Name:** KAMRUP COLLEGE CHAMATA  
**Address:** G.S. BALIPATHAR

**Consumer Number:** 66400066323  
**Old Consumer Number:** 02509  
**DTR Number:** 106  
**Phase Number:** 000  
**Connected Load in KW:** 20.0  
**Contracted Demand in KVA:** 20.0  
**Load Secured by:** 0.0  
**Meter Number:** X0870882

**Bill Amount:** 11524.0  
**Use Date:** 27 Aug 2022  
**TR Number:** 301443486  
**TR Period:** 01 Jul 2022 To 01 Aug 2022  
**BR Date:** 12 Aug 2022  
**Number of Days:** 31  
**Meter Status:** FURNISHED  
**Billng Status:** FURNISHED

Contact Number: 9365486337  
 Email:  
 Tariff Category: LT (VIA) GENERAL PURPOSE (OTHER)  
 Supply Voltage Level: LT

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**Meter Reading Details**

Reading Type	Meter Number	MF	Previous Reading in KWH	Previous Export in KWH	Current Reading in KWH	Current Export in KWH	Difference Reading in KWH	Difference Export in KWH
KWH (Normal)	X0870882	1.0	30548.0	0.0	31750.0	0.0	1202.0	0.0
		0.0	0.0	0.0	0.0	0.0	0.0	0.0

Units Consumed: 1202.0  
 LT Metering Penalty @ 3%: 0.0  
 DTR Penalty @ 10%: 0.0  
 HT Rebate @ 3%: 0.0  
 Rebate Units in KWH: 1202.0

Recorded Demand (in KVA): 0.0  
 Maximum Demand (in KVA): 0.0  
 Billing Interval (in KVA): 20.0  
 Average Power Factor: 65.0

Power on Hours: 0.0  
 Freeze Amount: 0.0  
 Availability Percentage:

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**Billing Details**

Contract Demand	Outstanding Amount	Adjustment Amount	Government Subsidy	Solar Rebate	Net Bill Amount
Rs. 11524.00	Rs. 0.00	Rs. 0.00	Rs. 0.0	0.0	Rs. 11524.0

**PLEASE PAY YOUR BILL ON TIME AND HELP US TO SERVE YOU BETTER**

**Charges Breakup**

Details	Units	Rate	Amount
Energy Charge	1202.0	6.85	7873.10
	0.0	0.0	0.00
	0.0	0.0	0.00
<b>Total Energy Charge</b>			<b>7873.10</b>
Energy Charge Re-Estimated			0.00
Demand/Fixed Charge	20.0	155.0	3100.46
FRPPA Charge		-0.05	-0.1
Electricity Duty		5.0	551.63
Govt. Subsidy		0.0	0.0
Meter Rent		175.0	0.0
Transformer M/D Charge			
Overdrawn Penalty			0.0
Adjustment Amount			0.0
Charges for dishonoured cheque			0.0
Arrear Principal			0.0
Arrear Surcharge			0.0
Current Surcharge			0.0
Misc. Arrear			0.0
<b>Rebate if paid before due date</b>			<b>11524.0</b>
<b>Payable amount before due date</b>			<b>11524.0</b>
<b>Payable amount after due date</b>			<b>11524.0</b>

Checked by E&OE:

Principal  
D/S Surchar:

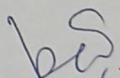
Prepared by: eSuvidha

Signature with seal

*Dr. Bimal Ch. Deka*  
at 24/09/22

Principal  
Kamrup College, Chamata

Principal  
D/S Surchar:

  
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