

ENERGY AUDIT REPORT

2023 - 2024

SARAIGHAT COLLEGE

CHANGSHARI, DISTRICT: KAMRUP (Rural)

ASSAM, PIN: 781101

Audited by

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I. Introduction:

Saraighat College was established in the year 1981 and one of the pioneer institutes in the district of Kamrup (Rural) of Assam. The college is located at a distance of 25 km to the North of the Guwahati City.

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 Saraighat 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 Saraighat 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.: 025000001458

Connected Load: 38 kW

Contracted Demand: 35.29 kVA

Tariff Category: HT- IV Bulk Supply (Others)

Supply Voltage Level: HT

Average Power Factor: 0.96

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

1. ACADEMIC BLOCK:

(a) Department:

Sl No	Department	Fan	Light	Desk Top Computer	Printer	UPS
1	Geography	2	2	1	1	1
2	Education	2	2	7	1	
3	Political Science	2	3	1	1	
4	History	4	5	1	1	1(3kVA)
5	Tourism	4	4	19	3	1(6kVA)
6	Persian	7	1	1	1	
7	Philosophy	8	1	1	1	1
8	Anthropology	6	2	1	1	
9	Mathematics	5	1	1	1	
10	English	4	3	2	2	1
11	Economics	4	3	1	1	1
12	Assamese	4	4	1	1	

(b) Class Rooms:

Sl No	Class Rooms	Fan	Light	Digital Board	Audio syst	UPS
1	Normal Class rooms (8 nos.)	61	60			
2	Political Science	4	6			
3	History	2	3			
4	Tourism	7	6	3	6	
5	Mathematics	1				
6	English	6	4			
7	Economics	9	5			
8	Assamese	9	9			

(c) Laboratory:

Sl No	Laboratory	Fan	Light	Desk Top Computer	Printer	UPS
1	Education	2	2			
2	Language Lab	2		11		1(3 kVA)
3	Computer	2	2	7	1	

(d) Digital Room:

Sl No	Digital Room	Fan	Light	LCD Projector	Smart Board	UPS
1	Room 1	2	2	1	1	
2	Room 2	2	2	1	1	

2. ADMINISTRATIVE BLOCK:

Sl No	Type	Fan	Light	Desk Top Computer	Printer	UPS
1	Principal's Room 1	1	3	2		2
2	Principal's Room 2	2	2	1	1	
3	Office	6	11	4	4	1
4	Library	18	19	12	1	1
5	Examination Zone	7	7	2	1	1
6	KKH	3	2			
7	IQAC	4	1	2	1	

3. OTHERS:

Sl No	Type	Fan	Light	Desk Top Computer	Printer	UPS
1	Teachers' common room	6	8			
2	Art Gallery		13			
3	Ex-student room	1	1			
4	Gymnasium	4	3			
5	Union Room	2	2	1		
6	Girls' common room	2	6			
7	Boys' common room	4	5			
8	Kitchen	2	2			
9	Canteen	4	1			
10	Hostel Warden	6	13	1		
11	Hostel Rooms	9	14			
12	Corridors		27			
13	Wash Rooms	2	3			

In addition to all the above gadgets, the following electrical appliances are also available in the college:

Sl No	Electrical Items	Rating	Quantity
1	Off-grid roof-top PV system	7 kW	1
2	Photocopy Machine	6.3 A	5
3	Air Conditioner	1.5 Ton	3
4	Display (Digital)		3
5	Vacuum Cleaner	1300 W	1
6	Central UPS (Library)	3 kVA	1
7	Inverter		2
8	Trade-Mill	7000 VA	1
9	Electric Kettle	1200 W	1
10	Refrigerator		2
11	Washing Machine		1
12	Water Pump		1

Switches:

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

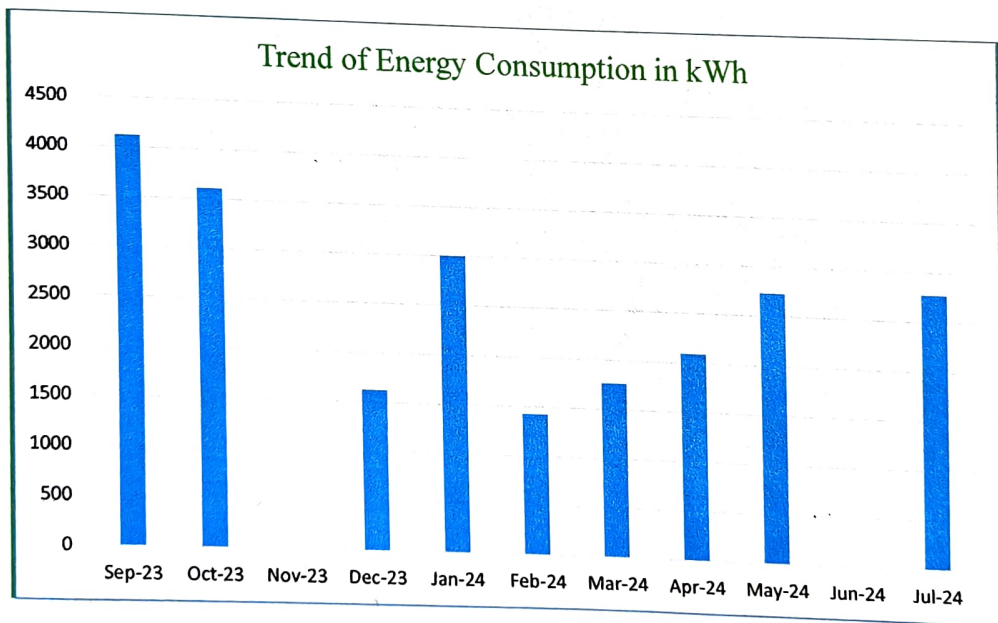
Outdoor Lighting:

There are 23 LED lights for outdoor lighting. 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 2023 - 2024. The trend is also illustrated pictorially.

Month	Energy consumed in units (kWh)	Penalty /Rebate	PF	Maximum Demand (kVA)	Unit charge in rupees	Total Energy charge in rupees
Sept 2023	4120.65	-3.71	0.989	31.53	8.10	33347.21
Oct 2023	3609.30	-3.25	0.987	31.32	8.10	29209.01
Dec 2023	1628.25	15.31	0.955	6.48	8.10	13312.84
Jan 2024	3002.70	-2.70	0.985	22.02	8.10	24300.00
Feb 2024	1427.10	28.10	0.946	5.25	8.10	11787.20
March 2024	1767.15	16.61	0.963	8.97	8.10	14448.46
April 2024	2095.65	-1.89	0.973	17.07	8.10	16959.48
May 2024	2734.95	-2.46	0.981	19.8	8.10	22133.17
July 2024	2777.25	-2.5	0.988	14.43	8.10	26054.9



IV. CONCLUSION

It has been observed from the bills that the college is getting PF rebate in almost all months, which is a good sign of utilization of electricity, however, there are penalties in LT metering part. The institute has incurred a loss (in average) per month of Rs. 700.00 as LT metering

penalty. The institute must look into the matter in consultation with the power distribution company.

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. A 7 kW off-grid roof-top solar plant has already been installed as an alternative source of energy. A few such projects are proposed to start in the college.

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 college has taken steps to replace conventional electric bulbs with LED bulbs to save energy to some extent. The e-waste of the college has been disposed as scrap and given away to concerned agencies for recycling.

Sample Electricity Bill of Saraighat College

UIN 140108AS200350C007242
GSTIN: 18AA8CL1354112J
ELECTRICITY BILL



Website: www.aperc.org

Controlled Customer Care Number: 1912

Consumer Name: The Principal Saraighat College
Address: Changsai, GUWAHATI

Consumer Number: 025000001458
Old Consumer Number: 64000006221
DTR Number: M0734000
Pole Number: 000
Connected Load in KW: 38.0
Contracted Demand in KVA: 35.29
Load Security: 157700.000
Meter Number: Y0867747

Bill Amount: 43763.000
Due Date: 28-Nov-2023
Bill Number: 000548118
Bill Period: 01-Oct-2023 To 31-Oct-2023
Bill Date: 04-Nov-2023
Number of Days: 31
Meter Status: RUNNING
Billing Status: NORMAL



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)	Y0867747	15.0	6505.720	0.000	8746.340	0.000	240.620	0.000

Units Consumed	PF Penalty/Rebate	LT Metering Penalty	DTR Penalty	HT Rebate	Voltage Rebate	Voltage Penalty	Balance Units in KWH
Normal 3609.3	111.530	108.290	0.000	0.000	0.000	0.000	3609.000
Recorded Demand (in KVA)	2.08	Maximum Demand (in KVA)	31.32	Billing Demand (in KVA)	35.29	Average Power Factor	98.70%
Power on Hours	720	Freeze Amount	0.0	Oxygen Plant Rebate	0.00	Availability Percentage	

Billing Details

Current Demand	Outstanding Amount	Adjustment Amount	Solar Rebate	Net Bill Amount
Rs. 43763.000	Rs. 0.000	Rs. 0.000	0.000	Rs. 43763.000

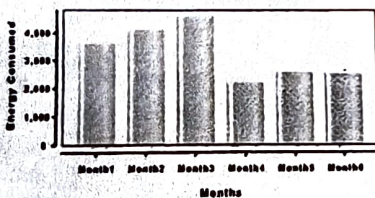
In Words: Rupees Forty Three Thousand Seven Hundred Sixty Three Only

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

Charges Breakup

Details	Units	Rate	Amount
Energy Charge(Normal)	3609.000	6.100	22000.910
Total Energy Charge			22000.910
Energy Charge Re-Estimated			0.000
Roof-top Solar Adjustment			0.000
Demand/Fixed Charge (KVA)	35.29	210.0	7400.98
FPA Charge	1.29		4651.82
Electricity Duty			1038.0
Govt. Subsidy		0.0	0.0
Overhead Penalty		0.0	0.0
Meter Rent		0.0	0.0
Charges for dishonoured Cheque			0.0
Arrear Principal			0.000
Arrear Surcharge			0.000
Current Surcharge			576.180
Adjustment Amount			0.000
Rebate if paid before due date			0.00
Payable amount before due date			43763.00
Payable amount after due date			43763.00

Energy Consumption (Last Month's Bill)



Signature with seal

Pay before due date

to avoid disconnection

Area Manager
IRCA-II, APDCL (LAR)
GU Bypass, Garigaon, Jalukbari
P.O. Pandu, Guwahati-781012

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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 Saraighat College, Changsari, Kamrup (Rural), Assam for the year 2023-2024.

The college has been taking lot of initiative to create awareness among the students, teachers and other stakeholders to make the college campus an energy efficient campus. In a phased manner, the college has been shifting towards utilization of photovoltaic energy. The location of many class rooms, departments and rooms for other academic purposes are such that sufficient natural light and air available during day time and as a result significant amount of electricity is saved.

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


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