

ENERGY AUDIT REPORT

2022 - 2023


SARAIGHAT COLLEGE

CHANGSHARI, DISTRICT: KAMRUP (Rural)

ASSAM, PIN: 781101

Audited by

Dr. Bimal Ch. Deka
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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.

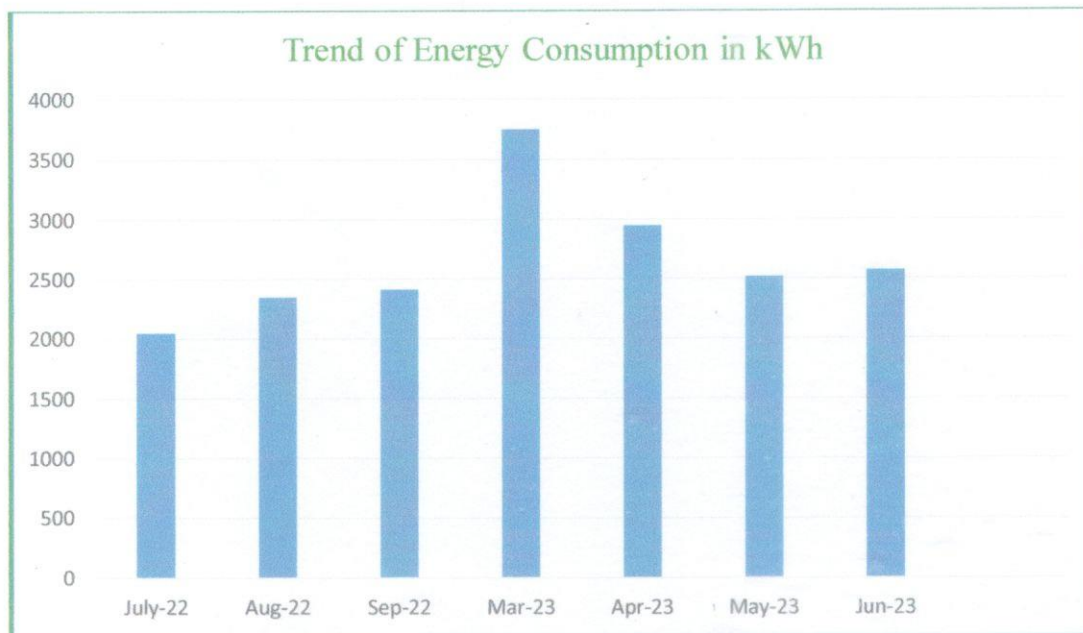
Outdoor Lighting:

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 2022 - 2023. The trend is also illustrated pictorially.

Month	Energy bill in units (kWh)	PF	Maximum Demand (kVA)	Billed Demand (kVA)	Monthly bills (in rupees) (excluding other charges)
July 2022	2047.00	0.97	13.29	35.29	16674.00
Aug 2022	2345.55	0.98	18.45	35.29	18119.00
Sept 2022	2409.45	0.98	16.57	35.29	20957.00
March 2023	3747.37	0.98	14.91	35.29	28854.75
April 2023	2950.55	0.98	23.01	35.29	23899.40
May 2023	2517.29	0.98	19.53	35.29	20390.00
June 2023	2572.59	0.98	21.51	35.29	20637.95



IV. CONCLUSION

It has been observed from the sample 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 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 about 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



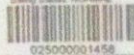
Assam Power Distribution Company Limited

NAME OF ELECTRICAL SUB-DIVISION / P.W.A. : AMBONGON ESD / P.W.A. DEGA
 PIN : 781109 AS 20E5G007242
 GSTIN : 18AANKL120411Z
 ELECTRICITY BILL

Website: www.apdc.org

Centralized Customer Care Number: 1912

Consumer Name: The Principal, Saraighat College Address: Chaugachan GUWAHATI	Consumer Number: 02500001458 Old Consumer Number: 6400006221 DTR Number: M0734030 Role Number: 000 Contracted Load in KW: 50.0 Contracted Demand in KVA: 35.29 Load Secuity: 157700.000 Meter Number: 3088747	Bill Amount: 39662.000 Due Date: 26-Apr-2023 BR Number: 900030070 BR Period: 01-Mar-2023 To 31-Mar-2023 BR Date: 11-Apr-2023 Number of Days: 31 Meter Status: RUNNING Billing Status: NORMAL
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Meter Reading Details

Reading Type	Meter Number	AM	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	3088747	15.0	4959.900	0.000	5240.200	0.000	270.000	0.000

Units Consumed	PF Penalty/Rebate	LT Metering Penalty	DTR Penalty	HT Rebate	Voltage Rebate	Voltage Penalty	Balance Units in KWh
Normal (3750.73)	115.900	112.500	0.000	0.000	0.000	0.000	3747.370
Recorded Demand (in KVA)	0.99	Maximum Demand (in KVA)	14.91	Billing Demand (in KVA)	30.29	Average Power Factor	88.300
Power on Hold	722	Freeze Amount	0.0	Oxygen Plant Rebate	0.00	Availability Percentage	

Billing Details

Current Demand	Outstanding Amount	Adjustment Amount	Tax Rebate	Net Bill Amount
Rs. 39662.000	Rs. 0.000	Rs. 0.000	0.000	Rs. 39662.000

In Words: Rupees Thirty Nine Thousands Six Hundred Sixty Two Only

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

Energy Consumption (Last Month's Bill)



Charged Element	Units	Rate	Amount
Rebate			
Energy Charge (Normal)	3747.370	7.700	28854.750
Total Energy Charge			28854.750
Energy Charge for Estimated			0.000
Rebate for Adjustment			0.000
Contract/Rated Charge (KVA)	35.29	200.0	7134.25
High Charge	0.50		1873.60
Electricity Duty			1700.41
Govt. Subsidy	0.0		0.0
Contracted Penalty	0.0		0.0
Meter Rent	0.0		0.0
Charges for Unbalanced Charges			0.200
Arrear Principal			0.200
Arrear Surcharge			0.000
Current Surcharge			0.000
Adjustment Amount			0.00
Rebate if paid before due date			0.00
Payable amount before due date			39662.00
Payable amount after due date			39662.00

Signature with seal

[Handwritten Signature]

Pay before the due date
 TO AVOID SURCHARGE

Procurement Record of 7 kW Off-grid Solar PV System

(Joint Venture)
 Bigyan Bhawan, ABC, G.S. Road, Guwahati - 781005
 Ph 0361-2450147/646, Fax: 0361-2464617
 email: assamrenewable@gmail.com

V.No 10
 20/7/18

PROFORMA INVOICE

L.R. No.	Transporter's Name	D.C. No.	Inv. No.	ASS/001/05-06/
		Date	Date	08-03-2018
Invoice Address:		P.O. No. SC/JGC/XII/PLAN/ORDER/2018/012		
The Principal Saraighat College P.O. Changsari Dist. Kamrup, Assam, Pin - 781 101		Date 08 03 2018		
Contact:		Delivery Address Saraighat College, Changsari Kamrup, Assam		

Sl. No.	Description	Qty	Rate (Rs.)	Amount (Rs.)
1	Design, Supply, installation, commissioning & testing including 5 warranty of 4.00 kWp Off-Grid Solar Power Plant at Saraighat College, Changsari, Kamrup Assam.	1	3,85,014.00	3,85,014.00
Total			-	3,85,014.00

((Rupees Three lakhs eighty five thousand fourteen) only)

For Aditya Solar Shop

 Authorised Signatory

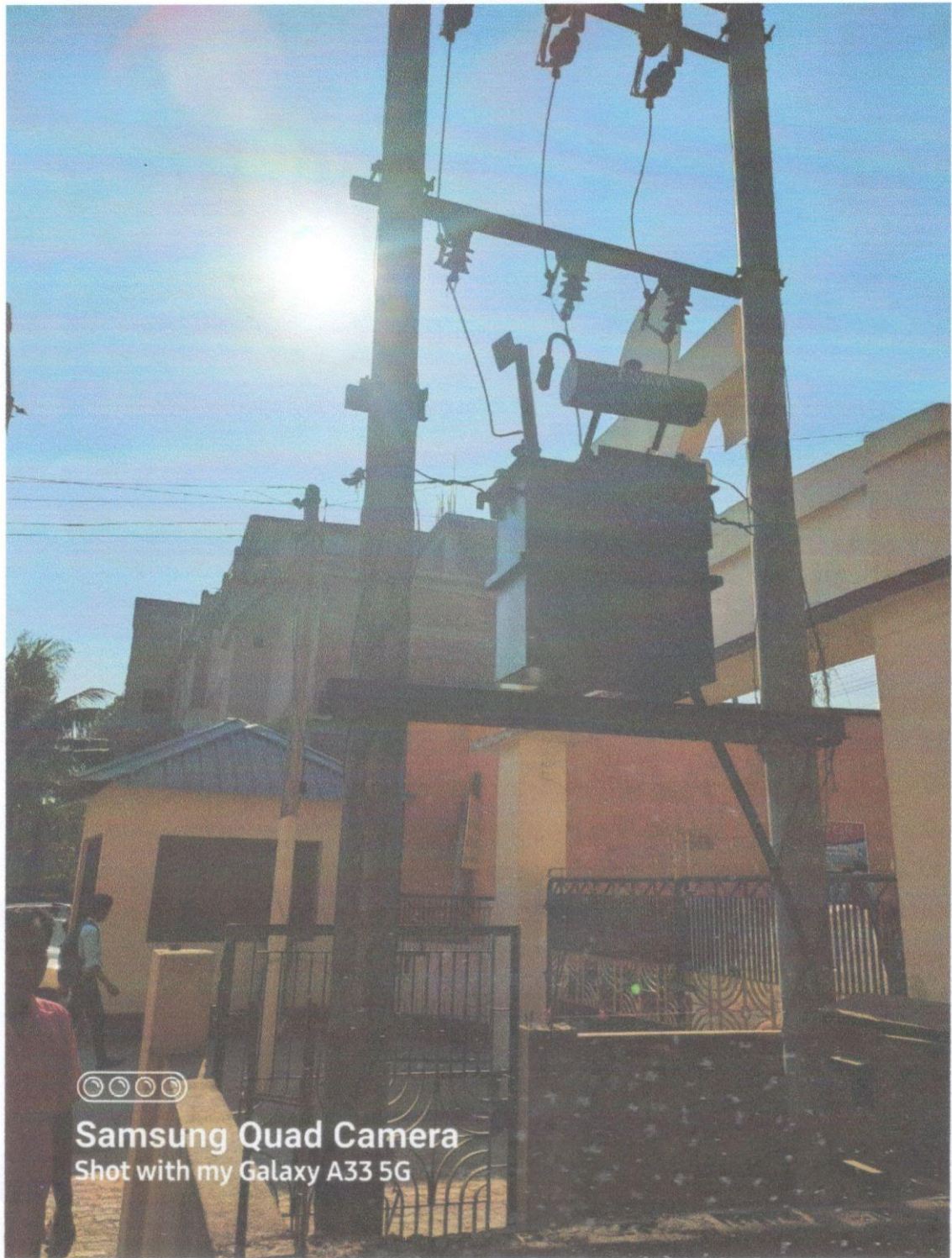
Note: Time of Completion - 60 days after receipt of 100% payment.

Acct
 Passed to the
 [Signature]
 12/8/2018

PAID & CANCELLED

 Principal
 Saraighat College

Samsung Quad Camera
 Shot with my Galaxy A33 5G



○○○○
Samsung Quad Camera
Shot with my Galaxy A33 5G

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Government of Assam
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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 2022-2023.

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.

(Dr. Bimal C Deka)

Professor, EE Dept.

Dr. Bimal Ch. Deka

Professor

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