ENERGY AUDIT REPORT

2022 - 2023

CHILARAI COLLEGE

W/N 4, P.O: GOLAKGANJ

DISTRICT: DHUBRI

ASSAM, PIN-783334

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 Chilarai College, Dist. Dhubri, Assam for the year 2021-2022.

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 Chilarai College will emerge as an institute of Green Campus in the near future.

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I. Introduction:

Chilarai College was established in the year 1973 and one of the oldest institutions of Higher Education in Dhubri 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 Chilarai 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 Chilarai College is provided by the Assam Power Distribution Company Limited. A 3- phase transformer of appropriate rating is installed to transfer power to the college.

Consumer No.: 048000007151 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.

Electrical Loads:

SL NO	**AREA**	Ceiling fan	Wall fan	LED Tube light	Fluorescent tube light	LED bulb	CFL bulb	Remarks
1	Education Dept.	3	NA	4	NA	2	NA	
2	Philosophy Dept.	3	NA	2	NA	NA	NA	
3	History Dept.	3	NA	2	NA	NA	NA	
4	Bengali Dept.	2	NA	2	NA	NA	NA	
5	Common Toilet & Bathroom	NA	--	------	-----	2	------	
6	Physics & Chemistry Lab	4	2	6	----	4	---	
7	Zoology & Botany	4	2	5	----	5	--	

8	Bathroom (near IQAC office)			1				1 KW Electric Motor
9	IQAC	2	1	5				Two Inverter with 2 Batteries
10	Economics Dept.	4		6				
11	*GUCDOE Study Centre	1	1	2				1 inverter
12	Girls Common Room	3		5		1		
13	College Auditorium (Assam Type)	–	10	12		2		
14	Generator Room					1		Generator 1 (Photo enclosed)
15	Administrative Block			4				
	Portico in front of Principals office			1				
16	Principal's chamber	1		10				AC-1, Master Monitor-1
17	Vice Principal's Office	1		2				1 Inverter
18	Accountant's Office		2	2				
19	College Office with One Biometric machine	7	2	10		2		2 Inverter with Battery, Wi-Fi Modem 1
20	College Garden					2		
21	College Canteen	3	NA	1		7		Wi-Fi Modem-1, Refrigerator-1
22	Assamese Dept	3	2	3	2	5		1 Electric Motor (2 KW)
22	Boys Common Room	3		4				
23	ROOM/HALL - 1	3		3		4		

24	Room 1(A)	3		3		1		
25	Room 2	7		3		5		
26	Room 3	3		3				
27	Golden Jubilee Building (Ground Floor)	NA		NA				
28	Hall No 7	4		2		2		
29	Room 8	4		2		2		
30	Room 9	4		2		2		Motor 1 KW
31	Stairs to 1st Floor (RUSA Building)			2				
32	1st Floor Veranda			2				
33	Dept of TTM & Management Studies	3		2				
34	Dept of Political Science	3		2				
35	Dept of English	3		2				
36	Common Major/Honours Classroom	3		4				
37	Sanskrit	3		5				
38	Digital Classroom					22		AC-2
39	1st Floor Toilet & Bathroom			1				Drinking Water Point with Purifier-1
40	Ground Floor							Drinking Water Point with purifier-1
41	BCP Central Library (First Floor)	7		4				inverter 1 (with double Battery)

43	Education Laboratory	2		4		2		
44	Top floor					1		
45	Library Reading Room	6		6		2		inverter 1
46	College Main Gate					6		
47	Security Room near Main Gate	1				2		
48	Swahid Bedi					1		
49	Gymnasium Centre	8		5		1		

10. Size of rooms

Room	Length	Breadth
All departments	25 ft	20 fit
New Building	200 ft	22 ft
Old Building	100 ft	22 ft
College auditorium	100 ft	40 ft

**GUCDOE: Gauhati University Centre for Distance and Online Education*

Power Backup:

A 62.5 kVA Diesel Generator provides power to the college during power cut by the supply authority. There are 8 set of inverter/battery installed in different prime load locations for power backup.

Switches:

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

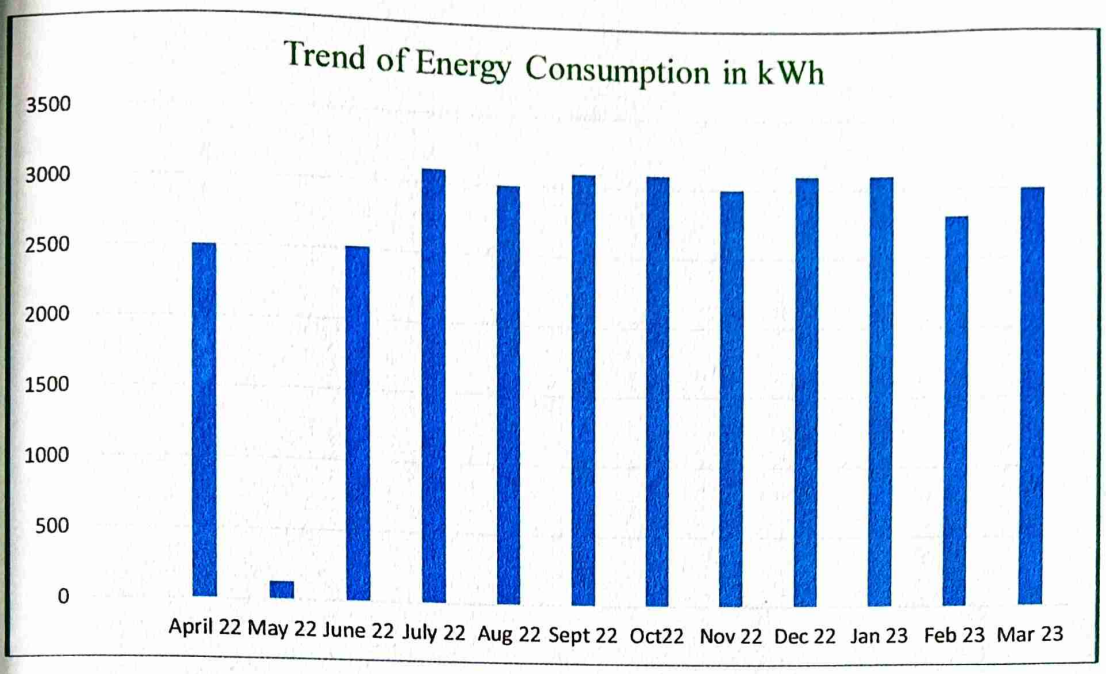
Outdoor Lighting:

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 12 months for the period 2022 – 2023. The trend is also illustrated pictorially.

Month	Energy bill in units (kWh)	PF
April 2022	2500	0.98
May 2022	130	0.85
June 2022	2520	0.85
July 2022	3100	0.85
Aug 2022	3000	0.85
Sept 2022	3100	0.85
Oct 2022	3100	0.85
Nov 2022	3000	0.85
Dec 2022	3100	0.85
Jan 2023	3100	0.85
Feb 2023	2800	0.85
March 2023	3000	0.85



IV. CONCLUSION

It has been observed that the energy consumption in the year 2022 – 2023 is increased in comparison with the previous year. It is due to addition of new electrical gadgets according to the expansion infrastructure of the college. However, the college has been saving electricity by replacing many conventional old gadgets by energy efficient one. The college has been taking initiatives to create awareness among the students, teachers and other stakeholders to make an energy efficient campus. The planning of Green Energy program 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.

The energy bills indicate that the load power factor is 0.85, which can be improved by replacing old equipment with new one. It is suggested to enhance the power factor beyond 0.9. It was observed from the energy bills of the previous year that the meter reader is taking reading either very casually or assuming data arbitrarily. As suggested in the previous report, the college authority has taken initiative to monitor the monthly reading of the energy meter. The college authority is sincere in taking care of electrical load connections to avoid electrical hazards that was observed in physical verification of the site.

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