ENERGY AUDIT: 2021- 22

SAMAGURI COLLEGE, SAMAGURI

Nagaon, Assam

782140

M/S. KAMAKHYA ELECTRICALS

Mahatma Gandhi Road, Nagaon (Assam) : Mobile : 94350-63586

Govt. Regd. Electrical Contractor & Supplier

Specialist In : *Wiring Installation, Motor Generator & Electrical Pumpset repairing, Panel board construction, Electrical Project drawing, Estimating & Erection of H.T. & L.T.O.H., Line & Sub-station.*

Ref. No. .....

Date .....05.12.2022.

To,

The Principal
Samaguri College, Samaguri
Nagaon, Assam

Subject: Submission of Energy Audit Report: 2021- 22
Samaguri College, Samaguri, Nagaon

Sir,

In order to prepare an Energy Audit Report our audit team has visited the Samaguri College campus on 18th Nov. 2022 to collect necessary data for comprehensive assessment. After spot verification and data analysis, an Energy Audit Report has been prepared which includes the findings attached below along with our necessary recommendations to explore the energy conservation opportunities.

The entire report is produced for your kind consideration. We also hope that this assessment will help the college fraternity to reduce overall energy consumption and improve the energy efficiency in future.

Thanking you,

M/S Kamakhya Electricals
M G Road, Nagaon

Bikash Jyoti Deb
Proprietor & Electrical Consultant

Office of the Principal
Samaguri College, Samaguri, Nagaon
Assam, PIN- 782140

ENERGY AUDIT REPORT
2021- 22
SAMAGURI COLLEGE, SAMAGURI, NAGAON
ASSAM

The Internal Energy Audit Committee has done a preliminary survey about the energy consumption and management in the Samaguri College premises to prepare an "Energy Audit Report" which is later on verified and surveyed by M/S. KAMAKHYA ELECTRICALS, M.G. Road, Nagaon and issued a certificate on aforesaid matter.

12/11/22

Dewajit Bora
Coordinator
Internal Energy Audit Committee

Dr. Indrajit Bezbarua
Principal, Samaguri College
Nagaon, Assam
12/11/22
Principal
SAMAGURI COLLEGE

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1. Introduction:

Energy is one of the main inputs for the economic growth of a country. It is widely used in various fields like industry, agriculture, transport and communication etc. It is also necessary for each and every homes as well as the institution. Energy is the foundation stone of modern world. It provides an essential ingredient for almost all human activities like cooking, heating, lighting, health, food production, storage, education, recreation etc. Energy efficiency improvements can deliver benefits across the whole economy.

One aspect of economic development is the long term availability of affordable and accessible energy sources and their use does not pollute the environment. People have to think for the sustainable development and for this the fullest use of energy resources, minimum use of fossil fuels, use of alternative energy instead of traditional energy sources and awareness for energy conservation would be considered as the focal point.

Energy conservation is the best effort to reduce the consumption of energy by using less of an energy service. This can be achieved either by using energy more efficiently or by reducing the amount of service used. Energy conservation is a part of the concept of Eco-sufficiency.

In October 2001, the Government of India enacted the "Energy Conservation Act-2001". The act provides for institutionalizing and strengthening delivery mechanism for energy efficiency programs in the country and provides a framework for the much needed coordination between various government entities.

Samaguri College is a higher educational institution in the district of Nagaon is planning to reduce the energy consumption within the college premises by conducting an Energy Audit. An assessment has done to review the energy sources and its consumption by various electronic and other devices. Regarding energy management, it would be a relevant step by the Audit Team who assessed the number of electrical appliances and their amount of energy consumption per month in KWh.

2. Internal Energy Audit Committee

Sl. No	Name	Designation
1	Dr. Indrajit Bezbarua Chairman	Principal, Samaguri College
2	Sri Dewajit Bora Coordinator	HoD, Geography
3	Sri Apurbba Jyoti Bora Member	Asstt. Professor English
4	Sri Tapan Kolita Subject Expert & Adviser	Assistant Manager (E) Office of - The CGM (RE), APDCL Guwahati
5	Sri Mintu Kamal Das	UDA
6	Sri Tarun Chandra Bora	Accountant
7	Sri Uttam Biswash	Office Bearer
8	Sri Pradip Baruah	Office Bearer

3. **Aims & objectives**:

The aims & objectives of the energy audit are as follows-

- To assess the amount of energy consumed by the college
- To take necessary steps for conservation of energy by efficient use
- To take managerial steps for alternative energy sources
- To aware the college fraternity and students for conservation of energy and sustainable development

4. Methodology:

To prepare the energy report & assessment, an internal Audit Team was formed who had done a preliminary survey. The team had made discussion with various persons by organizing a meeting where the participants were informed about the aims and objectives of the energy audit.

Later on the internal audit team had made a tour to observe various operations, focusing on the main energy consuming electronic devices and appliances of the college covering all buildings and rooms.

The internal audit team then done the assessment of the monthly energy consuming pattern on the basis of the previous months Electrical Energy Consumption Bill issued from the APDCL, Assam.

Based upon the data gathered the final report and Energy Consumption Measures (ECMs) are developed.

5. Basic data (Building Description):

The table shows the basic information about the buildings and connected electricity.

Sl. No	Basic Building Data	Value
1	Connected Load	2 kWh
2	Contract Demand	1 kVA (Average)
3	Annual Electricity consumption (From Nov. 2021 to Oct. 2022)	Total: 12,218/ Unit
4	Annual cost of electricity consumption	Total: Rs.81, 481/
5	Total number of building covered	Entire campus buildings
6	Total number of building covered	4 buildings
7	Working hours	8 hours
8	Hostel	1 (7 x 24 hrs)
9	Number of sub meter installed	Nil

6. Existing energy consumption details:

The existing energy consumption in the college is shown in two separate tables.

Table: 1 Show the Electrical equipment in the college campus

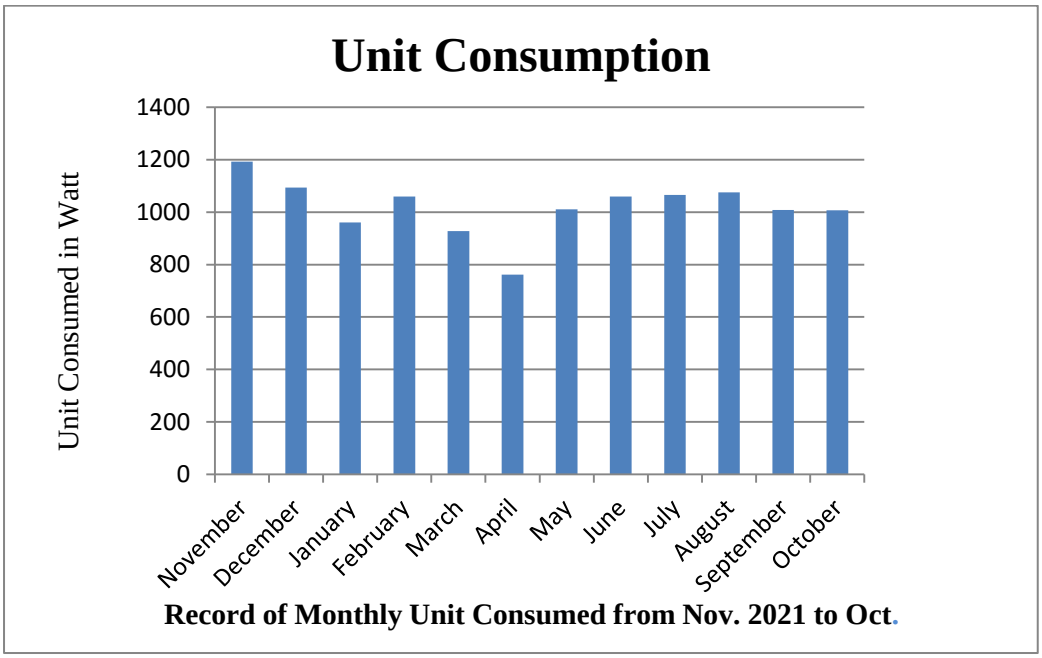
Electrical equipment and its energy consumption capacity:

Sl. No	Equipment	Number	Watts/ units	Energy consumption by one equipment			Energy consumption by total equipment		
				Whr	kWh	kWhr (Unit/ month)	Whr	kWh	kWh / Month
1	Celling Fan	57	60	480	0.48	14.4	27360	27.36	820.8
2	LED Bulb	67	10	80	0.08	2.4	5360	5.36	160.8
3	LED Tube light	28	18	144	0.144	4.32	4032	4.032	120.96
4	CCTV camera	12	5	120	0.12	3.6	1440	1.44	43.2
5	Desk top Computer	06	200	1600	1.6	48	9600	9.6	288
6	LED focus light	02	45	360	0.36	10.8	720	0.72	21.6
7	Projector	01	100	800	0.8	24	800	0.8	24
8	Smart display board	01	150	1200	1.2	36	1200	1.2	36
9	Water motor	01	746	746	0.746	22.38	746	0.746	22.38
10	Incinerator	02	1000	1000	1	30	2000	2	60
11	Photostat machine	01	1000	1000	1	30	1000	1	30
12	Printer	02	150	150	0.15	4.5	300	0.3	9
13	Laptop computer	02	100	400	0.4	12	800	0.8	24
14	Exhaust fan	02	60	480	0.48	14.4	960	0.96	28.8
15	Inverter Battery	01	760	760	0.76	22.8	760	0.76	22.8

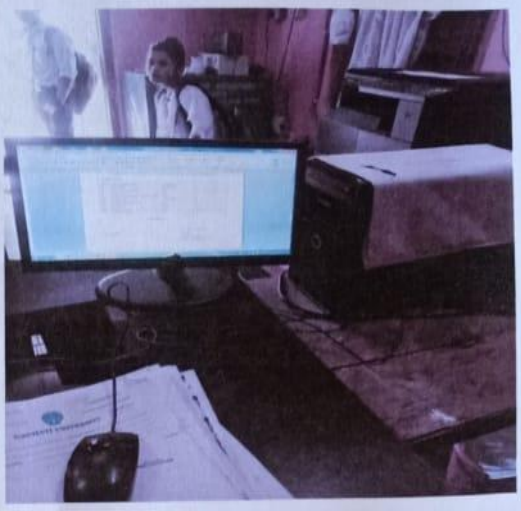
Total Consumption: **1712.34** Unit

7. **Record of monthly Electricity Bill** – From No. 2021- Oct. 2022 (12 month)

Sl. No	Months	Year	Unit Consumption	Amount Paid in Rs.
1	November	2021	1192	Rs. 8196
2	December	2021	1093	Rs. 7358
3	January	2021	960	Rs. 6358
4	February	2021	1059	Rs. 7014
5	March	2021	927	Rs. 6140
6	April	2021	762	Rs. 5139
7	May	2022	1010	Rs. 6918
8	June	2022	1060	Rs. 7377
9	July	2022	1065	Rs. 6868
10	August	2022	1075	Rs. 7096
11	September	2022	1008	Rs. 6508
12	October	2022	1007	Rs. 6507
			Total: 12,218/	Total: Rs.81, 481/



Record of Monthly Unit Consumed from Nov. 2021 to Oct.



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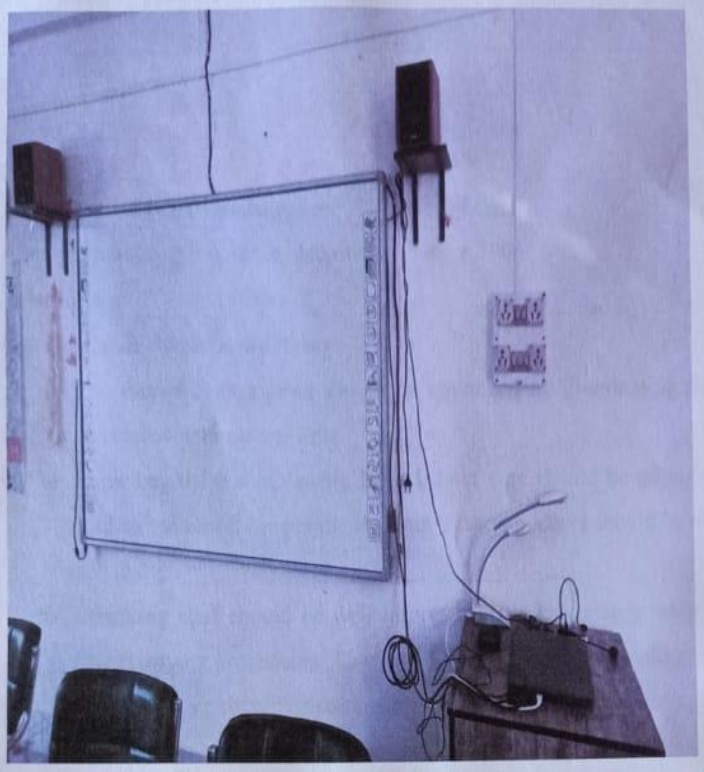

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M.G. Road, Nagaon (Assam)

8. Average monthly unit consumption: 1018 Unit

9. Average monthly bill paid for electricity: Rs. 6,790/

10. Solar lights: 1 (One)

11. Conclusion & Recommendations:

a) The energy consumption should be optimized by illuminating the buildings and rooms with natural light.

b) Regarding the use of electric lights& fans, care should be taken by operating staff to switch off the points when not in use. Students should be also aware in this matter.

c) Operating staff should be well informed about the energy management and energy saving procedures. To implement an effective preventive maintenance program, there should be comprehensive training for the operating staff.

d) Sufficient number of solar lights should be installed to illuminate the outdoor campus as the maintenance and production cost of solar light is almost zero.

e) Sensor based LED lights could be installed within the class rooms to save the energy consumption.

f) Awareness programmes should be arranged among the students about the efficient use of electronic tools and safety precautions.

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