

# ENERGY AUDIT REPORT 2021



## NAGAR COLLEGE

*Prepared By*

**INTERNAL QUALITY ASSURANCE CELL**  
**(IQAC)**

**NAGAR COLLEGE**

Nagar, P.S.- Khargram, S.D.- Kandi, District- Murshidabad, PIN- 742159

## Foreword from Principal

In our generation the need of energy is very basic in terms of leading our daily lives. We are all enveloped with the requirements that are directly or indirectly related to consumption of energy. Most of the energy is generated from coal powered plants, but as of today, along with generating energy they do pollute the environment by emitting harmful gases as well. Toxic gases are harmful for the environment and we are helpless, but breathe it reluctantly. At this juncture it is our duty as a responsible citizen and human being to understand the need to conserve energy and use it sustainably. Though at this juncture it may not be feasible to undergo and adopt all sustainable or non-conventional energy sources with time constraint and ongoing pandemic, we have taken the first leap already and need to carry forward with the same.

Nagar College has tried its best to transform the use of energy to non-conventional energy sources by replacing the CFL bulbs to LED tube light and bulbs to cut costs, preserve the resources for longer and sustain the power consumption within the campus. The switch on to eco-friendly energy usage was one of the foremost steps taken to spread the message of sustainable management and energy conservation towards our future generations, and in this case let it be our learners who will become their own shield to pursuit to sustainability.

My best wishes and compliments to our Internal Energy Audit team for their patience and dedication to work on this with the best possible information collected and compiled meticulously.

Regards

Sri Soumen Chakraborty

Principal

Nagar College

Principal  
Nagar College  
Nagar, Murshidabad



## **ENERGY AUDIT TEAM**

- 1. Ananya Sarkar, Asst. Professor, Dept. of Geography**
- 2. Dr. Manik Biswas, Asst. Professor, Dept. of Bengali**
- 3. Pathinmoy Ghosh, SACT, Dept. of Philosophy**
- 4. Ashik Ahamed, SACT, Dept. of English**
- 5. Payel Ghosh, SACT, Dept. of Philosophy**
- 6. Jalaluddin Mondal, SACT, Dept. of Mathematics**
- 7. Dinesh Chandra Pal, SACT, Dept. of Bengali**
- 8. Toufikur Rahaman, Clerk, Nagar College**
- 9. Kajal Pal, Electrician cum Technician, Nagar College**

## **INTRODUCTION**

A check on the usage of energy is very necessary in the present day situation with the upcoming demand on energy consumption. A lot of energy is consumed through our daily activities and routine, even wasted due to sheer negligence. Consumption of energy needs to be curtailed by optimum and sustainable utilization of all electrical appliances and gadgets. Introducing non-conventional energy sources in our daily lives is one of the most viable options that can be adopted; only then sustainable management of energy can be materialized. Nagar College has adopted the use of non-conventional sources by replacing the CFLs with LEDs (tube lights & bulbs) both in the Main building and Annex Building. These resources are to be used economically in such manner in order to conserve them for future use, thus the concept of sustainable management as a part of best practice comes into being. Thus as a part of this practice the college has conducted an Internal Energy Audit which showed the power consumption of various electrical appliances and gadgets per hour in a day.

## **OBJECTIVES**

Energy Audit conducted by our college has the following objectives:

1. To determine the various ways to minimize and reduce energy consumption per unit of product output.
2. To practice the usage of eco-friendly power sources within the college campus.
3. To spread the message of energy conservation amongst students and all staffs.
4. To plan for effective use of electrical appliances in a sustainable way.

## **METHODOLOGY**

The Energy Audit conducted was internal and based on self-enquiry i.e. the amount of power consumed by all the gadgets & electrical appliances in an hour per day and their output. Total number of gadgets & electrical appliances were counted and their units of current/day were calculated thereafter. For few appliances and gadgets instead of an hour, three hour per day was taken into consideration depending upon the time they are put on as per requirement in the college campus in a day.

The faculty in the Energy Audit team was assigned to count the number of appliances in both the campus buildings, compile the data and finally prepare the table showing power consumption. The assigned duty was distributed amongst the faculty and non-teaching staff. A graphical representation is also shown to overview the usage of energy.

## Power Consumption of Various Appliances

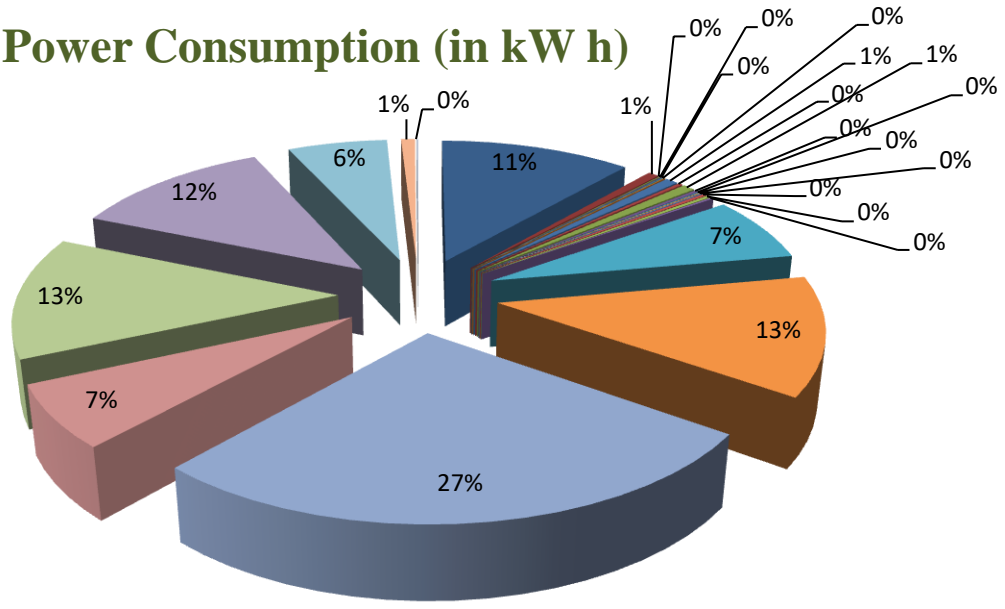
The table below shows the total power consumption of various electrical appliances and gadgets in an hour:

Sl.no	Appliances	Qty.	Power Consumption	Units of Current (in kW h)	Total Power Consumption (in kW h)
1.	Computer	138	40 watt	0.04/ hr	5.52
2.	Laptop	08	25 watt	0.03/ hr	0.24
3.	Tab	01	15 watt	0.01/ hr	0.01
4.	Air Conditioner (Principal's Anti-Chamber)	01	1560 watt	1.56/ hr	1.56
5.	Air Conditioner (Server Room)	01	1570 watt	1.57/ hr	1.57
6.	Photocopier	01	930 watt	0.93/ hr	0.93
7.	Printer (Main & Annex Building)	09	40 watt	0.04/ hr	0.36
8.	Scanner	03	10 watt	0.01/ hr	0.03
9.	Projector	09	150 watt	0.15/ hr	1.35
10.	Inverter (Main Building)	03	945 watt	0.95/ hr	2.85
11.	CCTV DVR	01	50 watt	0.05/ hr	0.05
12.	CCTV LED Monitor	01	150 watt	0.15/ hr	0.15
13.	Elevator/Lift (Annex Building)	01	375 watt	0.38/ hr	0.38
14.	Server (Main Building)	03	80 watt	0.08/ hr	0.24
15.	Water Pump Motor (Main Building)	03	50 watt/hr	0.05/ hr	0.15
16.	Water Pump Motor (Annex Building)	02	100 watt/hr	0.10/ hr	0.20
17.	LED Tube (Main Building)	84	28 watt	0.03/ hr	2.52
18.	LED Bulb (Main Building)	152	15 watt	0.01/ hr	1.52
19.	LED Tube (Annex Building)	328	28 watt	0.03/ hr	9.84
20.	LED Bulb (Annex Building)	80	15 watt	0.01/ hr	0.80
21.	Ceiling Fan (Main Building)	157	85 watt	0.09/ hr	14.13
22.	Ceiling Fan (Annex Building)	144	85 watt	0.09/ hr	12.96
23.	Wall exhaust fan (Annex Building)	72	60 watt	0.06/ hr	4.32
24.	Street Lights	10	15 watt	0.01/ hr	0.10
25.	Pollution Control Display Board	01	80 watt	0.08/ hr	0.08
26.	Power cable and others load	-----	50 watt	0.05/ hr	-----

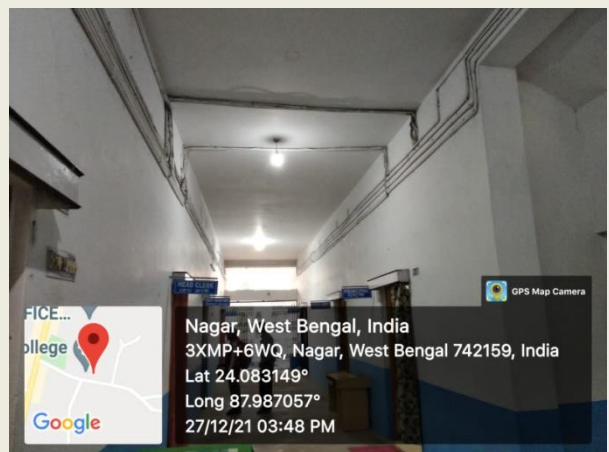
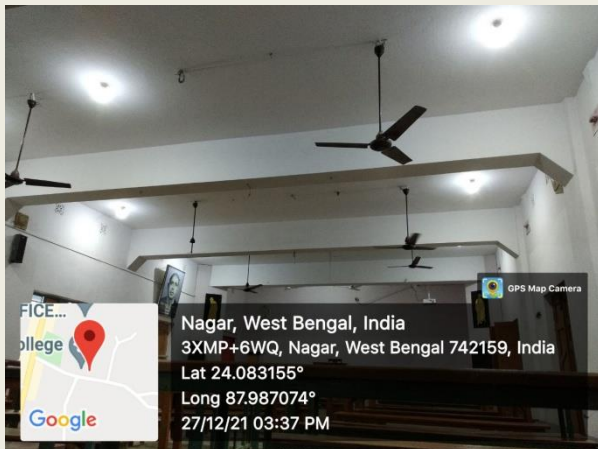
*Source: Campus survey of Main & Annex Building, Nagar College (as on September-November 2021)*

**Graphical Representation of Power Consumption**  
**By**  
**Various Appliances**

# Total Power Consumption (in kW h)



- Computer
- Laptop
- Tab
- Air Conditioner (Principal's Anti-Chamber)
- Air Conditioner (Server Room)
- Photocopier
- Printer (Main & Annex Building)
- Scanner
- Projector
- Inverter (Main Building)
- CCTV DVR
- CCTV LED Monitor
- Elevator/Lift (Annex Building)
- Server (Main Building)
- Water Pump Motor (Main Building)
- Water Pump Motor (Annex Building)
- LED Tube (Main Building)
- LED Bulb (Main Building)
- LED Tube (Annex Building)
- LED Bulb (Annex Building)
- Ceiling Fan (Main Building)
- Ceiling Fan (Annex Building)
- Wall exhaust fan (Annex Building)
- Street Lights
- Pollution Control Display Board





## Use of LED tube lights and bulbs in college campus building

### **Electric Consumption Saving Methods Adopted**

In order to curtail the power consumption the sustainable methods that have been adopted within the college campus are as follows:

1. All faculty, non-teaching staffs and students are asked to switch off/turn off the lights, fans and any other electrical devices when not in use.
2. After college hour is over it is a mandate to check whether the switches are kept off or not.
3. To reduce the power consumption of desktop computers and other gadgets a single power plug-in strip is used as far as possible instead of using a number of outlets.
4. All idle electronics/electrical appliances are kept unplugged when not in use.
5. Use of laptops is encouraged especially for the use of faculty for their academic purpose.
6. Both main and annex building have all LED tube lights and bulbs only.

### **Conclusion**

An honest attempt had been tried to prepare the energy audit report of Nagar College for the year 2021. With all the available resources a short report is finally compiled. But more improvements are necessary from our part. In order to sustain the best practice and manage energy consumption wiring with better quality wires must be provided. On an average the energy consumption has reduced to 10-15% with the introduction of LEDs in the college campus. In future Nagar College aims to introduce more such saving methods to ensure the eco-friendliness within its campus and spread the message of awareness amongst students, staffs and social community for a better atmosphere and sustaining natural environment.