



**ENERGY AUDIT REPORT**  
**NISTARINI COLLEGE, PURULIA**  
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[www.nistarinicollege.ac.in](http://www.nistarinicollege.ac.in)



## **NISTARINI COLLEGE, PURULIA**

### **HERITAGE WITH MODERNITY**

History behind the establishment of the college: The genesis of NISTARINI (WOMEN'S) COLLEGE, one of the premier academic institutes in the State of West Bengal is intimately entwined with the cause of women's education. The institution was first conceptualized in the Summer House of Deshbandhu Chittaranjan Das – whose family had significantly fostered women's education in Bengal and was an integral part of the national freedom struggle.

Sri Bhuban Mohan Das and Smt. Nistarini Devi, father and mother of Sri Chittaranjan Das came to reside in this house in the year 1902. Both of them were dedicated social workers and pioneered in introducing higher education among the women folk of this place. Amala Devi, their daughter started a school to impart higher education to the girls of Purulia. At that time, there was only one lower Primary School, which was known as NISTARINI VIDYALAYA of which Deshbandhu Sri Chittaranjan Das defrayed the entire expenses. A number of the lady teaching staff was brought in to educate girls on all fronts – literary, musical and artistic. An orphanage and widows' home were run under the guidance and supervision of Amala Devi. Soon it became a centre of culture for the people of Purulia. Unfortunately, the demise of all the three, Sri Bhuban Mohan Das, Smt. Nistarini Devi and Amala Devi within a short span of time led to the temporary closure of these institutions. Sometime after, Shrimati Basanti Devi, Chittaranjan's wife came to reside here and the tradition of the house was again revived. This time they paid special attention to educate the Harijan children living in the neighborhood. They, along with their parents, were also encouraged to attend religious ceremonies regularly in this house. When Sri Chiraranjan Das, son of Deshbandhu Chittaranjan Das, fell seriously ill, the then Chief Minister Dr. Bidhan Chandra Roy came to attend him and was impressed by the 'Sankirtan' assemblage of Harijans in this house. As a result of the Chief Minister's own initiatives and the request of the eminent leaders and social workers of this district (Sri JimutBahanSen et al) an educational institution for women was set up. Thus, the Summer House of the family was converted into Nistarini (Women's) College.

- Total campus area: 9.6 acres
- Total built up area: 160 sq miters
- Total open space area: 8 acres
- Total green area: 2 acres

## **EXECUTIVE SUMMARY**

In accordance with the Risk-Based audit and evaluation plan of Nistarini College, Purulia, the energy audit has been done.

The purpose of the energy audit was to evaluate the approaches of the college in search of the energy harnessing from the non-conventional energy sources along with to observe the amount of energy used to maintain the campus for their economic uses of the traditional energy in practices. The audit was also conducted in search of the approaches toward the sustainability as well as to observe the approaches for the reduction of carbon which is the call of the time. The audit also observed their approaches of the college whether the institution is in compliance with the applications of the regulations, policies and standards.

During the audit conducted by the team, the much more attention was given towards the different policies adopted by the government from time to time and the college attitude towards it to follow as a part of their sustainable approaches in their day to day's working policies. The analysis is based upon the standard protocols and the parameters as available in the different domains of the environment regulatory agencies. The methodology was included the physical observation of the ongoing practices around the campus along with the data available from the authority for their proof of credentials used for energy uses from the different government agencies like WNSDCL and others.

## **ACKNOWLEDGEMENT**

We would like to convey our sincere thanks to Dr. I. Deb, Principal, Nistarini College, Purulia for her heartfelt gesture to have the pleasure of this energy audit. We are highly acknowledged to all the staff, students and stakeholders' of the college for their support. We sincerely convey our thanks to all the departments specially the Science departments to make our journey smooth and full of pleasure.

# ENERGY AUDIT

## **Energy Audit:**

It mainly concerned with the energy conservation and methods to reduce the consumption of conventional energy sources related pollution along with an approach to carbon neutrality.

## **Energy Conservation:**

This indicator addresses energy consumption, energy sources, energy monitoring, lighting, appliance like AC, high consuming energy device of science laboratories, natural gas and vehicles. Energy use is clearly an important aspect of campus sustainability and thus requires no explanation for its inclusion in the assessment. Use of least papers in daily basis substituted by the electronic messages and notices are the another aspects of the energy conservation strategies are exercised here.

### **a) Observations**

Total energy consumption is determined as 97 KWH/Year by major energy consuming equipment. All the departments and common facility centers are equipped with CFL lamps. The college has eight numbers Air conditioning machine (2 tons each). Besides this, photovoltaic cells are also installed in the campus as an alternate renewable source of energy. Equipments like Computers( 100nos with TFT monitors) are used with power saving mode. Also, campus administration runs switch –off drill on regular basis. In Science departments like Physics, Chemistry, Botany, Zoology, Computer Science, Mathematics, and Geography, the switches were shut down after occupancy time and are one of green practices for energy conservation. Along with this, college has installed 07 solar street lamps as a part of the green practice to minimize the emission of CO<sub>2</sub> in the atmosphere. The summary of the observations are as followed;

1. College has seen ambience covering approx. 2.0 acres,
2. Imitative solar panels installment as street lights another approaches.
3. College is monitoring all sorts of approaches to use the biodegradable wastages to generate power ion the forthcoming days,
4. College always tries to practice all the electric appliances in switch off mode whenever is required.
5. Most of the devices are run as per need and demand basis.
6. The use of the AC is very restricted here that is reflected by a very small number of ACs around the campus.

## **b) Recommendations**

Sustainability and an approach towards carbon neutrality are the call of the time. Support renewable and carbon-neutral electricity options on any energy-purchasing consortium, with the aim of supplying all college properties with electricity that can be attributed to renewable and carbon-neutral sources. It is preferable to purchase electricity from a company that invests in new sources of renewable and carbon-neutral electricity. Installation of LED lamps instead of CFL is although becomes the normal practices of the college which is reflected by the following data- LED 89, CFL-117, Tube lights 712, Only 4 incandescent lamps out of large network, Fans 2813. These figures are enough to speak about the approaches to go green concept' materialized here. It has least number of water heating systems. Most of the instruments not run by standby mode that also reflects the use of the conservation of energy strategies.

## ENERGY AUDIT WORKING FORMAT

### Audit Framework and detail findings

The following audit framework is used for conduction energy Audit Value in the year 2021-22. The framework also lists the findings and observation for every criterion.

Control Objective	Control	Audit Observations
Reduce Energy consumption especially of energy derived from fossil fuels	Support renewable and carbon neutrality options in any energy purchasing consortium	The college mostly runs by the electric derived from the non-renewable sources although college opted the options for green energy by harvesting solar energy in the solar street lamps.
	It is expected to purchase the electricity of that company that invests money on green energy	The college has no choice of alternative as west Bengal State electricity distribution Company is the only source of power distribution
	Look in to the possibility of onsite micro generation of renewable electricity	College has installed solar street lamps panels
	Give preference to the most energy efficient appliances	The college has maximum LED bulbs, CFL bulbs with tube lights. Incandescent bulb near about Zero.
	Energy efficient heating systems	College has a energy heating system which is negligible
	O promote the slogan of save energy by campaign	The college has the pleasure of beauty to raise the voice against the over utilization and practice least energy consumption. Switch off slogan without the requirement is most important practices here.
	Monitor and understand the importance of different sources of college energy consumption and set	Disconnection of power supply is done when not in use

	appropriate and measurable targets for a reduction of certain areas of consumption	
	Ensures that all electronic and electrical equipments such as computers, are switched off when not in use and is generally configured in power off mode	All the devices having electric connection are switched off when not in use
	Is there any instrument running on standby mode , reduce energy consumption	Equipments running on standby mode

## CONCLUSIONS

After the delicate observation of the different parameters related to the energy uses in the different wings of the college, it has been observed that there is a significant concern over environmental conservation along with the use of energy both by the faculty and the students along with the other stakeholders. The Go green awareness initiatives are substantial. The installation of solar panels as pilot project and the optimum use of the paperless work system are note worthy. The college has an sound, vibrant and dynamic Eco club and Green volunteers to promote the sustainable use of the energy sources along with there is a wide circulation of the messages of the 'Go green' concept. The undergraduate college very often organizes the different kinds of the environmental campaign by organizing seminars, workshops and other activities round the year to promote the culture of sustainability in all respects.

As a part of the Energy audit of campus, I along with my team members also carried out the different the environmental monitoring includes illumination, solar street lamps observation and the wastage recycling management practices. We have observed the sufficient illumination and ventilation in the class rooms and office premises that speak the minimum requirement of artificial source of light particularly in the complete day time. We hope, that the girls are the future citizen of our country who play a very important role in the sustainability of energy and nature. It is our pleasure to have the exercise of all the stakeholders in this regard.

