

NAHATA JOGENDRA NATH MONDAL SMRITI MAHAVIDYALAYA

P.O. -Nahata, P.S. - Gopalnagar, Block - Bongaon, Dist.- North 24PGS,
West Bengal, Pin-743290

ENERGY AUDIT REPORT

For the Year 2019-22



Contains

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CERTIFICATE

PRESENTED TO

NAHATA JOGENDRA NATH MONDAL SMRITI MAHAVIDYALAYA

P.O. -Nahata, P.S. - Gopalnagar, Block - Bongaon, Dist.- North 24PGS, West Bengal, Pin-743290.

Has been assessed by the audit team for the comprehensive study of energy audit on Institutional working framework to fulfil the requirement of

ENERGY AUDIT

The energy saving initiatives has been taken by the Institution have been verified in the report submitted and were found to be satisfactory.

The effort taken by management and faculty towards all types of energy used in the Institution and sustainability are highly appreciated and noteworthy.

Date:27/04/2022



Mr. S. Kayal

Lead Auditor EMS & Energy (EnMS)

NBQP(QCI) registered Principal Auditor



ACKNOWLEDGEMENT

We would like to thank the management of NAHATA JOGENDRA NATH MONDAL SMRITI MAHAVIDYALAYA for assigning this important work of Energy Audit. We appreciate the co-operation to the teams for completion of assessment.

We would also like to thank **Dr. Arnab Ghosh (Principal)**, for his continuous support and guidance, without which the completion of the project would not have been possible. We are also thankful to other staff members who were actively involved while collecting the data and conducting field measurements.

We would like to thank **Dr. Arnab Ghosh (Principal)**, for giving us an opportunity to evaluate the performance of the campus.



DISCLAIMER

Energy Audit Team has prepared this Energy Audit Report for NAHATA JOGENDRA NATH MONDAL SMRITI MAHAVIDYALAYA based on input data submitted by the representatives of college complemented with the best judgment capacity of the expert team.

While all reasonable care has been taken in its preparation, details contained in this report have been compiled in good faith based on information gathered.

It is further informed that the conclusions are arrived following best estimates and no representation, warranty or undertaking, express or implied is made and no responsibility is accepted by Audit Team in this report or for any direct or consequential loss arising from any use of the information, statements or forecasts in the report.

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Supriyo Kayal
Lead Auditor EMS & Energy



ABBREVIATION

A	Amps
AC	Air Conditioner
AC	Alternating Current
AMET	Academy of Maritime Education and Training
CFL	Compact fluorescent lamp
CIP	Comprehensive Inspection Programme
DC	Direct Current
HSD	High Speed Diesel
Hz	Hertz
kg	Kilogram
kVA	kilo-volt-ampere
kW	kilo Watts
kWh	kilowatt hour
kWp	Kilowatt peak
LED	Light Emitting Diode
LPG	Liquefied Petroleum Gas
MMS	Module mounting structure
MPPT	Maximum Power Point Tracker
NAAC	The National Assessment and Accreditation Council
SEC	Specific Energy Consumption
TV	Television
V	Volts
W	Watts
W/m²	watt per square metre



OVERVIEW OF THE COLLEGE

Nahata Jogendra Nath Mondal Smriti Mahavidyalaya is a co-educational institution. The history of this institution is a history of progress. This college is mainly built for the purpose of education and development of the poor and falling behind students. In 1983, an all-out effort was undertaken in the area by the Government of West Bengal to expand higher education in rural Bengal and realize the aspirations of the people. Nahata Jogendranath Mondal Smriti Mahavidyalaya was affiliated to Calcutta University and this was established on 1st July 1985 with the efforts of the then Education Minister Mr. Kanti Biswas and the late Mr. Shantimoy Ghosh and with the sincerity and cooperation of people from all sections of the society. Late Mr. Rakhil Bhowmick and Mr. Hari Mohan Bhowmik donated land for the establishment of the college. Nahata High School donated classrooms and office rooms free of cost for almost two and a half years to run the college. At that time, high school teachers also taught college students responsibly. Nahata Jogendranath Mandal Smriti Mahavidyalaya has become an inexhaustible achievement in the development of the area for the past 30 years. Presently, the college is under the West Bengal State University and till now the college is running with graduate level courses in sixteen subjects and with PG courses in Bengali. Post-Graduate Bengali department reading-reading has started from the academic year 2018-2019. The NCC department of the college is progressing successfully. Apart from this, every year the college continues to play its leading role by participating in various folk festivals including the local agricultural fair and health fair and establishing cordial relations. The college also helps in raising public awareness by organizing blood donation camps, dengue prevention, thalassemia screening and health screening camps. The College is committed to the goal of holistic education and social upliftment.



Vision

To serve the needs of the locality by providing higher education with a multifaceted human-centred approach to the socially, economically and other backward class masses for a better educational environment and holistic development.

Mission:

M1: To create an enlightened society by educating the local younger section of the society and make them competent for the development of the nation.

M2: To orient the local younger generation with multidisciplinary courses and make them capable of pursuance of higher studies and research activities.

M3: To provide quality education to all the students of the area for integrated growth and personality development.

M4: To create a quality youth force through value education beyond their syllabus so that they bear the responsibility to fight against ignorance, illiteracy and other social evils.

M5: To explore the qualities and talents of the students and provide them with facilities for pursuance of their talents at the state and national levels and also shape their talents into professional skills.

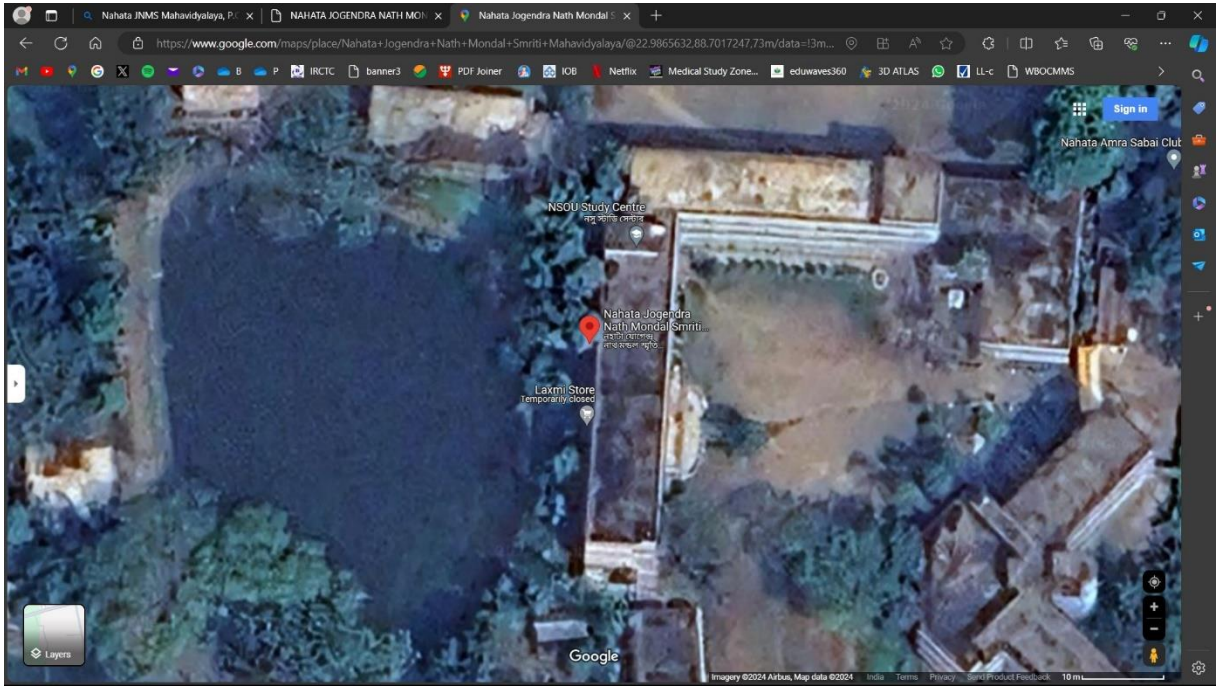


Energy Policies:

- ✚ Phased manner changing of normal conventional lights to energy efficient LED lights. All new lights procured will be LED lights only.
- ✚ Timely switching off and switching on of street lights.
- ✚ Optimum use of air conditioners. Switch on as and when required.
- ✚ Phased manner replacement of electrical appliances like ACs, Fridge, etc. with Energy efficient (Higher star rating) appliances.
- ✚ Activate power management features on your computer and monitor, so that it will go into a low power “sleep” mode when you are not working on it.
- ✚ Minimum use of ground water by reduced hours of pumping.
- ✚ Regular checking of leakage in water pipe lines and taps.
- ✚ Save water and save electricity stickers placed at prominent places.
- ✚ Conduct of different awareness campaign on “Save Water”, “Save Trees” & Save Electricity through lectures/different competitions etc.
- ✚ Vermi composting is also in practice for disposing the wet waste from canteen and also other biodegradable wastes.
- ✚ Tree plantation in Campus.
- ✚ Ensuring ban on single use plastic bags in campus.
- ✚ Encourage use of public transport & Car-pooling (i.e. reduced vehicular use in the campus).
- ✚ Waste collection bins (i.e. burnable, non-burnable & recyclable) and their management.
- ✚ Ensuring proper e-waste management.



Location:



AUDIT PARTICIPANTS

On behalf of college

Name	Designation

On behalf of Auditor Services

Name	Position	Qualifications
Mr. Supriyo Kayal	Lead Auditor	<i>M.Sc., DIPC. Energy Management System Auditor</i>



EXECUTIVE SUMMARY

The purpose of this Energy Audit was to seek opportunities to improve the energy efficiency of the NAHATA JOGENDRA NATH MONDAL SMRITI MAHAVIDYALAYA. Reducing the energy consumption despite improving the human comfort, health and safety were of primary concern.

Beyond just identifying the energy consumption pattern, this audit sought to detect and categorize the most energy efficient appliances. Additionally, some daily practices relating common appliances have been shared which may help reducing the energy consumption. Data collection for energy audit of the campus was carried out by the Auditor Team. The Energy Audit Report accounts for the energy consumption patterns of the institution on actual survey and detailed analysis during the audit.

The work comprehends the area wise consumption traced using suitable equipment. The analysis was carried out by our team with the support of the staff members from NAHATA JOGENDRA NATH MONDAL SMRITI MAHAVIDYALAYA. The report provides a list of possible actions to preserve and efficiently access the available source, resources and their saving potential was also identified. We look forward towards optimization that the authorities, students and staff members would follow the recommendations in the best possible way. The report is based on certain generalizations including the approximations wherever necessary. The views conveyed may not reveal the general opinion. They merely represent the opinion of the team guided by the interviews of clients. We are happy to submit this Energy audit report to the NAHATA JOGENDRA NATH MONDAL SMRITI MAHAVIDYALAYA.

Objectives of Energy Auditing

The energy audit provides the vital information base for overall energy conservation program covering essentially energy utilization analysis and evaluation of energy conservation measures. It aims at:

- ✚ Identifying the quality and cost of various energy inputs.
- ✚ Assessing present pattern of energy consumption in different cost centres of operations.



- ✚ Relating energy inputs and production output.
- ✚ Identifying potential areas thermal and electrical energy economy.
- ✚ Highlighting wastages in major areas.
- ✚ Fixing of energy saving potential targets for individual cost centres.
- ✚ Implementation of measures for energy conservation & realization of savings

Methodology:

- ✚ Methodology adopted for achieving the desired objectives viz.: Assessment of the current operational status and energy savings include the following:
- ✚ Discussions with the concerned officials for identification of major areas of focus and other related systems.
- ✚ Team of engineers visited the site and had discussions with the concerned officials to collect data / information on the operations and load distribution within the plant and same for the overall premises. The data was analysed to arrive at a base line energy consumption pattern.
- ✚ Measurements and monitoring with the help of appropriate instruments including continuous and / or time-lapse recording, as appropriate and visual observations were made to identify the energy usage pattern and losses in the system.
- ✚ Trend analysis of costs and consumptions.
- ✚ Capacity and efficiency test of major utility equipment's, wherever applicable.
- ✚ Estimation of various losses
- ✚ Computation and in-depth analysis of the collected data, including utilization of computerized analysis and other techniques as appropriate were done to draw inferences and to evolve suitable energy conservation plan/s for improvements/ reduction in specific energy consumption.



ENERGY AUDIT - ANALYSIS

1. ENERGY CONSUMPTION

To understand the Energy Consumption trends and for analysing the average monthly consumption we have collected electricity energy bills from July 2021 to June 2022

The details of “**Meter Connection**” at “**NAHATA JOGENDRA NATH MONDAL SMRITI MAHAVIDYALAYA**” are as follows-

Name - The Principal NAHATA JOGENDRA NATH MONDAL SMRITI MAHAVIDYALAYA

CA No. -

1.1 Summary of Monthly Electricity Consumption and Total Bill Amount

To understand the Energy consumption trend and for developing the baseline parameter we have collected monthly energy bill for the 12 months i.e. from July 2022 to June 2023

Electrical Instruments:

Particulars Quantity

Bulb and

Tube light 204

Fan 180

AC 07

Computer, Printer 35

* Electricity measured as Units and

** Fuel used for DG set measured in Litre

Particulars of Electric consumption in Rupees given below:





WBSEDCL

Payment Receipt

WEST BENGAL STATE ELECTRICITY DISTRIBUTION COMPANY LIMITED
(A GOVERNMENT OF WEST BENGAL ENTERPRISE)

Transaction ID: 1620105461276
Date: 03.03.2022
Payment Gateway: KIOSK-315710201
Billing Office: GOPAINAGAR CUSTOMER CARE CENTRE
Consumer Id: 164047712
Name: TEACHER INCHARGE OF J.N.M.S.
Invoice Number /Appl. No. /Inst. No: 452008485709
Bill Paid For: MAR2022-MAY2022
Payment Mode : KIOSK
Received: Rs. 20264.0

* Payment subject to realisation.

Thank You





Payment Receipt

WEST BENGAL STATE ELECTRICITY DISTRIBUTION COMPANY LIMITED
(A GOVERNMENT OF WEST BENGAL ENTERPRISE)

WBSEDCL

Transaction ID: 1620108641277
Date: 03.03.2022
Payment Gateway: KIOSK-315710201
Billing Office: GOPAINAGAR CUSTOMER CARE CENTER
Consumer Id: 103335601
Name: TEACHER IN CHARGE JNMS MAFAVIDYALAYA
Invoice Number /App. No. /Inst. No: 478006847815
Bill Paid For: MAR2022-MAY2022
Payment Mode : KIOSK
Received: Rs. 1352.0

* Payment subject to realisation.

Thank You



Book No. - MR/2019

WBSEDCL - 9B

Serial No. C

Money Receipt

0919977

WEST BENGAL STATE ELECTRICITY DISTRIBUTION COMPANY LIMITED

(A GOVERNMENT OF WEST BENGAL ENTERPRISE)

WBSEDCL

Receipt No : 129504882204
Date : 31.01.2022 14:37:22
Collector Code : 90018852 Counter: 02
Collection Off : GOPAINAGAR CUSTOMER CARE CENTER

Billing Off : GOPAINAGAR CUSTOMER CARE CENTER
RP.No: 12975353 Consumer Id: 154047712
Name : TEACHER INCHARGE OF J.N.M.S.
Payment For Disconnection & Reconnection Chro
Payment Mode : Cash
Received : Rs. 100.00

Please preserve it for future reference

* Payment subject to realisation of cheque.

Thank You





Book No. - MR/2019
WBSEDCL - 9B
WBSEDCL - 9B

Serial No. C
0919977
Serial No. C
0919976

Money Receipt

WEST BENGAL STATE ELECTRICITY DISTRIBUTION COMPANY LIMITED

(A GOVERNMENT OF WEST BENGAL ENTERPRISE)

KAM FORMS
8/19
Please preserve it for future reference

Receipt No : 132604878485
Date : 31-01-2022 14:36:38
Collector Code : 90018852 Counter: 02
Collection Off : GOPALNAGAR CUSTOMER CARE CENTER

Billing Off : GOPALNAGAR CUSTOMER CARE CENTER
BP.No: 12975353 Consumer Id: 154047712
Name : TEACHER INCHARGE OF T.N.M.S.
Invoice Number: 454008792911
Bill Paid For: DEC.2021-FEB.2022
Payment Mode : Cash
Received : Rs. 19161.00



* Payment subject to realisation of cheque.

Thank You





Book No.

WBSEDCL - 9B

Serial No. C

Money Receipt

4811914

WEST BENGAL STATE ELECTRICITY DISTRIBUTION COMPANY LIMITED

(A GOVERNMENT OF WEST BENGAL ENTERPRISE)

Receipt No : 132004768850

Date : 05.10.2021 13:12:55

Collector Code : 90010852 Counter: 02

Collection Off : GOPALNAGAR CUSTOMER CARE CENTER

Billing Off : GOPALNAGAR CUSTOMER CARE CENTER

SP.No: 12175353 Consumer Id: 154047712

Name : TEACHER INCHARGE OF J.N.M.S.

Invoice Number: 406004727647

Bill Paid For: SEP.2021-NOV.2021

Payment Mode : Cash

Received : Rs. 22610.00



Thank You





Book No. - MR/2019

WBSEDCL - 9B

Serial No. C

Money Receipt

4811912

WEST BENGAL STATE ELECTRICITY DISTRIBUTION COMPANY LIMITED

(A GOVERNMENT OF WEST BENGAL ENTERPRISE)

Receipt No : 129804770179
Date : 05.10.2021 13:09:25
Collector Code : 90018952 Counter : 02
Collection Off : GUPALNAGAR CUSTOMER CARE CENTER
Billing Off : GUPALNAGAR CUSTOMER CARE CENTER
BP.No: 22397900 Consumer Id: 103333601
Name : TEACHER IN CHARGE JNMS MAHAVIDYALAYA
Invoice Number : 478005048910
Bill Paid For: OCT.2021-DEC.2021
Payment Mode : Cash
Received : Rs. 1740.00

* Payment subject to realisation of cheque.

Thank You



WBSIEDCL
KIOSK:<GOPALNGAR CCC>

(GOPALNAGAR CCC)
Money Receipt
For any Complaints /Query Dail
19121 (Toll Free)

KIOSK ID :315710201
Receipt No :1620100051277
Pay Mode :Cash
Pay Date :05/06/2021 11:21:26 AM
Bill Period for :JUL2021-SEP2021
Consumer ID :103333601
BP No :0022397900
Name :TEACHER IN CHARGE JNMS
MAHAVIDYALAYA
Bill Amount :Rs.120
Paid Amount :Rs.120
(One hundred Twenty Only)
Excess Pay (If Any) :Rs. 0
Less Pay (If Any) :Rs. 0
Sec Key :YXQiZ
Dr By :Operator

THANKS FOR USING ATP KIOSK(i"EASYPAY)
DESIGNED & DEVELOPED BY
IDEA INFINITY IT SOLUTIONS PVT LTD

WBSIEDCL
KIOSK:<GOPALNGAR CCC>

(GOPALNAGAR CCC)
Money Receipt
For any Complaints /Query Dail
19121 (Toll Free)

KIOSK ID :315710201
Receipt No :1620100051276
Pay Mode :Cash
Pay Date :05/06/2021 11:18:28 AM
Bill Period for :JUN2021-AUG2021
Consumer ID :154047712
BP No :0012975353
Name :TEACHER INCHARGE OF
J.N.M.S.
Bill Amount :Rs.20482
Paid Amount :Rs.20480
(Twenty thousand Four hundred Eighty 0
nly)
Excess Pay (If Any) :Rs. 0
Less Pay (If Any) :Rs. 2
Sec Key :xbHwY
Dr By :Operator

THANKS FOR USING ATP KIOSK(i"EASYPAY)
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IDEA INFINITY IT SOLUTIONS PVT LTD



ANALYSIS

There should be regular maintenance schedule of equipment like pumps, exhaust fans and IT equipment. Electronics such as computers, printers, scanners, etc.

AREAS FOR IMPROVEMENT

Lighting System:

- ✚ All “conventional FTL (46 Watt) should be replaced by energy efficient LED Tube Light fixture (20 Watt).
- ✚ Installation of “**Timer control on street lighting**” in college campus recommended for energy saving in the campus.

Ceiling Fan and Exhaust Fan:

- ✚ Replacement of “conventional ceiling fan 80 Watt” by energy efficient star rated fan or BLDC based energy efficient fan (20 to 25 Watt) in “admin building, class rooms, Auditorium Hall laboratories and faculties cabin” have great potential for energy saving.

Air Conditioning System:

- ✚ It is recommended “Fall Ceiling “in air conditioning area. It will be reduced air conditioning load of AC and unit consumption.
- ✚ Reduced the infiltration from door and window in air conditioning area



Energy Management Workshop and Training:

- ✚ Develop energy management policies for college. Establish a procurement policy that is energy saving and eco-friendly.
- ✚ Conduct awareness and training programs for faculty, student and non-teaching staffs. Conduct seminars, workshops and exhibitions on energy management education.
- ✚ This policy will be communicated to students, teaching and nonteaching staff through internal communication channels and will be made available to public through college website.



Mr. S. Kayal

Lead Auditor EMS & Energy (EnMS)

NBQP(QCI) registered Principal Auditor

***** **END OF THE REPORT** *****

