ENERGY AUDIT: 2022-23

PANDIT DEENDAYAL UPADHYAYA ADARSHA MAHAVIDYALAYA, AMJONGA,

GOALPARA, PIN-783124

ENERGY AUDIT CERTIFICATE

Is awarded for 2022-2023 session

This is to certify that **Pandit Deendayal Upadhyaya Adarsha Mahavidyalaya, Amjonga, Goalpara Assam, India, PIN-783124** has conducted detailed Energy Audit of their campus. The activities and measures carried out by the college have been verified and found to be acceptable.

The energy conservation opportunities have already been identified by the college and few of them are under implementation. The audit team has also suggested opportunities and it was acceptable by the management.

The positive approach of the management towards energy, environment and sustainability is highly valued and commendable.

Issued on **21st February 2024** valid till **20th February 2025**

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Energy Audit: 2022-23

PANDIT DEENDAYAL UPADHYAYA ADARSHA MAHAVIDYALAYA

AMJONGA, GOALPARA, ASSAM – 783124

According to Energy Conservation Act, 2001, Energy Audit is the verification, monitoring and analysis of the use of energy including submission of technical report containing recommendations for improving energy efficiency with cost benefit analysis and an action plan to reduce energy consumption.

Energy and electricity audit cover the average consumption of Electrical and Natural Gas energy within the campus. Electricity audit tries to give an idea about the consumption of average Electricity power within the various Academic and Administrative Blocks of the College campus. On the other hand, within the Faculty Quarters (16 Nos.) and Women's Hostel (01 No.) Natural gases (LPG cylinders) are primarily used for cooking purpose. Moreover, Pandit Deendayal Upadhyaya Adarsha Mahavidyalaya, Amjonga (PDUAM) is taking its initial initiatives to utilize renewable energy such as solar power energy to generate electricity to compensate the necessity of electrical energy within the campus. To achieve that goal, 08 Nos. of Integrated Solar Street light are already been installed within the different parts of the campus each of which generates 74KWH per day. On the other hand, to minimize the consumption of electrical energy highly efficient and low power consumable LED light panels are being installed within the various academic and Administrative departments as well as in the Women's Hotel and faculty quarters.

SOP for calculating electrical energy consumption:

Consumption of electrical energy depends on various factors like:

1) Initial load in KWA,
2) Electrical phase and thereby resistance,
3) Nature of the conducting material used,
4) Nature and type of electrical gadgets used and
5) Duration of the electrical appliances used.

Average energy consumed by various electrical gadgets per hour used within the College campus:

3.

Serial No	Name of the Equipment	Energy consumed per hour in Watt
01	LED Tube Light	55
02	Ceiling Fan	75
03	Computer (Desktop & Laptop)	170
04	Printer (Colour, Black & White)	50
05	Xerox Machine	250
06	Television	30
07	CCTV Monitor	40
08	Server Computer	120
09	CRO	35
10	Refrigerator	130
11	Smart Board with inbuilt computer	150
12	Projector	150
13	Laboratory Equipment	300
14	Water Pump	750
15	Water Purifier (Reverse Osmosis)	25
16	Biometric Machine	5
17	Exhaust Fan	40
18	LED Bulb	30
19	Air conditioner 5-Star rated	150

Table drawn below shows the average consumption of electrical energy per annum from the financial year 2018 – 2019 to 2022 – 2023 by the Institution.

Sl. No	**Financial Year**	**Average Energy consumption per Months (KVA)**	**Average Monthly Electricity Bill (Rupees)**
1	2022 – 23	35142.9	2, 46, 000/-
2	2021 – 22	35142.9	2, 46, 000/-
3	2020 – 21	35714.3	2, 50, 000/-
4	2019 – 20	35714.3	2, 50, 000/-
5	2018 – 19	34285.7	2, 40, 000/-
Average		**35200.02**	**2, 46, 400/-**

From the data it is evident that the average 35200.02 KVA unit per annum of electricity energy has been consumed by the College in the last five financial years from 2018 – 2019 to 2022 – 2023. Data shows that the average power consumed by college is almost uniform with little fluctuation of average consumption. However, there will be a good possibility to increase the monthly average electrical energy power consumption as soon as the infrastructural developments activities were undertaken within the campus.

Figures given below shows the comparison of monthly average power consumption within the College campus

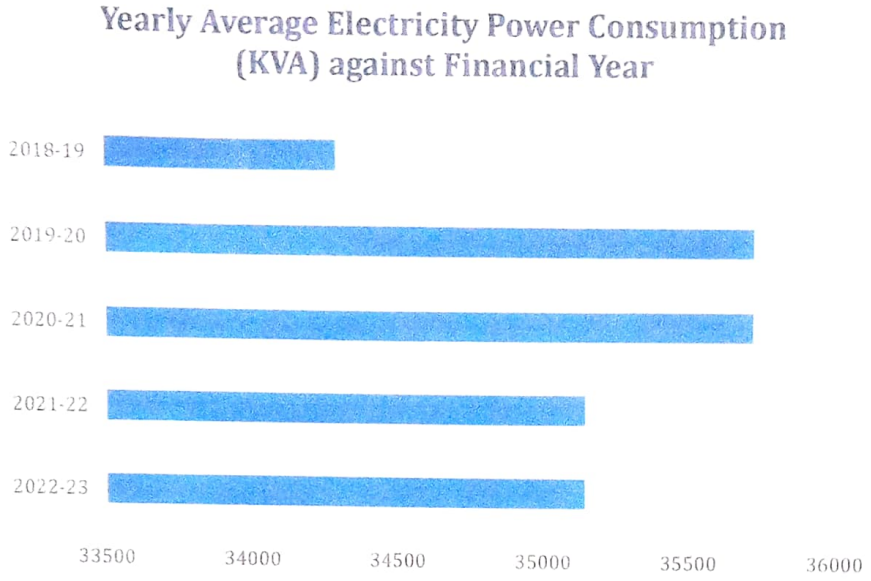

Figure 1: Average Yearly consumption of electric power within the campus since 2018-19 to 2022-23

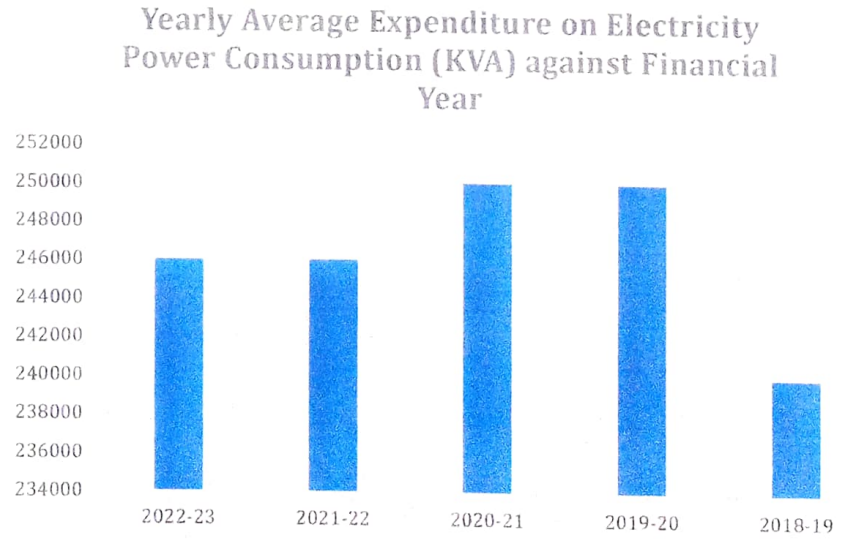

Figure 2: Yearly Average Expenditure on Electricity power consumption

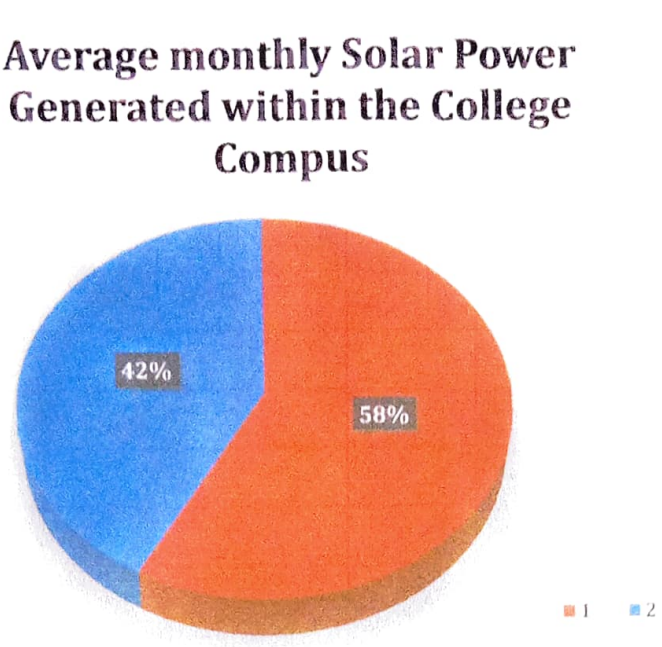

Figure 3: Monthly Solar power generated (Blue) and Electric Power Consumed (Red) within college campus

It has been observed from Figure 2, that there is an equilibrium demand in the electricity power requirement within the College campus. To compensate the rising power requirement 04 Nos of integrated solar street light are installed within the College campus. Annually, Pandit Deendayal Upadhyaya Adarsha Mahavidyalaya, Amjonga (PDUAM) has generated **296** KWH of electricity energy through integrated solar panels. Figure 3, gives the power generated from the solar power panels installed within the College campus. In the financial year 2023-2024 and 2024-2025, the College authority planned to install 10 KVA On-Grid Roof Top solar panel within the College campus to minimize regular electricity consumption and to keep pace with on-going sustainable development goal.

To minimize the power consumption within the campus, Pandit Deendayal Upadhyaya Adarsha Mahavidyalaya, Amjonga (PDUAM) is in a process of replacing old high-power Halogen and CFL blubs with low power consumption LED Bulbs. At present Pandit Deendayal Upadhyaya Adarsha Mahavidyalaya, Amjonga (PDUAM) have around 260 numbers of LED bulbs and LED tubes compared to 45 numbers of CFL bulbs and 2 numbers of high-power Halogen Bulbs in various academic and administrative blocks.

Number of various electrical gadgets used within the college campus are shown in the tabular form: On the other hand, on an average 96 numbers of natural gas (LPG cylinders)

Serial No	Name of the Equipment	Quantity
01	LED Tube Light and Bulbs	643
02	Ceiling and Wall Fan	165
03	Computer (Desktop & Laptop)	25
04	Printer (Colour, Black & White)	04
05	Xerox Machine	01
06	Television	01
07	CCTV Monitor	01
08	Server Computer	01
09	CRO	02
10	Refrigerator	03
11	Smart Board with inbuilt computer	02
12	Projector	02
13	Laboratory Equipment	15
14	Water Pump	02
15	Water Purifier (Reverse Osmosis)	01
16	Biometric Machine	01
17	Exhaust Fan	20
18	Air conditioner 5-Star rated	01

Recommendations:

- Installation of Solar Panels should outmost priority
- Old cables should be immediately be replaced to minimize power loss
- Bulbs other than energy efficient LED must not be used
- All AC's should be upgraded to 5* (Five Star) operating at low voltage

Prepared by

20.02.2024

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20/02/24

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In Association with IQAC, Jawaharlal Nehru College, Boko

Signature of the College Authority

20.2.2024

(*Dr Navajyoti Sarmah*)
Principal,
PDUAM, Amjonga, Goalpara

Principal
Pandit Deendayal Upadhyaya
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