

Energy Audit: 2022-23

F. A. Ahmed College, Garoimari

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 Women's Hostel Natural gases (LPG cylinders) are primarily used for cooking purpose. Moreover, Fakhruddin Ali Ahmed College, Garoimari 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, 02 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.

On an average 1052 units per month of electricity energy has been consumed by the College in the year 2020-21. In the current year 2022-23, average power consumed by the same was 1558 units per month. Highest power consumption has been observed in the financial year 2019-20 and 2018-19. It has been observed that, there is a sharp increase of about 300 % in the monthly average electrical energy consumption by the College, and it is due to increasing number of infrastructural developments within the campus. Table drawn below shows the average consumption of electrical energy per month from the financial year 2018 – 19 to 2022 – 23.

Sl. No	Financial Year	Average Energy consumption per Months (KVA)	Average Monthly Electricity Bill (Rupees)
1	2022 – 23	1558	10,909/-
2	2021 – 22	1104	7,728/-
3	2020 – 21	1052	7,362/-
4	2019 – 20	3548	24,836/-
5	2018 – 19	3025	21,175/-

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

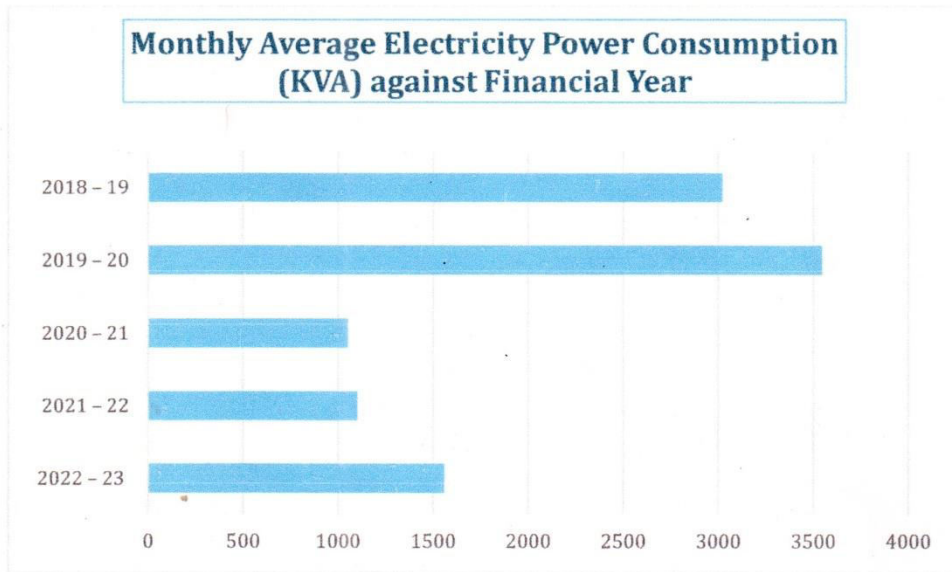


Figure 1: Average monthly consumption of electric power within the campus since 2018-18 to 2022-23

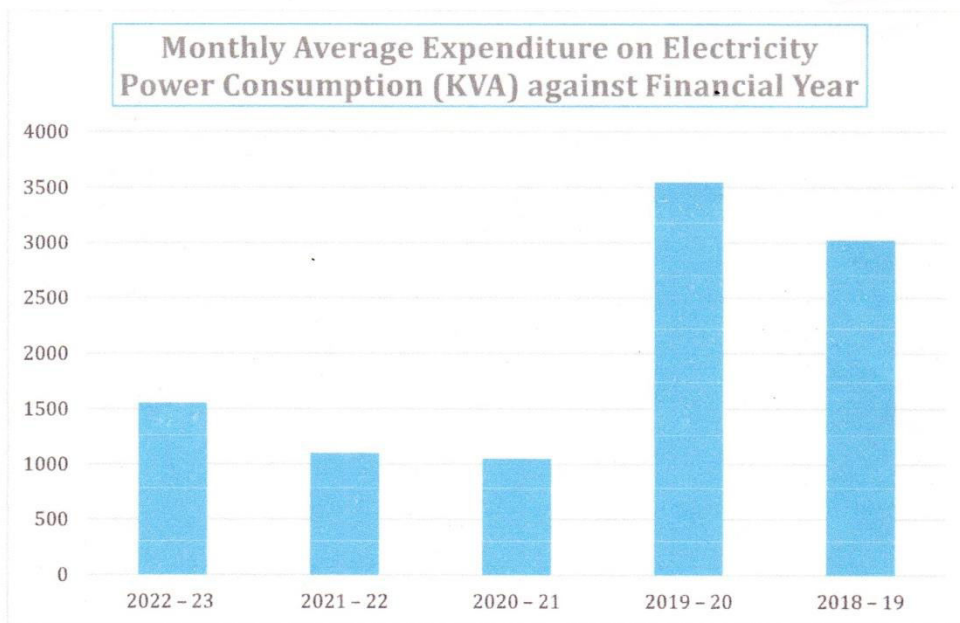


Figure 2: Monthly Average Expenditure on Electricity power consumption

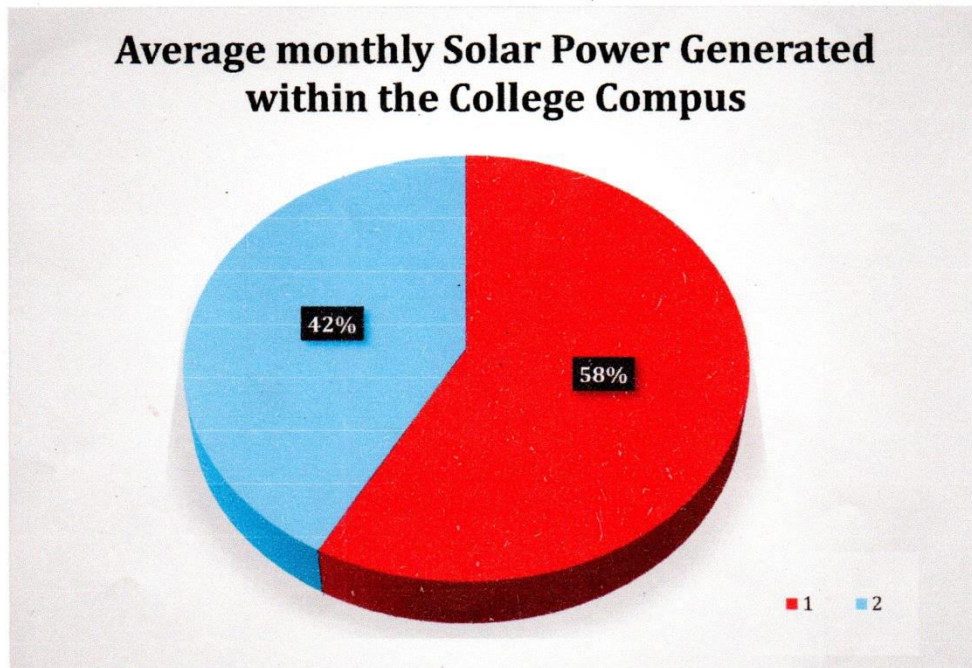


Figure 3: Monthly Solar power generated (Blue) and Electric Power Consumed (Red) within college campus

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, Fakhruddin Ali Ahmed College, Garoimari 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 2023-24 and 2024-25, 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, Fakhruddin Ali Ahmed College, Garoimari is in a process of replacing old high-power Halogen and CFL blubs with low power consumption LED Bulbs. At present Fakhruddin Ali Ahmed College, Garoimari have around 120 numbers of LED bulbs and 24 numbers of LED tubes compared to 45 numbers of CFL bulbs and 2 numbers of high-power Halogen Bulbs in various academic and administrative blocks. Moreover, FA Ahmed College has presently 01 numbers of AC (Air Conditioner, 5 Star rated), and around 122 numbers of Celling fans, 17 numbers of wall fans with 16 numbers of adjust fans installed in different academic and administrative blocks. Power is also consumed for the regular use of desktops (10 Nos), Laptops (02 Nos), inverters (03 Nos) and water pumps (05 Nos). On the other hand, on an average 12 numbers of natural gas (LPG cylinders) per month has been consumed in the hostel, and College canteen.

Recommendations:

- Installation of Solar Panels should outmost priority
- Old cables should be immediatly 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

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