

Energy Audit Report

Presented by:

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Introduction

- **Energy Audit of the Institute was carried out by M/s. ECI Consulting Engineers Pvt. Ltd. B-604, Plot No, 6B, Harmony Apartment, Sector-23, Dwarka, Delhi-110077.**
- **It was carried out as per the guidelines and instructions of Department of New and Renewable Energy & HAREDA, Haryana on dated 11th & 12th March, 2024.**
- **The work was carried out by team members of M/s. ECI Consulting Engineers Pvt. Ltd. Dwarka, Delhi.**
- **Team Leader:**
 - ✓ **Manjeet Singh, Accredited Energy Auditor (AEA-0258)**
- **Team Members:**
 - ✓ **Mr. Sachin Kumar, Mr. Karambir Singh & Mr. Satyender Kumar**
- **The Comprehensive Energy Audit report was submitted by the Accredited Energy Audit Organization on dated 14.07.2024.**

Observations, Recommendations and Step Taken by the Institute to implement the Energy Conservation Measures



- **Energy Conservation Measures Implemented:**

Campus has already implemented Energy Conservation measures and doing some best practices for saving the energy and Environment.

- 1. Installation of LED lights.**
- 2. Installation of solar LED street lights.**
- 3. BEE Star Rated Geysers at Hostels.**
- 4. BLDC Fans in the Hostels.**

Sr. No.	Name of Plant/ Site	Observations	Recommendations	Step Taken up by the Institute
1.	Electricity Bill Scenario of Water Works of Institute	The contract demand is 28.2 lower than the average recorded demand. Average power factor is 0.85.	<ul style="list-style-type: none"> ✓ Adjust the contract demand to match actual power usage. ✓ Improve electrical system efficiency to reduce power waste. ✓ Improve power factor by optimizing or upgrading electrical equipments. 	Will be applied for the increase in contract demand to 38kW to DHBVN on the online portal and amount of Rs. 30250/- will be deposited by the permission of the competent Authority and contract demand will be get increased.
2.	Energy Bill Scenario of College Connection	The average monthly Maximum Demand is significantly below the contract demand. Average power factor is 0.892	The maximum demand currently stands at 115.76, which is significantly below the contracted demand of 318.4kW. Reduce the contract demand to 150kW.	Applied for the reduction of load to DHBVN upto 218kW on the online portal and amount of Rs. 2500/- will be deposited by the permission of the competent Authority and contract demand will be get reduced.

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3.	Harmonics Study	<p>The percentage of Max. Voltage THD are within recommended limits as per IEEE Standards i.e. 3% variation for voltage. The percentage of Max. Current THD are exceeding the recommended limits as per IEEE Standards i.e. 8% variation for current.</p>	<p>Harmonic Filters may be installed to suppress the harmonics which will also result in improvement of Power factor.</p>	<p>Rates of Harmonic filter has been analyzed and observed the rates as Rs. 2,85,000/- for the reduction of current harmonics from 22.1% to 4%.. The process of its installation will be initiated in due course of time.</p>
4.	Pumps at Water Works	<p>It has been observed that most of the pumps are very old and performance of the pumps has been deteriorated considerably.</p>	<p>It is recommended to replace these pumps with new energy Efficient pumps.</p>	<p>Letter has been written to Executive Engineer, Public Health Engg. department Sirsa to replace the old pumps with new Energy Efficient pumps.</p>

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5.	Air Conditioning Systems	Most of the ACs are older than 8-10 years having 3-Star, 2-Star & even Non-Star ratings and these are consuming more energy than specified due to age of these ACs.	Old ACs are required to be replaced with new energy efficient BEE 5 Star as per Energy Conservation Measures section.	In the past few years, ACs were purchased with 2-star/ 3-star rating. For further purchase of ACs in the Organization, the recommendations will be taken care.
6.	Lighting Systems	The installed lights are energy efficient LED except 5 HPSV (250W) & 351 FTL(40W). In Library, There is huge scope of using day light but windows are covered with almirahs.	Install motion sensors in unmanned areas, office cabins.	Motion sensors in unmanned areas will be installed in due course of time. Provisions have already been taken up for using day light in the Library of the Institute.

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7.	Ceiling/ Exhaust Fans	Most of the fans are old and rewinded	Replace all Ceiling fans with BLDC fans (30watt).	A large of ceiling fans has been fitted in the offices, classrooms, laboratories, hostels etc. and fans were rewinded. However, in the past, 30 no. of BLDC fans has been fitted in the hostel.
8.	Geyser's Inventory	All the geysers are new and BEE star rated.	No recommendation	Same process will be followed in the purchase of geysers in the hostel.
9.	Improvement in Power Factor	The average power factor 0.858	To do servicing of capacitors to increase the power factor	SDO DHBVN will be requested to do the needful for service of Capacitor bank installed at the Substation of the Institute.

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10.	Replacement of HPSV lights	In current lighting setup, 250watt HPSV lights are being used.	Transitioning to 100watt LED lights from 250-watt halogen lights	10 no. of 200W LED lights has already fitted in place of 250W Halogen lights in high mast tower
11.	Replacement of FTL	Currently, using 40-watt FTL (Fluorescent Tube Lights) for lighting	Replace 40-watt FTL bulbs with 18-watt Led bulbs	The Institute is already replacing 40W FTL lights with 18W Led lights (Make Havells) and the same process will be continued as per the norms of BEE.

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14.	Replacement of Street Lights with Smart Solar LED Lights	In present regular street lights are in used that run on electricity from the grid	Use smart solar LED street lights, so they're cheaper to run and better for environment.	05 no. of Smart Solar lights has already been fitted for street lighting purpose. The proposal for the purchase of 6 no. of Smart Solar lights has been submitted which is to be purchased as per guidelines and rate contract of DGS&D and District Chief Project office, HAREDA Sirsa
15.	Solar Energy Generation Potential	Installation of solar panel on college campus offers numerous advantages.	Proposed setting up a 150kW solar plant to meet energy needs.	Information related to installation of Solar Energy generating plant has been supplied to ADC Sirsa vide letter dated 14.08.2024



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