

ENERGY AUDIT REPORT

SRI VENKATESHWARA COLLEGE OF ARTS AND SCIENCE
PERAVURANI-614804, THANJAVUR DISTRICT
TAMILNADU



AUDIT CONDUCTED BY

YOJO NETWORK & TRAINING CENTER

(Registered Audit Agencies)

GST no: 33AYXPP0304R1ZT

(Chennai ♦ Kumbakonam ♦ Karaikal)

Mobile: +91-9047205733

E-mail: yojoauditnetwork@gmail.com



YOJO NETWORK & TRAINING CENTER
(Registered Audit Agencies)
1st Floor, Devas Complex, Mutt St
Kumbakonam – 612 001
Mobile: +91 9047205733

GST no: 33AYXPP0304R1ZT
E-mail: yojoauditnetwork@gmail.com
(Chennai ♦ Kumbakonam ♦ Karaikal)

ACKNOWLEDGEMENT

Yojo Network & Training Center is thankful to the Board of Management, Head of Institution, Faculty and Technical team members of SRI VENKATESHWARA COLLEGE OF ARTS AND SCIENCE for providing an opportunity to conduct a detailed Energy, Environment and Green Audit process in the college premises. It is our great pleasure which must be recorded here that the Management of SRI VENKATESHWARA COLLEGE OF ARTS AND SCIENCE extended all possible support and assistance resulting in thorough completion of the audit process. The audit team appreciates the co-operation and guidance extended during the course of site visit and measurements. We are also thankful to all those who gave us the necessary inputs and information to carry out this very vital exercise of Energy, Environment and Green Audit. Finally, we offer our sincere thanks to all the members in the engineering division technical / non- technical divisions and office members who were directly and indirectly involved with us during collection of data and while conducting field measurements.

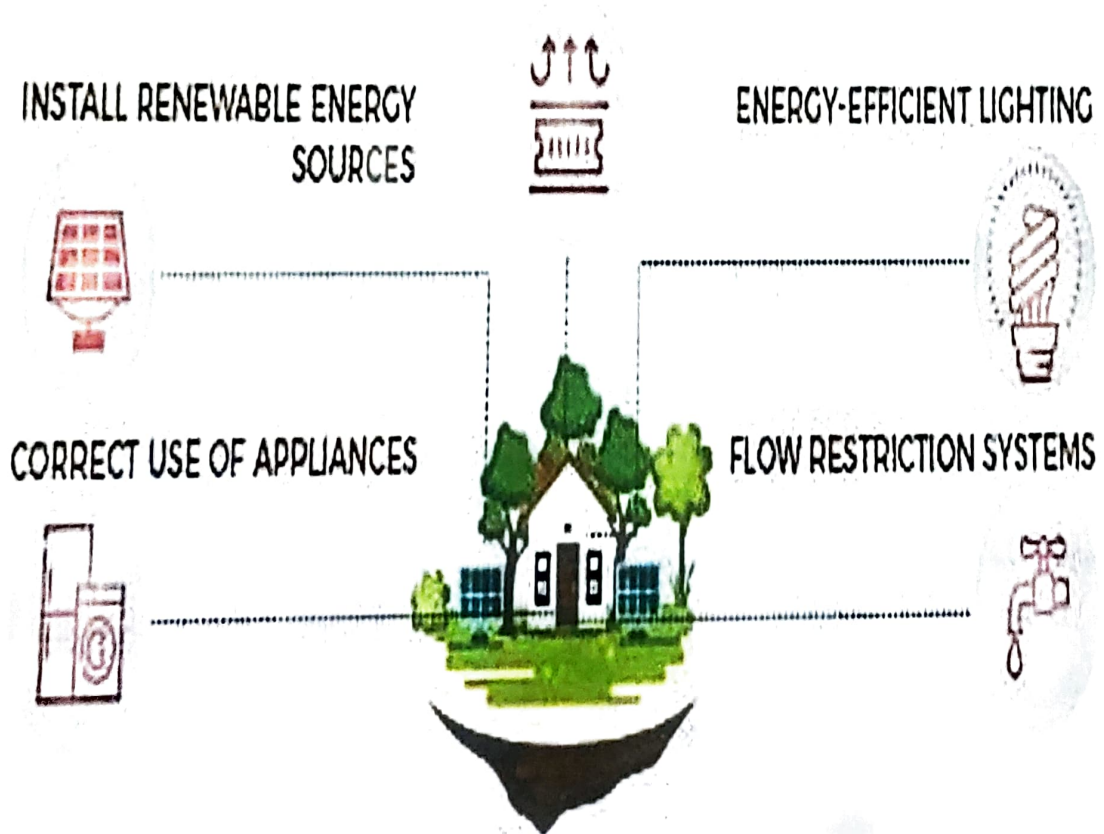
Audit Team Members

Er. V. Marimuthu., B.E.,	UKAS Certified Energy Auditor (KQ-233) Lead Auditor-ISO-9001:2015,14001:2015(EMS), UKAS, KQ Reg., COC.
Er. V. Senthilkumar., B.E.,(EEE)	Carbon Footprint Auditor Mobile:+91-9047205733
Er. R. Rajkumar, B.E.,	Audit Associate

ENERGY AUDIT REPORT

INTRODUCTION TO ENERGY AUDIT

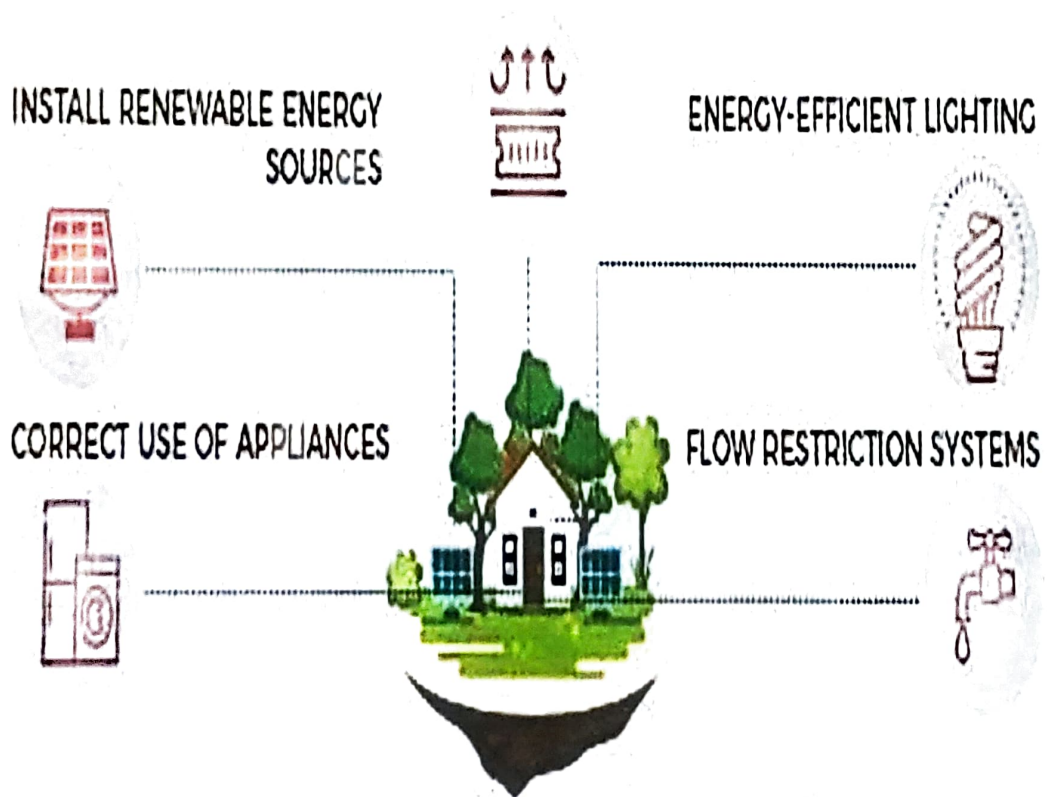
5 IDEAS FOR A SUSTAINABLE INSTITUTION



ENERGY AUDIT REPORT

INTRODUCTION TO ENERGY AUDIT

5 IDEAS FOR A SUSTAINABLE INSTITUTION





YOJO NETWORK & TRAINING CENTER
(Registered Audit Agencies)
1st Floor, Devas Complex, Mutt St
Kumbakonam – 612 001
Mobile: +91 9047205733

GST no: 33AYXPP0304R1ZT
E-mail: yojoauditnetwork@gmail.com
(Chennai ♦ Kumbakonam ♦ Karaikal)

1.1 : Preface about the Institution:

Sri Venkateshwara College of Arts and Science at Peravurani in Thanjavur District, a popular Co-educational College, affiliated to Bharathidasan University has been converted in to a women's college since 2010-2011 providing excellent scope for women's education. This college was started in the year 1998 by the Visionary Trust, Peravurani. This Institution has passed through a significant milestone in its life and completed 14 years of meritorious existence by fulfilling a long felt desire of higher education to the economically and educationally backward people living in and around of Peravurani. The sole aim of this Institution is to provide quality education coupled with discipline to the daughters of underprivileged small marginal farmers and fishermen living in and around Peravurani area. This College is one among those recognized by University Grants commission (UGC) for receiving grants as per section 12B of UGC act.

In a short span of fourteen years Sri Venkateshwara College of Arts and Science has registered a phenomenal growth offering 14 full-fledged undergraduate 4 postgraduate programmes besides M.Phil in Commerce and Microbiology with a student strength of 1500 and 75 faculty members. New courses are being introduced every year and we are very proud to register that our college has so far produced 50 University Ranks.

1.2: Quality Policy:

Sri Venkateshwara College of Arts And Science maintains various policies to enhance the growth of the students, staff along with the growth of the Institution.

The policies are as follows:

- GREEN POLICY
- CODE OF CONDUCT
- ENVIRONMENT POLICY
- ENERGY POLICY
- WASTE MANAGEMENT POLICY
- E-GOVERNANCE POLICY

1.3 : Scope of the Audit Process:

- Energy Audit: To conduct a detailed energy audit in the college campus with a main focus to identify judicious usage of electrical and thermal energy (where, when, why and how energy is being utilized).

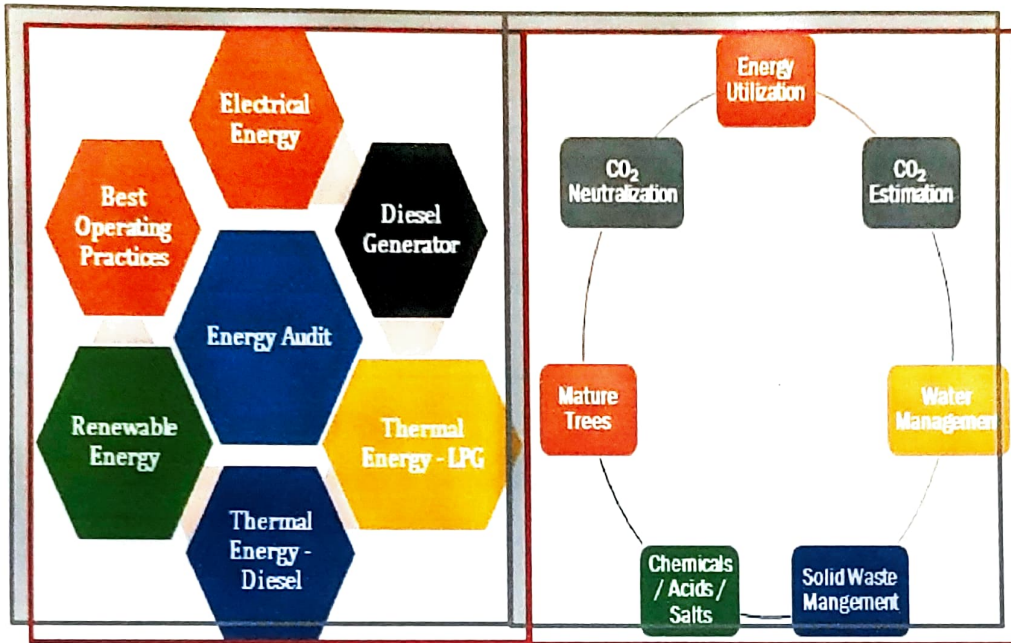
1.4 : Outcomes of the Audit Process:

- Recommendations based on field measurement with achievable Energy Conservation (ENCON) proposals under No cost / Low cost and Cost investment categories.
- Minimization of present energy cost by adjusting and optimizing energy usage and reduction of energy wastage without affecting the regular activities.
- Identification of possible cost and energy saving from energy conservation.

1.5 : Standards Used:

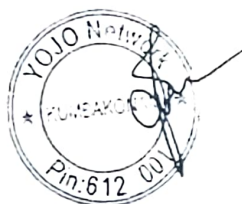
- Bureau of Energy Efficiency Guidelines to conduct the detailed energy audit process.
- ISO 14064-Part-1 – Specification with guidance at the organization level for quantification and reporting of GHG emissions and removals (Second Edition).
- ISO 14064-Part-2 – Specification with guidance at the project level for quantification, monitoring and reporting of GHG emissions reductions or removal enhancement (Second Edition-2019).
- ISO 14064-Part-3 – Specification with guidance for the verification and validation of GHG statements (Second Edition-2019).
- The Green house Gas Protocol- a Corporate Accounting and Reporting Standard (Revised Edition) released by World Resources Institute & World Business Council for Sustainable Development – 2014.

1.6 : Coverage in Energy Audit Process:



1.7 : List of Faculty Members Involved in Audit Process & Data Collection:

S. No.	Faculty Details	Contribution
1.	Dr.N.K. Rajendran Dean & Dept. of Commerce	Overall Coordinator for the Audit Process.
2.	C. Ganeshamoorthy AP/ Dept. of Chemistry	Collection of Electrical Energy Parameters from College & Hostel.
3.	Mr. M. Kumar, Electrician TANGEDCO	Collection E.B utility & D.G Details.
4.	Dr. M. Sugumar Coordinator IQAC Bharath College of Science & Management Thanjavur	External Member



ENERGY AUDIT REPORT

STUDY ON ENERGY CONSUMPTION & GENERATION PATTERN

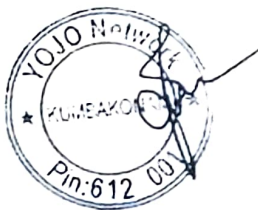


AUDIT CONDUCTED BY
YOJO NETWORK & TRAINING CENTER

(Registered Audit Agencies)
GST no: 33AYXPP0304R1ZT
(Chennai ♦ Kumbakonam ♦ Karaikal)
Mobile: +91-9047205733
E-mail: yojoauditnetwork@gmail.com

1.1 Assessment of Existing Electrical and Thermal Energy Systems

S. No.	Description	Details				
Electrical Energy (Consumption)						
1.	Name of the customer (As per the utility bill)	Chairman, Vishnary Trust, Peravurani Sri Venkateshwara College of Arts and Science				
2.	Type of Utility Supply, Service No. & Tariff.	LTSC. No: 06-451-007-333				
3.	Tariff Structure	Rs.12.00/kWh+Rs.120/ kw as demand charges (fixed charges accounted for the sanctioned demand)				
4.	Energy Suppliers	Tamil Nadu Generation & Distribution Corporation (TANGEDCO)				
5.	Permitted Demand(PD)	SC.No: 06-451-007-333-100.0 kW				
6.	Capacity of Diesel Generator (DG) Sets	63 KVA-1 No.				
		All are air-cooling. Internal fuel tank & separate earthing done				
7.	Annual Electricity Consumption (kWh)	2018-19	2019-20	2020-21	2021-22	2022-23
		91639	91647	29502	93619	94515
8.	Annual Electricity Generation from DG(kWh)	1113	1151	562	1238	1230
9.	Annual Diesel Consumption for DG (L)	4355	4838	1351	4672	4791



Thermal Energy (Consumption)						
10.	Types of Thermal Energy Used	Liquefied Petroleum Gas (LPG)			Cooking	
		Diesel (Ordinary)			Transport + DG	
11.	Annual LPG Consumption (kg)	2018-19	2019-20	2020-21	2021-22	2022-23
		1731	1719	455	1770	1741
12.	Annual Diesel Consumption for Transport (L)	6346	6761	1430	7152	7140
General Loads (Both Electrical and Thermal)						
13.	Lighting System	Indoor lighting: LED based Energy efficient lamps				
		Outdoor lighting: All the street lightings are LED based Energy efficient lamps (20W).				
14.	Fan Loads(Ceiling)	<ul style="list-style-type: none"> All the indoor ceiling fans are conventional fans 				
15.	HVAC System	<ul style="list-style-type: none"> Unitary air conditioning system installed in the Required places Most of the AC units are Three star rated and the outdoor units are mostly placed in sunshade Total capacity of the AC system is 10 TR 				
16.	Motors and Pump loads	<ul style="list-style-type: none"> Mainly used for water distribution and purification Small motors are used in kitchen equipment's 				
17.	Uninterrupted Power System (UPS)	<ul style="list-style-type: none"> All the computers, servers, surveillance systems, projectors, telephonic units are connected with UPS with nominal back up time of 15-30 min The total capacity of the UPS is 75 kVA 				





YOJO NETWORK & TRAINING CENTER

(Registered Audit Agencies)

1st Floor, Devas Complex, Mutt St

Kumbakonam – 612 001

Mobile: +91 9047205733

GST no: 33AYXPP0304R1ZT

E-mail: yojoauditnetwork@gmail.com

(Chennai ♦ Kumbakonam ♦ Karaikal)

கமிஷனரின் மின் உற்பத்தி மற்றும் பரிமாணக் கழகம் விபிஐட்டி

கட்சாவூர் மின் பரிமாண வட்டம்

மின் கட்டண இரீசீது

பெயர் : CHAIRMAN VISHNARY TRUST

வரிசை எண் : 8244764

மின் இ.எண் 451-007-333

கட்டண விகிதம் 17.2

LM2B2

இரீசீது எண் : TRT451RS1Q428

நாள் : 11-12-2023

வ.எண்.	கட்டண விபரம்	தொகை (ரூ.)
23100	CC Charges	66141
	Total	66141/-



மொத்தம்

எனது (Study Sign) Thousand One Hundred And Forty One Only by

Cheque

Cheque/DD No. 506400

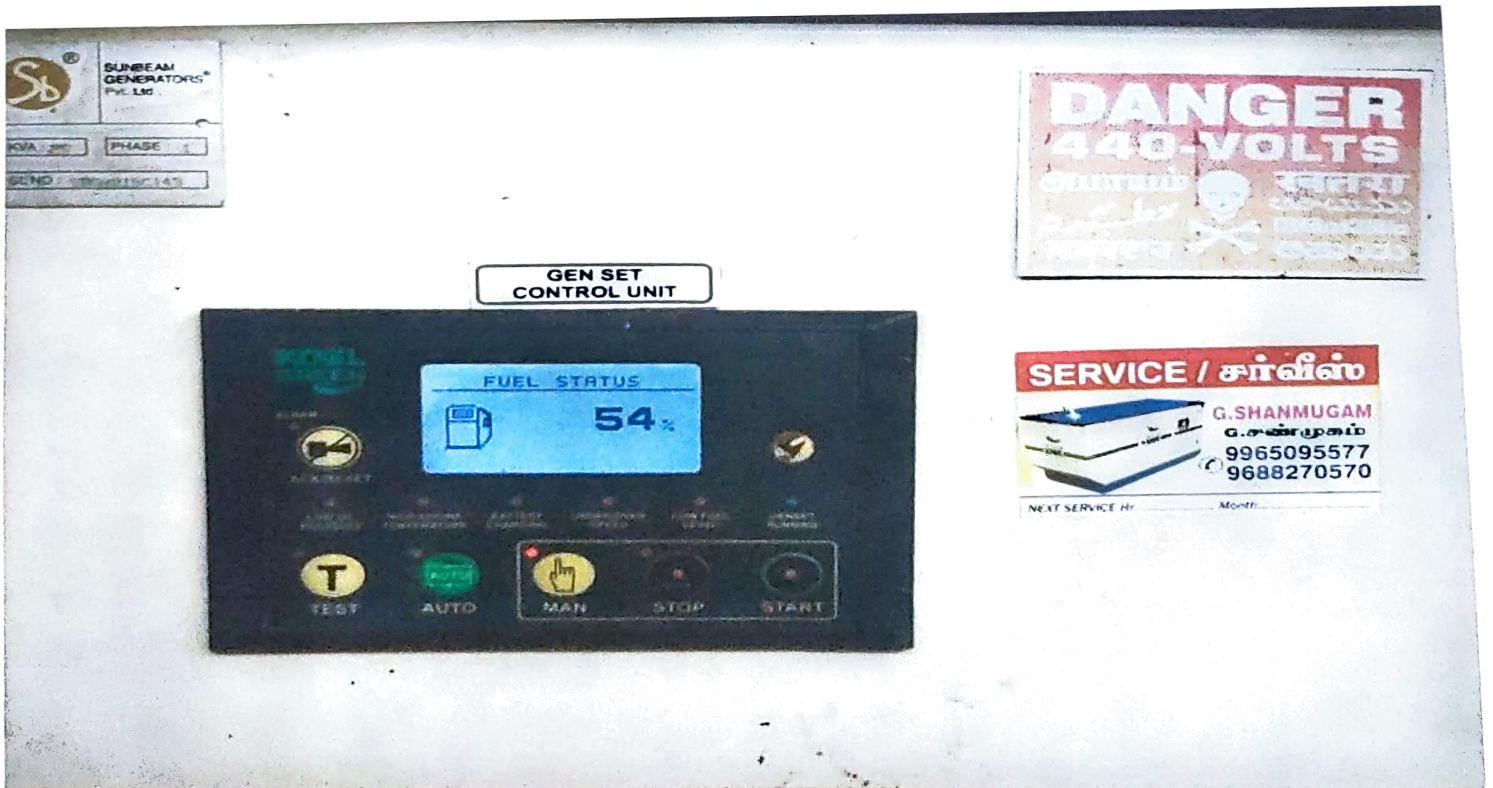
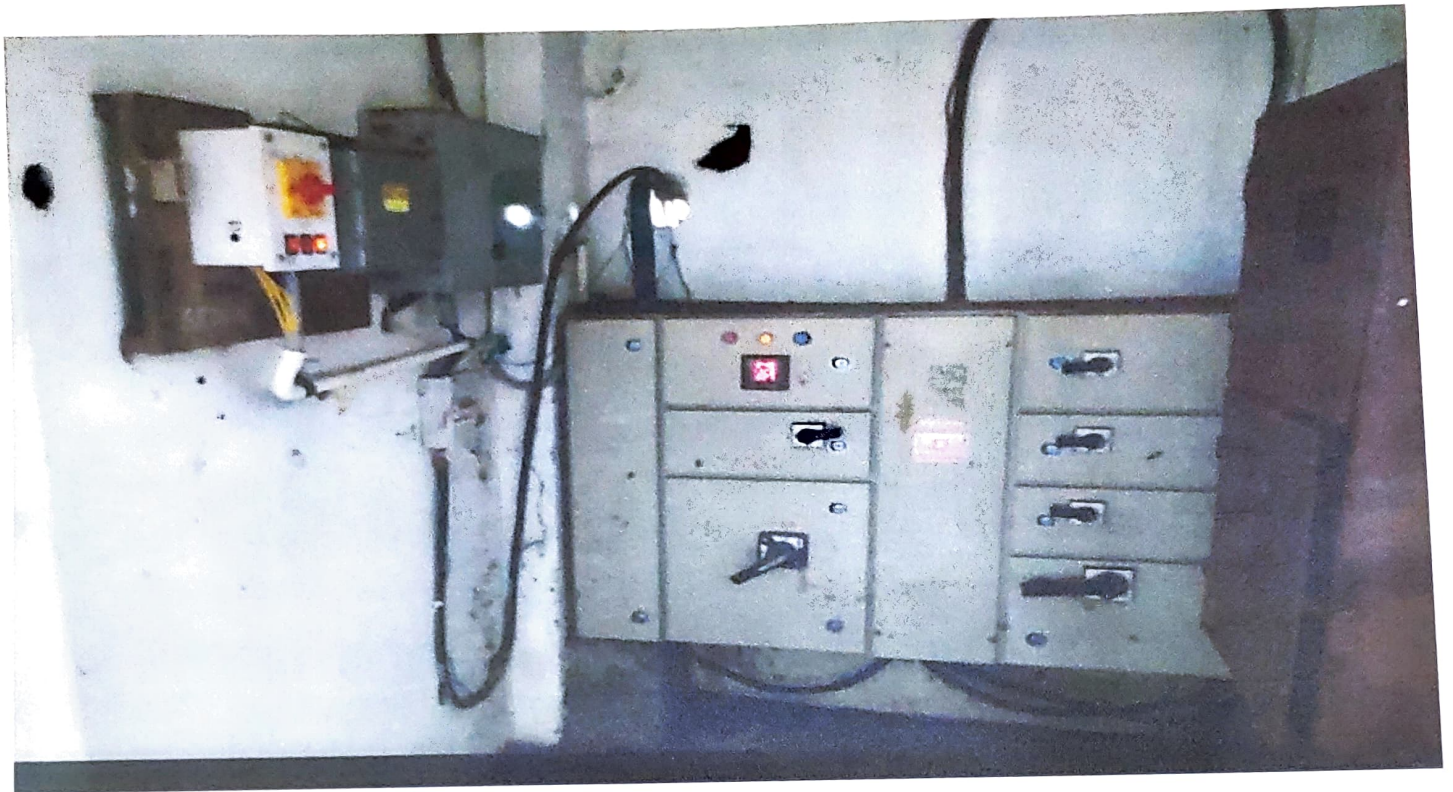
Date 11/12/2023

Amount: 66141/-

1.2 : Recommendations and Best Operating Practices:

- All SSB must be fitted with digital energy meters are the readings must be taken daily. Or connect those meters with EMS and monitor the energy pattern of each building.
- Prepare block wise maintenance check list of electrical and thermal systems.
- Calculate the Unit per Liter (UPL) for every run of DG and average it for monthly.
- Install AIRCON energy saver gadget which works on dynamic un-saturation principle with the sensor algorithms so that the air conditioners run hours are cut by 20 to 25 %
- Similar to Fan, now BLDC based ACs are made available in the market; which consumes less amount of energy (Power) during its starting and running condition.





AUDIT SUMMARY & CONCLUSION



YOJO NETWORK & TRAINING CENTER
(Registered Audit Agencies)
1st Floor, Devas Complex, Mutt St
Kumbakonam – 612 001
Mobile: +91 9047205733

GST no: 33AYXPP0304R1ZT
E-mail: yojoauditnetwork@gmail.com
(Chennai ♦ Kumbakonam ♦ Karaikal)

SUMMARY OF THE AUDIT PROCESS:

In order to make Sri Venkateshwara College of Arts and Science campus 100 % energy efficient, the audit team recommends implementing the following measures:

i. Energy Conservation & Management – Electrical Energy:

- Implement Energy Management System (EMS) to accurately measure & monitor energy flow
- Prepare a policy plan to convert the distributed UPS layout into centralized UPS and save energy. This step also saves the maintenance time due to reduction in number of batteries
- Diesel flow meter must be fitted with each DG and calculate the UPL accurately
- Prepare suitable formats for all energy consumption and regularly follow the records. Make proper corrections; if it deviates from the standard operating procedure.

ii. Energy Conservation & Management – Thermal Energy:


- Regularly cleaned stove burners and ensured that the flame in light bluish color in the kitchen.



COMPLETION OF THE REPORT

This report is prepared as a part of the Energy Audit process conducted at Sri Venkateshwara College of Arts and Science, Peravurani by YoJo Network and Training Center, Tamilnadu.




LEAD AUDITOR
YOJO NETWORK
MUTT Street, Kumbakonam
B.O. : Opp. to NLC Arch,
Neyveli Plaza, Neyveli (TN).



YOJO NETWORK & TRAINING CENTER
(Registered Audit Agencies)
1st Floor, Devas Complex, Mutt St
Kumbakonam – 612 001
Mobile: +91 9047205733

GST no: 33AYXPP0304RIZT
E-mail: yojoauditnetwork@gmail.com
(Chennai ♦ Kumbakonam ♦ Karaikal)


CERTIFICATE FOR ENERGY AUDIT PROCESS

This is to certify that, we have conducted the ENERGY AUDIT at Sri Venkateshwara College of Arts and Science, Peravurani, Thanjavur Dt, Tamil Nadu, India 3/01/2023 to 6/01/2023 and it is appreciated that, the institution strictly follows energy conservation measures for the use age of electrical and thermal energy.

This process investigates the following activities;

- ✓ Conduction of detailed energy audit for electrical and thermal energy usage in the college campus and identify the energy conservation measures followed in the Institution
- ✓ Minimization of present energy cost by adjusting and optimizing energy usage and reduction of energy wastage without affecting the regular activities.
- ✓ Identification of possible cost and energy saving from energy conservation.
- ✓ Recommendation for SSB may be fitted with digital energy meters and the readings must be taken daily. Or connect those meters with EMS and monitor the energy pattern of each building
- ✓ Recommendation to install AIRCON energy saver gadget so that the air conditioners run hours are cut by 20 to 25 %.
- ✓ Recommendation to use BLDC based ACs are made available in the market; which consumes less amount of energy (Power) during its starting and running condition.

Thank You


LEAD AUDITOR
YOJO NETWORK
MUTT Street, Kumbakonam
B.O. : Opp. to NLC Arch,
Neyveli Plaza, Neyveli (TN).

