RAM KALAM -CENTRE FOR ENERGY CONSULTANCY & TRAINING

CHENNAI COIMBATORE ERODE

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CERTIFICATE FOR ENERGY-ENVIRONMENT-GREEN AUDIT PROCESS

This is to certify that, we have conducted an ***ENERGY-ENVIRONMENT-GREEN AUDIT*** in THAMIRABHARANI ENGINEERING COLLEGE, Thatchanallur, Tirunelveli – 627 358, Tamil Nadu, India on 11 JUNE 2019. The description of the audit process is given below.

S. No.	Description	Parameters
1.	Present Annual Energy Consumption	80,333 kWh + 4,182 kg of LPG
2.	Proposed % of Energy Savings	10.0 % Electrical + 5.0 % LPG
3.	Proposed Annual Energy Savings	8033 kWh + 209 kg of LPG
4.	Proposed Financial Savings	Rs. 0.9 Lakhs
5.	Initial Investment Required	Rs. 1.5 Lakhs
6.	Simple Payback Period	Nearly 1.7 Years

Analysis of Environment Audit Process and CO_2 Balance Sheet:

S. No.	Annual Energy Consumption & CO_2 Emission			Annual CO_2 Neutralization		
	Description	Annual Usage	CO_2 Emission (Tons)	Description	Annual Usage	CO_2 Neutralized (Tons)
1.	Diesel	63,161 Litres	166.7	Mature Trees	626 No's	13.6
2.	Electrical Energy	80,333 kWh	65.9			
3.	LPG	4,182 kg	12.5			
4.	Total Emission		245.2	Total-Neutralized		13.6
Balance CO_2 to be Neutralized = 231.5 Tons/Annum & Per Capita CO_2 Consumption = 0.37 Tons/Annum [1]						

([1] Total strength of students, teaching and technical staff = 628)

Recommendations of the Audit Process:

I. Energy Conservation & Management:

1. Conduct a detailed study on energy consumption of each buildings and categorize the buildings based on their energy consumption
2. From the study; identify the equipment's which consumes higher energy and prepare a plan to replace the same into energy efficient gadgets in a phased manner
3. Graphically represent the energy consumption of all locations and implement best energy conservation practices only to high energy consuming building
4. Ensure that the campus energy demand should not exceed the permitted demand. Also ascertain that no penalty was paid to the electrical distribution utility.
5. Based on the energy study; prepare a list highlighting the % energy saving after replacing the conventional lights, ballasts and fans into energy efficiency system

PRINCIPAL
THAMIRABHARANI ENGINEERING COLLEGE
Chathirampudukulam Village,
Chidambaranagar - Vepemkulam Road.
Thatchanallur, Tirunelveli - 627 358.

6. Conversion of Fluorescent lamps into Energy Efficient LED saves good amount of energy
7. Measure the earth resistance at regular interval and maintain within the standard.
8. Observe the voltage drop between supply point and load end and ensure that the voltage drop must be minimum
9. Voltage drop at the load end cam be improved by load end capacitors compensation

II. Environmental Management:

1. Energy usage and CO_2 emission must be reduced using proper conservation methods
2. Regularly test the pollution level of the college owned vehicles
3. Similar to the energy analysis; conduct green campus study indicating i) total no. of matured trees, ii) flowering bushes and iii) shrubs

Equipment's/Systems Audited:

• Electrical System & Network	• Motors & Water Pumping Systems
• Lighting, Fan & Air Conditioning System	• Cooking System
• Inverter, UPS & Battery System	• LPG Consumption
• Diesel Consumption (Vehicles + DG)	• Solid & E-Waste Handling & Management
• Usage of Chemical, Salts & Acids	• RO Plant & Water Distribution System
• Coverage of mature trees	• Pollution certificates for all transport vehicles
• Rain Water Harvesting	• Survey on Bio-diversity

Note: Audited and Accounted from June-2018-19

Audit Conducted and Verified by

S.R. Sivarasu

(Dr. S.R. SIVARASU)

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