

**CERTIFICATE FOR ENERGY AUDIT PROCESS**

This is to certify that, we have conducted a detailed **ENERGY AUDIT** in **KONGU ARTS AND SCIENCE COLLEGE (AUTONOMOUS)**, Nanjanapuram, Erode - 638 107 on **25 & 26 November 2021**. The audit team has identified **12 Energy Conservation Proposals (ENCONs)** and the summary of the Energy Audit Process is given below.

Description/Year	2017-18	2018-19	2019-20	2020-21	2021-22
Annual Electricity Consumption (kWh)	5,07,748	5,31,578	4,76,888	2,34,796	1,31,718
Annual LPG Consumption (kg)	12,787	17,442	13,680	4,560	2,375
Summary of Energy Conversion (ENCON) Proposals					
S. No.	Description		Parameters		
1.	Present Annual Energy Consumption		5,31,478 kWh + 17,442 kg of LPG		
2.	Present Annual Energy Cost		Rs. 55.0 Lakhs		
3.	Proposed % of Energy Savings		19.0 % Electrical + 20.0 % LPG		
4.	Proposed Annual Energy Savings		1,01,432 kWh + 3,493 kg of LPG		
5.	Proposed Financial Savings		Rs. 10.50 Lakhs		
6.	Initial Investment Required		Rs. 18.40 Lakhs		
7.	Simple Payback Period		Nearly 1.8 Years		

Equipment's/Systems Audited:

• Electrical System & Network	• Motors & Water Pumping Systems
• Lighting, Fan & Air Conditioning System	• Boiler and Steam Distribution System
• Inverter, UPS & Battery System	• LPG Consumption

Thank You

Audit Conducted and Verified by,

(Dr. S.R. SIVARASU)

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(GST No. 33AAZFR8890A1ZN)

CERTIFICATE FOR ENVIRONMENTAL AUDIT PROCESS

This is to certify that, we have conducted an ENVIRONMENTAL AUDIT in KONGU ARTS AND SCIENCE COLLEGE (AUTONOMOUS), Nanjanapuram, Erode - 638 107 on 25 & 26 November 2021. This audit process highlights the present CO₂ emission and methods adopted to neutralize the same in the college campus.

System Audited	Systems Inspected
• Electricity Consumption	• Solid and E-Waste Handling & Management
• Diesel Consumption (Vehicles + DG)	• RO Plant, Water Distribution System & STP
• LPG Consumption	• Water Conservation & Management
• Transport System, GWP & OPD of AC Refrigeration	• Usage of Chemical, Salts & Acids

Thank You

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Environmental System: CO₂ Balance Sheet (2017-18)

S. No.	Energy Consumption & CO ₂ Emission			CO ₂ Neutralization		
	Description	Energy Quantity (Annum)	CO ₂ Emission (Tons/Annum)	Description	Energy Usage	CO ₂ Neutralized (Tons/Annum)
1.	Electrical Energy	5,17,639 kWh	424.5	CO ₂ Neutralized due to Solar PV System	1,20,777 kWh	99.04
2.	Diesel (Transport + DG)	1,66,504 Litres	439.6	CO ₂ Neutralized due to Mature Trees	786 No's	17.13
3.	LPG Consumption	12,787 kg	38.4	CO ₂ Neutralized due to Solar Thermal	7,600 kWh	6.23
				CO ₂ Neutralized due to Biogas	3,825 kg	11.48
4.	Total Emission		902.4	Total-Neutralized		133.0
Balance CO₂ to be Neutralized = 768.5 Tons/Annum & Per Capita CO₂ Consumption = 0.15 Tons/Annum¹						

(¹ Total strength of students: 4,733 + Teaching and technical staff: 251 = 4,984)

Environmental System: CO₂ Balance Sheet (2018-19)

S. No.	Energy Consumption & CO ₂ Emission			CO ₂ Neutralization		
	Description	Energy Quantity (Annum)	CO ₂ Emission (Tons/Annum)	Description	Energy Usage	CO ₂ Neutralized (Tons/Annum)
1.	Electrical Energy	5,31,475 kWh	435.8	CO ₂ Neutralized due to Solar PV System	1,30,613 kWh	107.10
2.	Diesel (Transport + DG)	1,77,963 Litres	469.8	CO ₂ Neutralized due to Mature Trees	786 No's	17.13
3.	LPG Consumption	17,442 kg	52.3	CO ₂ Neutralized due to Solar Thermal	7,600 kWh	6.23
				CO ₂ Neutralized due to Biogas	3,825 kg	11.48
4.	Total Emission		958.0	Total-Neutralized		141.9
Balance CO₂ to be Neutralized = 816.0 Tons/Annum & Per Capita CO₂ Consumption = 0.16 Tons/Annum²						

(² Total strength of students: 4,823 + Teaching and technical staff: 254 = 5,077)



Environmental System: CO₂ Balance Sheet (2019-20)

S. No.	Energy Consumption & CO ₂ Emission			CO ₂ Neutralization		
	Description	Energy Quantity (Annum)	CO ₂ Emission (Tons/Annum)	Description	Energy Usage	CO ₂ Neutralized (Tons/Annum)
1.	Electrical Energy	4,76,888 kWh	391.0	CO ₂ Neutralized due to Solar PV System	87,650 kWh	71.87
2.	Diesel (Transport + DG)	1,78,798 Litres	472.0	CO ₂ Neutralized due to Mature Trees	786 No's	17.13
3.	LPG Consumption	13,680 kg	41.0	CO ₂ Neutralized due to Solar Thermal	7,600 kWh	6.23
				CO ₂ Neutralized due to Biogas	3,825 kg	11.48
4.	Total Emission		904.1	Total-Neutralized		106.7
Balance CO ₂ to be Neutralized = 797.4 Tons/Annum & Per Capita CO ₂ Consumption = 0.16 Tons/Annum ³						

(³ Total strength of students: 4,778 + Teaching and technical staff: 255 = 5,033)

Environmental System: CO₂ Balance Sheet (2020-21)

S. No.	Energy Consumption & CO ₂ Emission			CO ₂ Neutralization		
	Description	Energy Quantity (Annum)	CO ₂ Emission (Tons/Annum)	Description	Energy Usage	CO ₂ Neutralized (Tons/Annum)
1.	Electrical Energy	2,34,796 kWh	192.5	CO ₂ Neutralized due to Solar PV System	80,251 kWh	65.81
2.	Diesel (Transport + DG)	58,155 Litres	153.5	CO ₂ Neutralized due to Mature Trees	786 No's	17.13
3.	LPG Consumption	4,560 kg	13.7	CO ₂ Neutralized due to Solar Thermal	7,600 kWh	6.23
				CO ₂ Neutralized due to Biogas	3,825 kg	11.48
4.	Total Emission		359.7	Total-Neutralized		100.6
Balance CO ₂ to be Neutralized = 259.1 Tons/Annum & Per Capita CO ₂ Consumption = 0.06 Tons/Annum ⁴						

(⁴ Total strength of students: 4,438 + Teaching and technical staff: 237 = 4,675)

**Environmental System: CO₂ Balance Sheet (2021-22)**

S. No.	Energy Consumption & CO ₂ Emission			CO ₂ Neutralization		
	Description	Energy Quantity (Annum)	CO ₂ Emission (Tons/Annum)	Description	Energy Usage	CO ₂ Neutralized (Tons/Annum)
1.	Electrical Energy	1,31,718 kWh	108.0	CO ₂ Neutralized due to Solar PV System	31,805 kWh	26.08
2.	Diesel (Transport + DG)	20,756 Litres	54.8	CO ₂ Neutralized due to Mature Trees	786 No's	17.13
3.	LPG Consumption	2,375 kg	7.1	CO ₂ Neutralized due to Solar Thermal	7,600 kWh	6.23
				CO ₂ Neutralized due to Biogas	3,825 kg	11.48
4.	Total Emission		169.9	Total-Neutralized		60.9
Balance CO₂ to be Neutralized = 109.0 Tons/Annum & Per Capita CO₂ Consumption = 0.03 Tons/Annum ⁵						

(⁵ Total strength of students: 4,058 + Teaching and technical staff: 250 = 4,308)



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CERTIFICATE FOR GREEN AUDIT PROCESS

This is to certify that, we have conducted a **GREEN AUDIT** in **KONGU ARTS AND SCIENCE COLLEGE (AUTONOMOUS)**, Nanjanapuram, Erode - 638 107 on **25 & 26 November 2021**. This audit process investigates the following activities:

- I) Coverage of mature trees (nearly 786 trees available in the college campus).
- II) Availability of Indoor plants and Improvement of Air Quality
- III) Pollution certificates for all transport vehicles
- IV) Innovative ways to harvest rain water (Both from buildings and in road run-off)
- V) Initiatives taken to promote Green coverage inside the college campus
- VI) Medical plant gardening inside the campus for future planning
- VII) Analysis of Rooftop Solar PV Plant (90 kW Grid Interactive Model)
- VIII) Assessment of Solar Thermal Hot Water system in staff quarters, Bio-gas generation and their effective utilization
- IX) Possibilities to implement various Renewable Energy Systems for regular activities (Like Solar hot water system for hostels, bio-manure generation, waste to electricity, waste to wealth etc.,)

Thank You

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