

ENERGY, ENVIRONMENT & GREEN AUDIT REPORT

DETAILS OF THE CLIENT

HINDUSTHAN COLLEGE OF ENGINEERING AND TECHNOLOGY

(AUTONOMOUS)

Valley Campus, Pollachi Highway, Coimbatore - 641 032, Tamil Nadu, INDIA



DATE OF AUDIT

5 JUNE 2025

(Audited and Accounted for the Year June-2024 to May-2025)

AUDIT CONDUCTED AND SUBMITTED BY

Dr. S.R. SIVARASU, M.E., Ph.D

BEE Certified Energy Auditor (EA-27299)

RAM-KALAM CENTRE FOR ENERGY CONSULTANCY AND TRAINING

(An ISO 9001:2015 Certified Company & Registered under MSME, GoI)

Mobile: +91- 80567 19372, 99420 14544 (WhatsApp) E-mail: ramkalamcect@gmail.com



ENERGY, ENVIRONMENT & GREEN AUDIT REPORT

Details of the Client

**HINDUSTHAN COLLEGE OF ENGINEERING AND TECHNOLOGY
(AUTONOMOUS)**

**Valley Campus, Pollachi Highway,
Coimbatore - 641 032, Tamil Nadu, INDIA**

1. ACKNOWLEDGEMENT



ACKNOWLEDGEMENT

- **RAM KALAM CENTRE FOR ENERGY CONSULTANCY AND TRAINING** Coimbatore – 641 062 is thankful to the Management, Faculty and Technical team members of **M/s. HINDUSTHAN COLLEGE OF ENGINEERING AND TECHNOLOGY (AUTONOMOUS)**, Valley Campus, Pollachi Highway, Coimbatore - 641 032, Tamil Nadu, INDIA for providing an opportunity to conduct the **follow-up Energy, Environment and Green Audit for college promises**.
- It is our great pleasure which must be recorded here that the management of **M/s. HINDUSTHAN COLLEGE OF ENGINEERING AND TECHNOLOGY (AUTONOMOUS)** has provided all possible support and assistance resulting in expeditious completion of the audit process.
- The audit team appreciates the cooperation and guidance extended during course of site visit and measurements.
- We are also thankful to the all those who gave us the necessary inputs and information to carry out this very vital exercise of green audit.
- Finally, we offer our sincere thanks to all the members in the engineering division/ technical/non-technical and office members who were directly and indirectly involved with us during collection of data and conducting field measurements.

<u>Management Team Members</u>	
Shri. T.S.R. KHANNAIYANN	Founder & Chairman
Smt. SARASUWATHI KHANNAIYANN	Managing Trustee
Shri. K. SAKTHIVEL	Trustee
Dr. PRIYA SATISH PRABHU	Managing Trustee & Secretary
Dr. J. JAYA	Principal
<u>Audit Team Member</u>	
Dr. S.R. SIVARASU, M.E., Ph.D.,	BEE Certified Energy Auditor (EA-27299) Lead Auditor-ISO-14001:2015 (EMS), IGBC AP, GRIHA CP, CII CP in SWM Carbon Footprint Auditor & Implementer Mobile: +91- 80567 19372, 99420 29372 Mail: ramkalamcect@gmail.com

ENERGY, ENVIRONMENT & GREEN AUDIT REPORT

Details of the Client

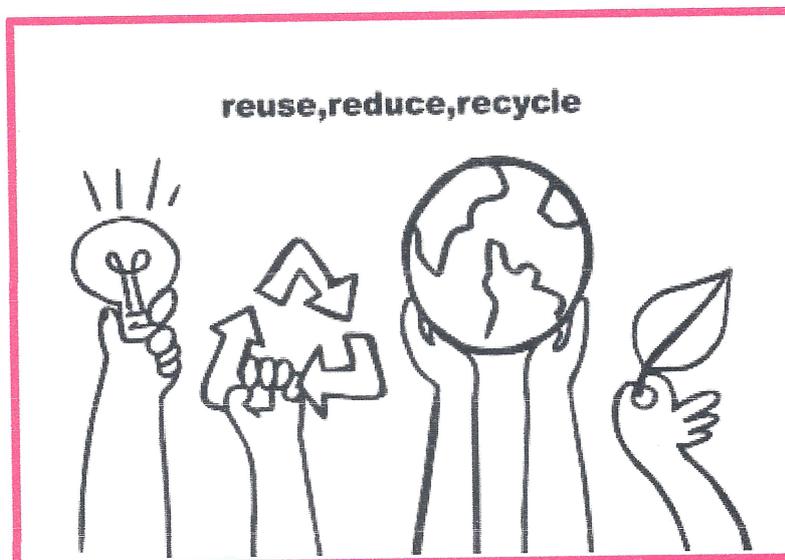
**HINDUSTHAN COLLEGE OF ENGINEERING AND TECHNOLOGY
(AUTONOMOUS)**

**Valley Campus, Pollachi Highway,
Coimbatore - 641 032, Tamil Nadu, INDIA**

2. INTRODUCTION

TO

ENERGY-ENVIRONMENT-GREEN AUDIT PROCESS



2.1: Preamble:

Hindusthan College of Engineering and Technology (HiCET) was established in the year **2000** by the great Industrialist and Philanthropist, **Thiru. T.S.R. Khannaiyann**, founder Chairman of Hindusthan Educational and Charitable Trust whose determination and dynamism made possible the realization of this institution of excellence. Surrounded with nature's pristine beauty and an excellent infrastructure coupled with dedicated and experienced faculty has made the campus a much sought-after abode of learning. HiCET is one of the premier technological institutions inculcating quality and value-based education through innovative teaching learning process for holistic development of the students.

At present, the college is offering **17 UG** Programmes, **6 PG** Programmes and **14** Research Programmes. Currently around **6,000 students** pursuing various Undergraduate Programmes (B.E./B.Tech.), Postgraduate Programmes (M.E./M.Tech, MBA & MCA) and Research Programs (Ph.D.) in the institution and are mentored by above **318 well qualified** and experienced faculty members. The institution is recognized under **Section 2(f) and 12 B** of University Grants Commission (UGC) and is an Autonomous Institution from 2016-17, affiliated to Anna University, Chennai with permanent affiliation for most of the programmes, approved by the All India Council for Technical Education (AICTE). **86.6 %** of eligible programs are NBA accredited and our institution has been accredited by **NAAC 'A++' Grade** with CGPA of **3.69 out of 4 in Cycle 2** and Institution Ranked NIRF - India Rankings 2025 in Band **201-300** in Engineering category. Also an **ISO 9001:2015** certified institution.

Many Industry-Integrated programmes and the Hinnovation Centre of the institution encourages creativity, innovation and risk acceptance, identifying business thereby encouraging entrepreneurship and start-ups. AICTE IDEA Lab was established in the campus with a grant of Rs. 1 crore. Recognized as IPR Nodal Centre by Tamil Nadu State Council for Science and Technology (TNSCST) by Government of Tamil Nadu. Received 4 star rating by Institution's Innovation Council (IIC), Ministry of Education, Government of India. AICTE Margdarshan and DST FIST approved college.

Educational Philosophy:

- ❖ The educational philosophy of Hindusthan College of Engineering and Technology typically emphasizes hands-on, practical learning experiences that help students apply theoretical concepts to real-world problems. This can include a strong emphasis on project-based learning, internships, and value addition, as well as a focus on developing critical thinking, problem-solving, and teamwork skills.
- ❖ The programmes offered also place a heavy emphasis on promoting ethical and responsible practices, including sustainability, equity, empathy and professionalism.
- ❖ The overall goal is to produce well-rounded engineers who are equipped to tackle complex challenges and make a positive impact in the world.
- ❖ Hindusthan College of Engineering and Technology march towards greatness by following the educational doctrines of our beloved leader, Dr APJ Abdul Kalam in transforming the youth of today to become leaders of tomorrow.
- ❖ According to the great visionary leader and noble personality, Dr APJ Abdul Kalam, the aims of Education is
 - To create good human beings with skill and expertise
 - To create enlightened citizens

- To inculcate creative mind of the child
- To make learning more effective by the use of technology
- To build self confidence among the students.
- To develop moral leadership in different fields.
- To create entrepreneurs rather than job seekers
- To facilitate innovation, inventions and discovery
- To make the country energy independent

❖ Hindusthan College of Engineering and Technology fully endorse the words of the visionary leader and adopts in its growth along with New National Education Policy 2020.

Quality Policy:

Hindusthan College of Engineering and Technology aims at providing the best education which will mould the students as the right characters, who will cater to the needs of the society. While providing the various inputs for the best education, Hindusthan College of Engineering and Technology will constantly thrive upon continual improvement with the utmost commitment for the complete satisfaction of the stakeholder.

2.2: Vision:

- To become a premier institution by producing professionals with strong technical knowledge, innovative research skills and high ethical values.

2.3: Mission:

- IM1: To provide academic excellence in technical education through novel teaching methods.
- IM2: To empower students with creative skills and leadership qualities.
- IM3: To produce dedicated professionals with social responsibility.

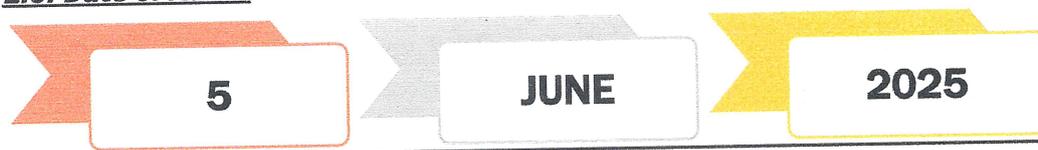
2.4: Scope of the Audit Process:

- **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).
- **Environmental Audit:** Identification of history of activities, present environmental practices followed, monitoring records and known sources of environmental issues inside the college.
- **Green Audit:** Assessment on Campus greenery in terms of mature trees, flowering shrubs, bushes, medicinal plants, adoption of green energy generation and utilization, reduction of CO₂ due to green energy system and identification of possible implementation and enhancement of current greenery practices.

2.5: Outcomes of the Follow-up Audits:

- To check the activities implemented by the institution as per the recommendation of the main report.
- To ascertain the activities implemented as per the guidelines and standards
- To provide suggestions to improve further towards environmental sustainability

2.6: Date of Audit:



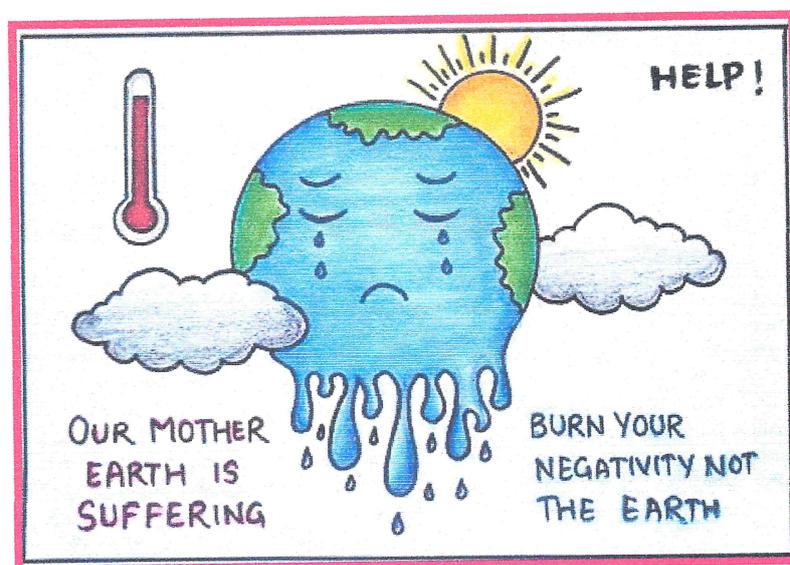
ENERGY, ENVIRONMENT & GREEN AUDIT REPORT

Details of the Client

**HINDUSTHAN COLLEGE OF ENGINEERING AND TECHNOLOGY
(AUTONOMOUS)**

Valley Campus, Pollachi Highway,
Coimbatore - 641 032, Tamil Nadu, INDIA

3. ESTIMATION OF CO₂ EMISSION & NEUTRALIZATION (CO₂ Balance Sheet)



3.1: Assessment of Annual Energy Usage:

Table-1 shows the types of energy carriers used for their regular operation in the college campus along with application area and their source.

Table-1: Energy Carriers, Application area and their sources used for College Operation

S. No.	Type of Energy Carrier	Application Area	Source of Procurement
1.	Electricity (Two LT Services)	Powering to all electrical / electronic / HVAC equipment's	From state government utility
2.	Diesel	Transport vehicles and Diesel Generator (Captive Generation)	From authorised distributor
3.	Liquified Petroleum Gas (LPG)	Used only for cooking	
4.	Seasonal Wood		From local vendor
5.	Mature Trees	The college has nearly 1,435 mature trees of different varieties which are more than 10 years old.	

Table-2: Analysis of Annual Energy Consumption of all types of Fuels (2024-25)

S. No.	Month	Units Consumed (kWh) ¹	Energy from Solar PV System (kWh)	LPG Consumed (kg) ²	Wood Consumed (Tons) ³	Diesel Consumed (DG + Transport)
1.	June	37,681	7,441	361	2	2,298
2.	July	33,730	7,170	399	4	5,735
3.	Aug	42,422	9,150	475	4	6,460
4.	Sep	46,169	9,827	1,007	11	6,395
5.	Oct	45,632	6,685	1,425	11	6,580
6.	Nov	45,019	9,436	1,425	15	6,225
7.	Dec	41,638	7,508	1,425	16	5,900
8.	Jan	26,710	8,205	1,292	17	6,200
9.	Feb	44,344	9,811	1,425	16	6,132
10.	Mar	45,294	9,246	1,444	16	6,150
11.	Apr	45,265	10,281	1,501	17	1,657
12.	June	45,744	8,239	1,501	16	2,447
Average		4,99,649	1,02,998	13,680	145	62,179
Total		41,637	8,583	1,140	12.0	5,182
1 Cumulative energy consumption of 2 LT services 2 Cumulative consumption of 3 hostels 3 Cumulative consumption of 3 hostels				→ The average cost of the Electricity is Rs. 14.01/kWh → The average cost of LPG is Rs. 105.70/kg → The average cost of the Wood is Rs. 3,561.0/Ton		

3.2: Environmental System: CO₂ Balance Sheet (2024-25):

Table-3: CO₂ Balance Sheet Indicating its Emission and Neutralization

S. No.	Annual Energy Consumption & CO ₂ Emission			Annual CO ₂ Neutralization		
	Description	Parameters	Emission (Tons)	Description	Parameters	Neutralized (Tons)
1.	Electrical	4,99,649 kWh	363.5	Solar PV	1,02,998 kWh	74.9
				DG	23,551 kWh	17.1
2.	Diesel	62,179 Litres	1164.2	Matured Trees	1,789 Nos	39.0
3.	LPG	13,680 kg	41.0	Solar Thermal System*	76,000 kWh	55.3
Total Emission			568.7	Total-Neutralized		186.4
Balance CO₂ to be Neutralized = 382.3 Tons/Annum						

(* Equivalent to electrical equivalent)

3.3: Calculation Table:

For Electricity = $\left[\text{kWh} \times \frac{0.72749 \text{ kg of CO}_2 \text{ emission}}{\text{kWh}} \right]$
For Diesel = $\left[\text{Diesel Consumption (Litre)} \times \frac{2.64 \text{ kg of CO}_2 \text{ emission}}{\text{Litre of Fuel Consumption}} \right]$
For LPG = $\left[\text{LPG Consumption (kg)} \times \frac{3.0 \text{ kg of CO}_2 \text{ emission}}{\text{kg of LPG Consumption}} \right]$
For Wood CO ₂ emission from the wood usage is being considered as Neutral; since the emission comes out while burning the wood is being nullified during the growth period of the wood (If it is grown in a sustainable way).
A mature tree is able to absorb nearly CO ₂ at a rate of 48 lbs./year (nearly 21.8 kg); hence total CO ₂ to be neutralized is $\frac{(21.8 \times 1,789)}{1,000} = 39.0 \frac{\text{Tons}}{\text{Annum}}$

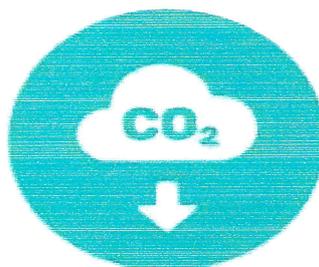
3.4: References:

¹ <https://ecoscore.be/en/info/ecoscore/co2>

³ <http://www.tenmilliontrees.org/trees/#:~:text=A%20mature%20tree%20absorbs%20carbon,the%20average%20car's%20annual%20mileage>



CO₂ Emission:
568.7 Tons/Annum



CO₂ Reduction
186.4 Tons/Annum



CO₂ to be Neutralized
382.3 Tons/Annum

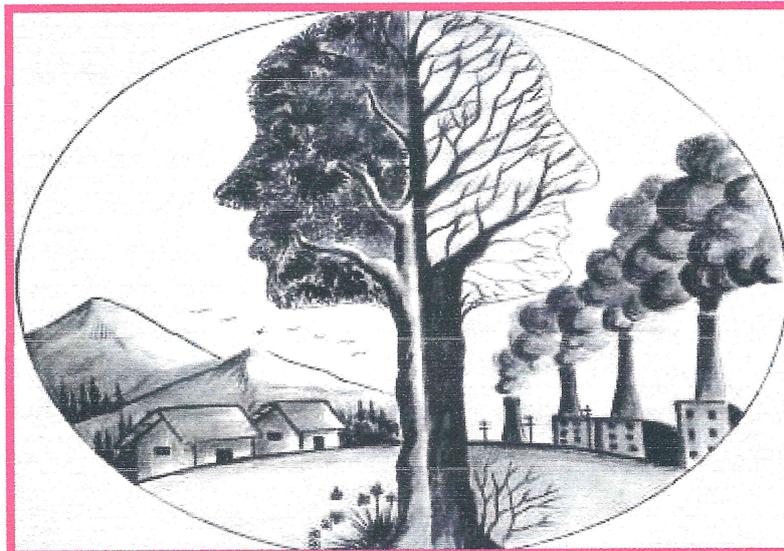
ENERGY, ENVIRONMENT & GREEN AUDIT REPORT

Details of the Client

**HINDUSTHAN COLLEGE OF ENGINEERING AND TECHNOLOGY
(AUTONOMOUS)**

**Valley Campus, Pollachi Highway,
Coimbatore - 641 032, Tamil Nadu, INDIA**

4. RECOMMENDATIONS



4.1: Recommendations:

I. Energy Conservation & Management:

1. Connect load end compensation capacitors to reduce the cable distribution loss.
2. Set the air conditioning area temperature within a range of 24-26°C to have better human comfort and hence to save power.
3. Provide electronic energy meters and run-hour meters for each pump.
4. Improve power factor to at least 0.98 or more. Rectify harmonics distortion.
5. Install sub-metering to monitor power consumption in various sections.
6. Replace existing window with energy efficient window (high R-value, low solar heat gain coefficient, low conductivity, low-emissivity glazing, airtight, etc.).
7. **Diesel Generator:** Consider fuel oil additives in case they benefit fuel oil properties.
8. **Diesel Generator:** Provide adequate instrumentation for monitoring performance, and plan for operations and maintenance accordingly.
9. Consider using light tubes to bring sun light in the room / shop floor or canteen.
10. Control lighting with clock timers, delay timers, photocells and/or occupancy sensors.

II. Environmental Management:

1. To conduct an Indoor Lighting Audit and assess the illumination level at various places
2. Use environmentally friendly refrigerants in air conditioning system

Audit Conducted and Verified by,

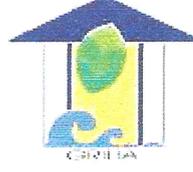
S.R. Sivarasu

(Dr. S.R. SIVARASU)

Dr.S.R.SIVARASU, Ph.D.,
BEE Certified Energy Auditor (EA-27299)
Lead Auditor - ISO 14001, IGBC - AP, GRIHA - CP
Mobile : 80567 19372, 99420 29372
Mail : ramkalamcect@gmail.com

END OF THE REPORT

This report is prepared as a part of the **Energy, Environment and Green Audit** process conducted at **M/s. HINDUSTHAN COLLEGE OF ENGINEERING AND TECHNOLOGY (AUTONOMOUS)**, Valley Campus, Pollachi Highway, Coimbatore - 641 032, Tamil Nadu, INDIA by **RAM-KALAM CENTRE FOR ENERGY CONSULTANCY AND TRAINING**, Coimbatore-641 062, Tamilnadu, India.



RAM KALAM CENTRE FOR ENERGY CONSULTANCY & TRAINING

(An ISO 9001: 2015 Certified Company & Registered under MSME, GoI)

Coimbatore – 641 062, Tamilnadu, India.

CERTIFICATE

RAM KALAM CENTRE FOR ENERGY CONSULTANCY & TRAINING

Certified that the Certification of Detailed Environment Audit Process
to

HINDUSTHAN COLLEGE OF ENGINEERING AND TECHNOLOGY (Autonomous)

Valley Campus, Pollachi Highway, Coimbatore - 641 032, Tamil Nadu, INDIA.

The college is now adopting pollution free green campus, Sustainable study and work atmosphere for both students & staffs, Fuel Efficient transportation, environmentally friendly approach in chemical storage, usage and disposal.

Certificate No. RAM KALAM/HCET/ENA/June/2025/01

Assessment Period: From June 2024 to May 2025

Validity: From June 2025 to May 2026 (One Year)

Audited & Verified by

S.R. Sivarasu

Dr. S.R. SIVARASU, M.E., Ph.D

BEE Certified Energy Auditor (EA-27299)

Lead Auditor – ISO 14001: EMS; IGBC AP, GRIHA CP

CII Certified Professional in SWM

ISO-14064: Implementer & Auditor - Carbon Footprint Management



MSME
MICRO, SMALL & MEDIUM ENTERPRISES
सुवा, सयुं सं कला कला



CII
Confederation of
Indian Industry



RAM KALAM CENTRE FOR ENERGY CONSULTANCY & TRAINING

(An ISO 9001: 2015 Certified Company & Registered under MSME, GoI)

Coimbatore – 641 062, Tamilnadu, India.

CERTIFICATE

RAM KALAM CENTRE FOR ENERGY CONSULTANCY & TRAINING

Certified that the Certification of Detailed Green Campus Audit Process
to

HINDUSTHAN COLLEGE OF ENGINEERING AND TECHNOLOGY (Autonomous)

Valley Campus, Pollachi Highway, Coimbatore - 641 032, Tamil Nadu, INDIA.

The college is climate conscious campus, Better CO₂ balance sheet with carbon emission and neutralization, judicious use of ground water and a vision for reduction of waste generation.

Certificate No. RAM KALAM/HCET/GA/June/2025/01

Assessment Period: From June 2024 to May 2025

Validity: From June 2025 to May 2026 (One Year)

Audited & Verified by

S.R. Sivarasu

Dr. S.R. SIVARASU, M.E., Ph.D

BEE Certified Energy Auditor (EA-27299)

Lead Auditor – ISO 14001: EMS; IGBC AP, GRIHA CP

CII Certified Professional in SWM

ISO-14064: Implementer & Auditor - Carbon Footprint Management

**ENERGY, ENVIRONMENT &
GREEN AUDIT REPORT**

Details of the Client

**HINDUSTHAN COLLEGE OF ENGINEERING AND TECHNOLOGY
(AUTONOMOUS)**

**Valley Campus, Pollachi Highway,
Coimbatore - 641 032, Tamil Nadu, INDIA**

**AUTHORISED CERTIFICATES
OF THE
AUDITOR**

CERTIFICATE

The Certification Body
of TÜV SÜD South Asia Private Limited

certifies that



**M/S RAMKALAM CENTRE FOR ENERGY
CONSULTANCY & TRAINING**
No.8, VPK Garden, Velanaipatti, Coimbatore – 641 062, India

has implemented Quality Management System
in accordance with **ISO 9001:2015**

for the scope of

**Providing Energy, Environment, Green audits to industry,
Academic institutions and organizations**

The certificate is valid from **2023-11-22** until **2026-11-21**

Subject to successful completion of annual periodic audits

The present status of this certificate can be obtained through TÜV SÜD website by scanning below QR code and by entering the certificate number (without spaces) on web page. Further clarifications regarding the status & scope of this certificate may be obtained by consulting the certification body at info.in@tuvsud.com

Certificate Registration No. **99 100 23573**

Date of Initial certification: **2023-11-22**

Issue Date: **2023-11-22 Rev. 00**



Rahul Kale
Head of Certification Body
of TÜV SÜD South Asia Private Limited,
Mumbai
Member of TÜV SÜD Group



Reg No.: EA-27299

Certificate No.: 9645/19



National Productivity Council

(National Certifying Agency)

PROVISIONAL CERTIFICATE

This is to certify that Mr./ Mrs./ Ms..... **SIVARASU SULUR RATHINAVELU**.....
son / daughter of Mr..... **P RATHINAVELU**..... has passed the National certification
Examination for Energy Auditors held in September 2018, conducted on behalf of the Bureau of Energy Efficiency,
Ministry of Power, Government of India. He / She is qualified as **Certified Energy Manager** as well as
Certified Energy Auditor.

He / She shall be entitled to practice as Energy Auditor under the Energy Conservation Act 2001, subject to the fulfillment
of qualifications for Accredited Energy Auditor and issuance of certificate of Accreditation by the Bureau of Energy
Efficiency under the said Act.

This certificate is valid till the Bureau of Energy Efficiency issues an official certificate.

Place : Chennai, India

Date : 22nd April, 2019

Digitally Signed by: K V R RAJU
Mon Apr 22 16:22:42 IST 2019
Controller of Examination, NPC AIP Chennai

Controller of Examination

**ISO 14001:2015 Lead Auditor
(Environmental Management Systems)
Training course**

it is hereby certified that

Dr. S. R. Sivarasu

has successfully completed the above mentioned course and examination

08th - 12th December 2017

Coimbatore, India

Certificate No. 3521 2982 02

Delegate No. 71968



for TÜV NORD CERT GmbH

Essen, 2018-01-11

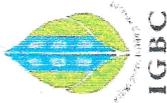
Course 18125 is certified by CQI/IRCA and meets the training requirements for those seeking certification under the IRCA EMS auditor certification scheme.

TÜV NORD CERT GmbH

Langemarckstraße 20

45141 Essen

www.tuev-nord-cert.com



Confederation of Indian Industry

The Indian Green Building Council

hereby certifies that

Sivarasu S R

has successfully demonstrated knowledge on the Green Building Design & Construction, Building Standards & Codes, IGBC Resources & Processes and Green Design Strategies & their Impacts, required to be awarded the title of

IGBC Accredited Professional

K S Venkatagiri
Executive Director
CII-Godrej IGBC

V Suresh
Chairman
Indian Green Building Council

Gurmit Singh Arora
Vice-Chairman
Indian Green Building Council

200239

20 June 2020



GREEN RATING FOR INTEGRATED HABITAT ASSESSMENT

GRIHA CERTIFIED PROFESSIONAL CERTIFICATE

This is to certify that

Sivarasu SR

has qualified as a **GRIHA Certified Professional For V. 2015**

Date of issue: 18th September 2020

Note : This certification is valid only for GRIHA version 2015.

Chief Executive Officer
GRIHA Council



Confederation of Indian Industry

This is to certify that

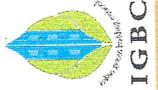
SIVARASU S R

is a

CII Certified Professional in Sustainable Waste Management

K S Venkatagiri
Executive Director
CII - Godrej GBC

Pradeep Bhargava
Chairman
CII GreenCo Council



CERTIFICATE

OF APPRECIATION

THIS CERTIFICATE IS AWARDED TO

Sivarasu Rathinavelu

FOR SUCCESSFUL COMPETION OF TRAINING COURSE ON

ISO 14064-1:2018
ISO 14064-2:2019
ISO 14064-3:2019
ISO 14066:2011
ISO 14067:2018

AND CERTIFY HIM/ HER AS

**IMPLEMENTOR & AUDITOR
CARBON FOOTPRINT MANAGEMENT**

This certificate is awarded for successful completion of Global Virtual Training course conducted from August 27, 2021 to September 01, 2021. It's serves as a proof of his/her knowledge, competence and ability to implement, verify and validate carbon footprint as per above mentioned standards and methods. This certificate was awarded on August 01, 2021.

01.09.21

DATE

Abhosh

SIGNATURE

010920211006

HSSE*Risk*

MANAGEMENT SERVICES

www.hsserisk.com