

## Dr. M. VENKATA RAMANAN

### 1. Communiqué

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### 2. Personal Info

Born 4<sup>th</sup> Jan 1977, Male, Indian & Married

### 3. Education

Course	Specialization	Institution	Session
Ph.D	Biomass Gasification	Anna University Chennai	2001 – 2008
M.Tech (First with Distinction)	Energy Conservation & Management	School of Energy, Tiruchirappalli	1998 - 2000
B.E (First Class)	Mechanical Engineering	University of Madras, Chennai	1994 - 1998

### 4. Professional Experience

21 Years of experience in Teaching, Research and Industrial Consultancy especially in the field of Energy Efficiency and Renewable Energy Sector

### 5. Subjects Taught

- Thermal Engineering
- Energy Conservation and Management
- New and Renewable Sources of Energy
- Bioenergy conversion Technologies
- Thermodynamics
- Fuels and Combustion

### 6. Areas of Specialization (Consultancy)

- Performance Evaluation of Industrial Utilities  
(Detailed and Specific Energy Audits)
- Bio Energy Conversion Technologies
- Detailed Project Report (DPR) Preparation
- Techno Economic Feasibility Analysis (TEFR)

## **7. Projects Involved**

Detailed Energy Audits	=	55	(Annex 1)
Detailed Project Reports	=	09	(Annex 2)
Techno Economic Feasibility Analysis	=	03	(Annex 2)
Biomass Assessment Studies	=	17	(Annex 3)
Sustainable Energy Studies	=	07	(Annex 3)
R & D Projects	=	04	(Annex 4)
Other Specific Assignments	=	12	(Annex 4)

## **8. Publications**

Journals	=	50	(Annex 4)
Conferences (National & International)	=	11	

## **9. Research Guidance**

Ph.D scholars	=	09	(5 completed)
M.E. Project works	=	40	

## **10. Membership in Professional Societies**

- ❖ Society of Technical Education (Life Member 68452)
- ❖ Society for Heating, Refr'gn & A/c Eng'rs (Life Member CN/00/AM/0508)
- ❖ Energy and Fuel User's Association of India (Life Member 16434)

## DETAILED ENERGY AUDITS

Sn	Type	Industry / Commercial Establishments	Place
1	<b>Process</b>	Kerala Feeds Ltd	Thrissur
2		The Hutti Gold Mines Co. Ltd	Hutti, Karnataka
3		Tantech Agro Chemicals Ltd	Cuddalore
4		The Kerala Ceramics Ltd	Kundara
5	<b>Sugar</b>	M.R. Krishnamurthy Co-operative Sugar Ltd	Sethiathope
6	<b>Pharma &amp; Healthcare</b>	Darshak Ltd	Baroda
7		Alembic Ltd	Baroda
8		Sashun Pharma	Puducherry
9		Orchid Pharma	Kancheepuram
10		Terumo Penpol Ltd	Trivandrum
11	<b>Textile &amp; Dyeing Units</b>	Arumugam Spinning Centres Ltd	Chatrapatti
12		Combi Colors	Karur
13		Navarang Dye Works	Karur
14		Polyspin Pvt. Ltd	Rajapalaiyam
15		Premier Enterprises	Rajapalaiyam
16		Rajapalaiyam Textiles	
17		Ramaraju Surgical Cotton Centres Ltd	
18		Sandhya Spinning Centres Ltd	
19		Sree Bharathi Mills Ltd	Pondicherry
20		K L R F Textiles	Tirunelveli
21		Narmathaa Textiles Ltd	Erode
22	<b>Automobiles &amp; Ancillaries</b>	Brakes India Ltd	Padi
23		Brakes India Ltd	Sholinghur
24		Brakes India Ltd	Polambakkam
25		ITW	Chennai
26		TVS Srichakra Ltd	Madurai
27	<b>Academic Institutions</b>	Salim Ali Centre for Ornithology & Natural History	Coimbatore
28		M Kumarasamy College of Engineering	Karur
29	<b>Banking Sector</b>	Reserve Bank of India	Chennai
		Indian Bank	

Sn	Type	Industry / Commercial Establishments	Place
30	<b>Food</b>	Erode Dt Co-op. Milk Producers Union ( Aavin )	Erode
31		Balanoor Tea Plantations Ltd	Chickmagalur
32		Foods Fats & Fertilizers Ltd	Tadepalligudem
33		Foster Foods Pvt. Ltd	Thrissur
34		Indcoserve - Salisbury	Gudalur
35		Indcoserve - Kundah	Yedacad
36		Indcoserve - Mahalinga	Bala Cola
37		Indcoserve - Manjoor	Manjoor
38		Salisbury Indl. Co-operative Tea Factory	Gudalur
39		Nila Sea Foods	Tuticorin
40	<b>Engineering</b>	Alstom Ltd	Chennai
41	<b>Construction &amp; Building Materials</b>	Forest Industries (Travancore) Ltd	Aluva
42		India Cements Ltd - Compressed Air Audit	Dalavoi
43		Electro Steel Castings	Gummidipoondi
44		Ran India Steels (P) Ltd	Tiruchengodu
45	<b>Amusement Parks</b>	Veega Land	Cochin
46	<b>Information Technology</b>	Elnet Software City	Chennai
47		Infosys Technologies Ltd	
48		Bharat Sanchar Nigam Ltd	
49		TIDEL Park	
50		TVS Electronics	
51	<b>Hospital</b>	Vijaya Heart Foundation & Vijaya Health Centre	Chennai
52	<b>Media &amp; Publishing</b>	Thomson Press (India Today)	Chennai
53		Transworld Radio	
54		Doordarshan Kendra	
55		ITC	Bhadrachalam

**DETAILED PROJECT REPORTS**

<b>Sn</b>	<b>Client</b>	<b>DPR for</b>
1	Madurai Corporation, Madurai	MSW to Energy
2	Tamilnadu Energy Development Agency, Chennai	SPV Street Light Installations
3	Kerala Ceramics Ltd, Kundara	Agro Fuel fired Hot Air Generator
4	Ministry of New & Renewable Energy, New Delhi	Biomass Power at Little & South Anadman
5	Commissioner of Municipal Administration, Chennai	Gasifier Crematoriums in Urban Local Bodies
6	Andaman PWD, Port Blair	Night Soil Based Biogas Plant
7	TVS Srichakra Ltd, Madurai	Biomass Gasifier for LPG replacement
8	TVS Srichakra Ltd, Madurai	Biomass Gasifier for FO replacement
9	Ajinkyathara SSK Ltd, Satara	Cogeneration

**TECHNO ECONOMIC FEASIBILITY ANALYSIS**

<b>Sn</b>	<b>Client</b>	<b>TEFR for</b>
1	TVS Srichakra Ltd, Madurai	Power sourcing options
2	Kerala Ceramics Ltd, Kundara	Agro Fuel fired Hot Air Generator
3	Sethu Institute of Technology, Madurai	Biomass Gasifier based Power

**BIOMASS ASSESSMENT STUDIES**

<b>Sn</b>	<b>Client</b>	<b>Area</b>
1	Ministry of New & Renewable Energy, New Delhi	Tamilnadu State (Districtwise)
2		Kerala State (Districtwise)
3		Karnataka State (Districtwise)
4		Orissa State (Districtwise)
5	Tamilnadu Energy Development Agency, Chennai	Melur Taluk, Madurai
6	West Bengal Renewable Energy Development Agency, Kolkatta	Jhargram Taluk, West Bengal
7	Green Bioenergy	Gulburga District
8	Tamilnadu Petro Products Ltd, Chennai	Tuticorin
9		Manali
10	Diadem Enterprises Private Ltd, Puducherry	Mayiladuthurai Taluk
11	Seven Seas Distilleries Ltd., Chennai	Srivilliputtur Taluk
12	Trichy Municipal Corporation, Tiruchirappalli	MSW at Trichy Corporation Limits
13	TCP Ltd, Chennai	Tenkasi
14	Emirates Trading Agency, Dubai, UAE	Sattur
15	Sane Renewable Energy Private Limited, Chennai	Villupuram
16	Southern Green Power Private Limited, Bangalore	Southern & Coastal Area in Tamil Nadu
17	Ministry of New & Renewable Energy, New Delhi	Union Territories of Lakshadweep

**SUSTAINABLE ENERGY DEVELOPMENT STUDIES  
(INTEGRATED RURAL ENERGY PLANNING)**

<b>Sn</b>	<b>Client</b>	<b>Area</b>
1	Tamilnadu Energy Development Agency, Chennai	Jawadhu Hills, Thiruvannamalai District
2		Allikuzhi Village, Tiruvellore District
3		Papanallur Village, Kancheepuram District
4		Nellithurai Village, Coimbatore District
5		Moongilpadi Village, Salem District
6	Maharastra Renewable Energy Development Agency, Pune	Latur Block
7		Ausa Block

**R & D PROJECTS**

<b>Sn</b>	<b>Title</b>	<b>Funded by</b>
1	Technology Validation of Biomass Gasifiers for Manual Dyeing Units in Karur	Ministry of New & Renewable Energy, New Delhi
2	Decentralised Power Generation through Carbonisation & Gasification of Cashew Shell	
3	Design and development of Magnetically Levitated Micro Vertical Axis Windmill	
4	Design and Development of renewable energy based charging outlets for automobile applications	RUSA, GoI

**OTHER SPECIFIC ASSIGNMENTS**

<b>Sn</b>	<b>Assignment</b>	<b>Client</b>
1	Survey of Solar Photo Voltaic Home Lighting systems in Tribal villages in the Districts of Kerala State	Ministry of New & Renewable Energy, New Delhi
2	Performance Evaluation Study of 100 kW Gasifier at Andaman & Nicobar Island	Electricity Department, Andaman & Nicobar Administration
3	Control of Pollution from Thermal Power Plants	Madras School of Economics, Chennai
4	Survey of un-electrified habitations	Tamilnadu Energy Development Agency, Chennai
5	Performance Evaluation Study for 600 kWe (Thermal ) Gasifier at Modern Rice Mill, Sitharkadu	
6	Verification of SPV Street Light & Home Lights installed in Tamilnadu for the year 2003-04	
7	Performance evaluation study on small capacity biomass gasifiers in Local Bodies	
8	Performance evaluation study on biomass gasifiers (thermal and electrical) installed in Industries	
9	Inspection of Solar Air Heating System	Rencotech, Chennai
10	Baseline study to aid funding under CDM for Wind Mills	
11	Performance study of condenser in Thermal Unit 1	Ennore Thermal Power Station, Chennai
12	Performance assessment of VARS	Tamilnadu House, New Delhi
13	Compliance report of Incinerator installed at Chitlpakkam Municipality	Chitlpakkam Municipality, GoTN
14	Vetting of design of Incineration plant and third party inspection at Tambaram Municipality	Tambaram Corporation, TN

## **PUBLICATION IN NATIONAL / INTERNATIONAL JOURNALS**

1. Emission study for pentanol and pongamia biodiesel blends in a DI diesel engine, AIP Conference Proceedings 2311 (1), 020046, 2020
2. Detailed analysis on injection timing retardation and simultaneous technology in a biodiesel-powered compression ignition engine, International Journal of Ambient Energy 41 (12), 1437-1440, 16, 2020
3. Predictive Modelling and Optimization of Performance and Emissions of Acetylene Fuelled CI Engine Using ANN and RSM, Energy Sources, Part A: Recovery, Utilization, and Environmental Effects, 1-19, 2020
4. Experimental Investigation of Eco-Friendly and Energy Efficient Auto and Allo Thermal Charcoal Kiln, IOP Conference Series: Materials Science and Engineering 923 (1), 012067, 2020
5. Comparative studies and analysis on gasification of coconut shells and corn cobs in a perforated fixed bed downdraft reactor by admitting air through equally spaced conduits, Biomass Conversion and Biorefinery, 1-13, 2020
6. Emission and performance analysis of pentanol-diesel blends in unmodified diesel engine, International journal of ambient energy 41 (6), 699-702, 24, 2020
7. Study of emission characteristics of a diesel engine using cerium oxide nanoparticle blended pongamia methyl ester, International Journal of Ambient Energy 41 (5), 524-527, 35, 2020
8. Effect of compression ratio on the performance of CI engine fuelled with freshwater algae biodiesel, International Journal of Ambient Energy 41 (1), 80-83, 21, 2020
9. Experimental and Simulation Studies on Thermoelectric Cooler: A Performance Study Approach, International Journal of Thermophysics 41 (38), 1-23, 2, 2020
10. Enhancement of hydrogen energy from Casuarina equisetifolia using NiO–Pr<sub>2</sub>O<sub>3</sub>/TiO<sub>2</sub> and NiO/TiO<sub>2</sub> nano composites, International Journal of Hydrogen Energy, <https://doi.org/10.1016/j.ijhydten>, 2020
11. Quaternary Blends of Diesel/biodiesel/vegetable Oil/pentanol as a Potential Alternative Feedstock for Existing Unmodified Diesel Engine: Performance, Combustion and Emission, Energy 186, 115856, 27, 2019
12. Palm oil-based biodiesel as a novel alternative feedstock for existing unmodified DI diesel engine, International Journal of Ambient Energy, 1-7, 6, 2019
13. Performance study of thermoelectric cooler using multiphysics simulation and numerical modelling, International Journal of Ambient Energy, 1-7, 1, 2019
14. Effect of fuel additives and exhaust gas recirculation in biodiesel fuelled CI engine: a review, International Journal of Ambient Energy, 1-7, 10, 2019



15. A novel alternative fuel mixture (diesel–biodiesel–pentanol) for the existing unmodified direct injection diesel engine: performance and emission characteristics, *Transactions of the Canadian Society for Mechanical Engineering* 44 (1), 1-9, 20, 2019
16. Experimental investigation of an unmodified diesel engine operated with ternary fuel, *Biofuels*, 1-7, 9, 2019
17. NO<sub>x</sub> emission reduction techniques in biodiesel-fuelled CI engine: a review, *Australian Journal of Mechanical Engineering*, 13, 2019
18. Influence of Nanoparticle with Jatropha Methyl Ester Blends in a Diesel Engine, *Digest Journal of Nanomaterials & Biostructures (DJNB)* 14 (2), 439-446, 19, 2019
19. Experimental investigation of emission characteristics on ricebran biodiesel–alcohol blends in a diesel engine, *International journal of ambient Energy*, 1-6, 15, 2019
20. Performance, Combustion and Emission Characteristics of CI Engine Fueled with Sweet Lime Peel Oil (Citrus Limetta), *Journal of Testing and Evaluation, ASTM International*, 46(5), 2018
21. A comprehensive review of water injection and emulsion technology for biodiesel fuelled CI engine, *International Journal of Ambient Energy*, 2018, <https://doi.org/10.1080/01430750.2018.1501757>
22. Experimental analysis of the performance of a solar flat plate water heater with and without internal fins, *International Journal of Ambient Energy* , 38 (6), 2017, 582-589
23. Influence of diethyl ether (DEE) addition in ethanol-biodiesel-diesel (EBD) and methanol-biodiesel-diesel (MBD) blends in a diesel engine, *Fuel*, 189, 2017/2/1, 377-390
24. Effect of diethyl ether and Al<sub>2</sub>O<sub>3</sub> nano additives in diesel-biodiesel-ethanol blends: Performance, combustion and emission characteristics, *Journal of Mechanical Science and Technology*, 31(1), 2017, 409-420
25. An experimental analysis on tar cracking using nano structured Ni-Co/Si-P catalyst in a biomass gasifier based power generating system, *Applied Thermal Engineering*, 97, 2016, 13-21
26. Emission Analysis of Magnetite Nanofluid on Methyl-Ester in Diesel Engine, *Atmospheric Pollution Research*, 7 (3), 2016, 477-481
27. Effect of Nano Additives (Titanium and Zirconium Oxides) and Diethyl Ether on Biodiesel-Ethanol Fuelled CI Engine, *Journal of Mechanical Science and Technology*, 30 (5), 2016, 2361- 2368
28. Stoichiometric Equilibrium Modeling of Corn Cob Gasification and Validation Using Experimental Analysis, *Energy and Fuels*, 30, 2016, 7435–7442

29. Experimental Analysis on Neat Mustard Oil Methyl-Ester subjected to Ultrasonication and Microwave Irradiation in Four Stroke Single Cylinder Diesel Engine, *Journal of Mechanical Science And Technology*, 30 (1), 2016, 437-446
30. Ni-Ce/SiO<sub>2</sub> Nanocomposite: Characterization and Catalytic Activity in the Cracking of Tar in Biomass Gasifiers, *Energy Sources, Part A: Recovery, Utilization and Environmental Effects*, 38 (16), 2016, 2418-2425
31. Effect of Al<sub>2</sub>O<sub>3</sub> nanoparticles in biodiesel-diesel-ethanol blends at various injection strategies: Performance, combustion and emission characteristics, *Fuel*, 186, 2016, 176–189
32. Experimental studies on gasification of corn cobs in a fixed bed system, *Journal of Chemical and Pharmaceutical Research*, 2016, 8(7):667-676
33. Comparative studies on gasification of corn cob, Casuarina wood and coconut shell in a fixed bed gasifier, *Journal of Chemical and Pharmaceutical Research*, 2016, 8(7):544-552
34. Modelling and Validation of Solar Flat Plate Water Heating System subjected to Varying Absorber Geometries, *Int. J. Chem. Sci.*: 14(4), 2016, 2259-2264
35. Emission Control Technique for CI Engine Using Lemon Oil as an Additive in Waste Cooking Oil and Jatropa Biodiesel, *International Journal of Printing, Packaging & Allied Sciences*, 4(1), 2016, 522-533
36. Experimental Analysis on the Influence of Internal Finning on the efficiency of a solar flat plate using Al<sub>2</sub>O<sub>3</sub> Nanoparticles, *Journal of Non-Equilibrium Thermodynamics*, 40(3), 2015, 185-192
37. Comparison of the effect of Al<sub>2</sub>O<sub>3</sub> and CUO Nanoparticles on the Performance of a Solar Flat –Plate Collector, *Journal of Non-Equilibrium Thermodynamics*, 40(4), 2015, 265-273
38. Tar Mitigation in Biomass Gasifiers Using Nano Structured Ni/SiO<sub>2</sub> Catalyst: An Experimental Study, *Journal of Progress in Industrial Ecology*, 9(2), 2015, 182-190
39. Synthesis and Surface Area determination of Alumina Nanoparticles by Chemical Combustion Method, *International Journal of Chemtech Research*, 8(11), 2015, 413 - 419
40. Performance Study of Preheated Mustard Oil Methyl-Ester on Naturally Aspirated CI Engine, *Applied Mechanics and Materials*, 787, 2015, 761-765
41. Emission Analysis of Preheated Methyl-Ester on CI Engine, *Applied Mechanics and Materials*, 812, 2015, 21-25
42. Tar Mitigation in Biomass Gasification Systems using Catalysts: An Overview, *International Journal of Applied Engineering Research*, 10(4), 2015, 9245-9256

43. CFD Modelling and Validation of Solar Flat Plate Collector Subjected to Natural Convection, International Journal of Applied Engineering Research, 10(3), 2015, 5935 -5944
44. Enhancement of Producer Gas Quality in Biomass Gasifiers using nano Ni/Si-P Catalyst, International Journal of Applied Engineering Research, 10(33), 2015, 24345-24350
45. Tar Mitigation in Biomass Gasification Systems using Primary Measures: An Overview, International Journal of Applied Environmental Sciences, 10(1), 2015, 251-263
46. Experimental Investigation on the changes in Bed properties of a Down Draft Gasifier, International Journal Of Engineering, Science And Technology, 2(6), 2010, 98-106
47. Modeling and Experimental Validation of Cashew Nut Shell Char Gasification Adopting Chemical Equilibrium Approach, Energy and fuels, 22, 2008. 2070-2078
48. Gasification facets of cashew nut shell char vis-à-vis casuarina wood - an experimental analysis, Journal of Biobased Materials and Bioenergy, 2, 2008, 33-42
49. Performance Prediction And Validation Of Equilibrium Modeling For Gasification Of Cashew Nut Shell Char, Brazilian Society of Chemical Engineering, 25(3), 2008, 585 – 601
50. Mathematical Modeling and Experimental Analysis Of Cashew Nut Shell Char Gasification Using Free Energy Minimization, International Energy Journal, 9, 2008, 21-32