


**FORM IV**  
**(Refer regulation 7(2))**  
**Bureau of Energy Efficiency**  
**REGISTER CONTAINING NAMES OF OFFICES AND FIRMS OF ACCREDITED**  
**ENERGY AUDITORS**

Serial Number (AEA- 0135)		As on : 26 November, 2013	
<b>A.</b>			
1	Name of accredited energy auditor	Dendukuri. Rajani Kant (D.Rajani kant)	
2	Father's name	Dr.D.Suryanarayana Sastry	
3	Date of certification as Energy Manager	07.02.2013	
4	Date of passing the examination in "Energy Performance Assessment for Equipment and Utility Systems"	April 2006	
5	Examination Registration Number of (i) Energy Manager (ii) "Energy Performance Assessment for Equipment and Utility Systems"	EA-0773	
6	Certificate Registration Number of (i) Energy Manager (ii) "Energy Performance Assessment for Equipment and Utility Systems"	No:2260	
7	Date of issue of accreditation certificate ( <i>to be filled by BEE</i> )		
<b>B. Information in respect of trade name or firms' name</b>			
8	Trade name / firms name under which energy audit is proposed to be conducted	National Productivity Council 10-E, Gaganvihar, M.J.Road, Hyderabad – 500 001	
9	Date of accreditation as accredited energy auditor ( <i>to be filled by BEE</i> )		

10	Type of firm/ private/ Government / NGO etc.	GOVERNMENT
11	Name of contact person along with designation, address, telephone, mobile and fax number along with STD codes and email address ( All details compulsory)	Director General, presently, Dr.S.K.Chakravorty, Dy.Director General Utpadakta Bhavan, 5-6 Institutional Area, Lodhi Road New Delhi – 110 003 Phone: 011-24690331; Fax: 011-24615002 Email: sk.chakraborty@npcindia.gov.in
12	Professional postal address with Pin Code of the accredited energy auditor	National Productivity Council, 10-E, Gaganvihar, M.J.Road Hyderabad – 500 001
13	E-mail address	<a href="mailto:npc.ap@nic.in">npc.ap@nic.in</a>
14	Telephone numbers . with STD Code (R) (O) Mobile no:	040-24733473 0-9705540081 0-9391591570
15	Year of establishment of the trade name / firms' name for undertaking the energy audit	1958 as National Productivity Council, under Societies Act, under Ministry of Commerce & Industry, Govt. of India
16	Year of commencement of energy audit of the firm	1976
17	Whether any certificate to support the excellence in the system has been obtained (ISO etc.)	YES (ISO 9001:2008); NPCs Hyderabad Regional Professional Management Group
18	No. of branch offices  (List of complete addresses including heads of all branch offices with telephone, fax and email addresses)	One (1) Head Quarters at New Delhi One (1) Training Institute (Dr.Ambedkar Institute of Productivity at Chennai Thirteen (13) Regional Directorates List of all NPC Offices with addresses, Names of Heads, Telephone Fax and Email–appended as Annexure-1)

C	Details of Associated Energy Experts	
19	Number of resource persons available	110 (Consultants)
20	I. Number. of full-time energy auditors in position with work experience of all energy auditors associated with the firm	<p>40 Energy Auditors/Consultants)</p> <p>1. <b>Anupom Chakraborty</b> Sr.Deputy Director (EM) 24 years experience with the firm Key Qualification:</p> <ul style="list-style-type: none"> <li>• Bachelor Degree in Mechanical Engg.- Assam Engineering College</li> <li>• TIPIE (now AIP), Chennai - Two- Yr. PG Certificate in Energy Mgmnt.)</li> <li>• Japan Productivity Center, Tokyo – One month Trg. Certificate on ' Environment Protection &amp; Resource Conservation'</li> </ul> <p>Experience:</p> <ul style="list-style-type: none"> <li>• Bongaigaon T. P. S. under ASEB - July'81 to Nov'83, Assistant Engineer (O &amp; M)</li> <li>• Performed duties as adviser cum consultant as team leader for the entire APDRP project in the circle of 24 PGs (South), West Bengal State Electricity Board (WBSEB) during end of 2001.</li> <li>• Responsibility: Under the project, the AcC activities included DPR preparations, BID document preparations, assisting the state utilities, awarding the contracts, monitoring the construction/ implementation activities of various schemes as per the provision of DPR.</li> </ul> <p>2. <b>DR. SHIVAJI BISWAS</b> Director (EM) 22 years experience with the firm Key Qualification:</p> <ul style="list-style-type: none"> <li>▪ <b>BEE Certified Energy Auditor</b></li> <li>▪ BACHELOR IN CHEMICAL ENGINEERING , JADAVPUR UNIVERSITY, KOLKATA</li> <li>▪ Post graduate certificate in energy management, NATIONAL PRODUCTIVITY COUNCIL</li> <li>▪ DIPLOMA IN MANAGEMENT , IGNOU</li> <li>▪ PHD IN ENERGY MANAGEMENT, JADAVPUR UNIVERSITY</li> </ul> <p>Experience:</p> <ul style="list-style-type: none"> <li>▪ ADVANCE TRAINING ON ENERGY MANAGEMENT FROM 9-17 NOVEMBER, 1993 AT SEOUL, SOUTH KOREA, SPONSORED BY APO, JAPAN.</li> <li>▪ ADVANCE TRAINING ON GREEN</li> </ul>

		<p>PRODUCTIVITY AND SOLID WASTE MANAGEMENT FROM 21-25 NOVEMBER, 2005 AT MANILA, PHILIPPINES, SPONSORED BY APO, JAPAN</p> <ul style="list-style-type: none"> <li>▪ ATTENDED TRAINING ON EC-GOVERNMENT OF INDIA ENERGY BUS TRAINING PROGRAMME FROM OCTOBER 1990- NOVEMBER 1992 ORGANISED AND CONDUCTED BY NIFES CONSULTING GROUP ON BEHALF OF THE COMMISSION OF THE EUROPEAN COMMUNITIES.</li> <li>▪ ATTENDED TRAINING ON SOLAR WATER HEATING SYSTEM FROM 27-28 DECEMBER .1993 .ORGANIZED BY SCHOOL OF ENERGY STUDIES, JADAVPUR UNIVERSITY.</li> <li>▪ PARTICIPATED IN THE MANAGEMENT DEVELOPMENT PROGRAMME ON ENVIRONMENT AUDIT AND IMPLEMENTATION ON ENVIRONMENT MANAGEMENT SYSTEM FROM 23-24 SEPTEMBER 1999 ORGANIZED BY ENVIRONMENT MANAGEMENT CENTRE INDIAN CHAMBER OF COMMERCE</li> <li>▪ ATTENDED <b>E-GOVERNANCE</b> WORKSHOP 5-9 APRIL, 2004 ORGANIZED AND CONDUCTED BY NATIONAL INFORMATICS CENTRE, HYDERABAD</li> <li>▪ ATTENDED PROGRAMME ON MS OFFICE IN MARCH 2001 ORGANIZED BY SSI LIMITED.</li> <li>▪ ATTENDED PROGRAMME ON <b>VISUAL BASIC 6.0</b> FROM 10<sup>TH</sup> MARCH -17<sup>TH</sup> MARCH, 2003 ORGANIZED BY SQL STAR INTERNATIONAL LIMITED, BHUBANESWAR.</li> <li>▪ ATTENDED WORKSHOP ON ADOPTION OF ENERGY EFFICIENT PROCESS TECHNOLOGIES AND PRACTICES AND IMPLEMENTATION OF ENERGY CONSERVATION ACT 2001 IN PULP AND PAPER SECTOR ON 13<sup>TH</sup> FEBRUARY 2008 ORGANIZED BY BUREAU OF ENERGY EFFICIENCY (BEE) UNDER LIFE LONG LEARNING PROGRAMME.</li> <li>▪ 27 YEARS EXPERIENCE AS CONSULTANT AND TRAINER IN ENERGY MANAGEMENT &amp; CONSERVATION</li> <li>▪ ENERGY CONSERVATION &amp; ENERGY EFFICIENCY IN INDUSTRY SECTOR</li> <li>▪ BENGAL CHEMICAL AND PHARMACEUTICAL WORKS - GRADUATE TRAINEE</li> <li>▪ PREMHARI R&amp;D FOUNDATION KHARAGPUR - PROJECT ENGINEER</li> </ul> <p><b>3. D.Pawankumar</b>  Director (EM)  28 years experience with the firm  Key Qualification:</p> <ul style="list-style-type: none"> <li>• Bachelor in Electrical Engineering, Osmania University (1974)</li> </ul>
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- PG Diploma in Energy Management, NPC Chennai (1981)

**Experience:**

**MAJOR PROJECTS HANDLED**

**Title: Energy Audits**

- Carried out over 500 energy efficiency studies in various sectors of industry like commercial buildings, cement, power generation, distribution utilities, paper, pharmaceuticals, fertilizer, chemical, refinery, covering all types of equipment and energy consuming sections. During the studies the emphasis is given on
- Energy and cost reduction measures
- Benchmarking and targeting
- Energy norms fixation
- Implementation action plan
- Monitoring and verification protocol

**Title: Energy Studies / special projects**

- Apart from energy audit / efficiency improvement projects, several projects like, Demand Side Management, sectoral studies, cluster and unit level projects, demonstration projects, preparation of reference manuals, training and capacity building initiatives, etc

**Title: Bilateral and multilateral projects**

- Conducted several projects on energy efficiency for international organizations like The World Bank, United Nations Environment Programme (UNEP), USAID, UNIDO, European Union, EC, UNEP, UNDP, APO, UN-ESCAP, etc on energy efficiency and conservation. Few of the projects include
- Green House Gases Emission Reduction in Asia and Pacific (GERIAP): funded by Swiss Industrial Development Agency (SIDA). NPC India as lead agency to assist eight member countries for providing technical assistance. NPC has also prepared 14 volumes of equipments chapter for the toolkit, which will help member countries to enhance their capability in area of energy efficiency. An international launch was done for the same at Bangkok in January 2006
- UNEP project for resource conservation studies
- Distribution Reforms and Up gradation programme (DRUM) Project
- APDRP projects of the Ministry of Power (MOP), Government of India (GOI) in the States of West Bengal, Assam and Himachal Pradesh, with special inputs in the areas of Revenue realisation, billing systems and MIS, strengthening the system networks, energy audit and energy accounting.
- Technology Menu for USAID
- APO project on Green Productivity
- Review of Power End Use Efficiency in India - Sponsored by World Bank/USAID
- Status of Energy Consulting Firms of Power Sector in India - Sponsored by USAID
- Local Help Desk for facilitating interaction on issues of energy efficiency among the various stake holders viz.

industry, consultants, bankers etc has been established with the support by UNEP, Paris,

**Title: Sectoral studies**

- Technology Evaluation of For Energy Efficient Technologies (DSIR)
- NPC in association With UNEP has launched website for Working Engineers on Green House Gas Reduction In Asia Pacific.
- Normative Coal Study for Thermal Power Plants in India (CIL)
- Secondary Fuel Oil Conservation in Selected Power Stations - Sponsored by PCRA
- Techno-Market Survey on Techniques to improve PLF and Efficiency of Power Stations (TIFAC/DST)
- Preliminary & Detailed Energy Audit Studies in Buildings and Industrial Plants (PCRA/MOP)

**Title: International Exposure**

- Expert Services provided in areas of energy audit and conservation in Thailand, Fiji, Vietnam, Bangladesh, Nepal, Sri Lanka, Magnolia, Philippines and Iran

**Title: Capacity Building & Training Programme**

- Conducted more than 100 national and international seminars / workshops /training programs sponsored various agencies on Energy Conservation and Efficiency
- Series of training programmes on Energy Management and Audit to train approximately 400 engineers at Tehran, Iran (Institute of Productivity and Human Resource Development, Iran)
- Conducted Training Programme on Cleaner Production and Energy Efficiency for participants from Latin America, Eastern Europe, Africa & Asia Pacific countries
- E Learning: An innovative project funded by UNEP was taken up to provide online training to 25 professionals from 20 different countries all round the world. The training was of 8-week duration on “Fundamentals of Energy Efficiency for Industrial enterprises”.
- Series of training programmes on Energy Management and Audit to train approximately 400 engineers at Tehran, Iran (Institute of Productivity and Human Resource Development, Iran)
- Training Programme on Cleaner Production and Energy Efficiency for participants from Latin America, Eastern Europe, Africa & Asia Pacific countries

**PUBLICATIONS**

- Co-author of the technology menu for energy efficiency in India, which was prepared under the sponsorship of USAID in collaboration with Princeton University, USA. This publication is widely used by energy auditors in the country.
- He has also published energy efficiency related articles in several journals/ publications.
- Involved in development of course curriculum for energy managers & energy auditors as prescribed under Energy Conservation Act-2001. Closely associated in the

		<p>following guide books on the curriculum of Energy has been prepared by NPC</p> <ul style="list-style-type: none"> <li>• Guide Book of General Aspects of Energy Management and Audit</li> <li>• Guide Book on Energy Efficiency in Thermal Utilities</li> <li>• Guide Book on Energy Efficiency in Electrical Utilities</li> <li>• Guide Book on Energy Performance Assessments for equipments and Utility System</li> </ul> <hr/> <p><b>4. J. Nagesh Kumar</b>  Director (EM)  24 years experience with the firm  Key Qualification:</p> <ul style="list-style-type: none"> <li>• B.E (Mechanical Engg.) – 1979-84</li> <li>• Post Graduate Diploma in Energy Management – 1986-88</li> <li>• P.hd. (Gas Turbine) in Progress from Anna University, Chennai.</li> </ul> <p>Experience:</p> <ul style="list-style-type: none"> <li>• <b>24 years experience in various RPMGs offices of National Productivity council as Consultant and Trainer in Energy Management inclusive of:</b> <ol style="list-style-type: none"> <li>1. Energy Conservation &amp; energy Efficiency in Industry sector.</li> <li>2. Technology Application &amp; Diagnostic Studies</li> <li>3. Technology Assessment / Needs</li> <li>4. Thermal Power Plant Auxiliary Energy use optimization studies.</li> </ol> </li> <li>• <b>Functioned as a Chief Consultant and a specialist in Energy Efficiency improvement studies and energy audit in a wide spectrum of industries including recent ones:</b> <ol style="list-style-type: none"> <li>1. <b>Accelerated Power Development and Reforms Project of MoP, GoI</b> in states of Himachal Pradesh, Assam and West Bengal</li> <li>2. Faculty in Drum Training Program (Andhra Pradesh State Electricity Board)</li> <li>3. Preparation of Energy Guide books for Bureau of Energy Efficiency.</li> <li>4. Sectoral Energy Audits for Deptt.of Power.</li> <li>5. Assessment of Cogeneration potential in India.</li> </ol> </li> </ul> <hr/> <p><b>6. P.Dharmalingam</b>  Director  20 years experience with the firm  Key Qualification:</p> <ul style="list-style-type: none"> <li>• <b>BEE certified Energy Auditor</b></li> <li>• <b>B.Tech (Hons)Mech, Spl-Automobile Engg</b> Madras Institute of Technology</li> <li>• PGDEM (Post Graduate Professional Course in Energy Management) TIPIE,Chennai</li> <li>• M.S ( Software Systems-Spl Energy Mgmt) BITS, Pilani</li> </ul>
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- **ADM** - (Business Administration) AIMA
- **DIM** (Industrial Management) Symbiosis Institute,Pune

**Experience:**

**Consulting assignments in Energy Audit & Energy Efficiency for Industries (Direct users):**

Executed more than 200 assignments covering Process, Engineering & Service industry. The sectors covered are Refineries, chemical, textiles, dairy, paper, sugar, tyre, steel, cement, fertilizers, pumping, oil & gas processing, automobiles, railways, power plant, large hotel and commercial buildings

25 years experience as Consultant and Trainer in Energy Management & conservation

- **Cleaner Production Energy Efficiency manual for Greenhouse gas Emission Reduction in Industry in Asia Pacific (GERIAP),UNEP,2000**

A Manual was prepared for training of trainers to the needs of nine countries in Asia pacific region under UNEP Project.

- Performance assessment of Biomass power generation/Cogeneration project in India, Supported by **MNRE**, GOI, New Delhi)
- Performance assessment and efficiency improvement in Heat & Power consuming equipments namely, Steam Generators, Waste Heat Boilers, Process/Fired Heaters
- Energy audit and Performance assessment in Refrigeration, Compressed Air ,Cooling Water System, water pumping, fan system and Lighting system.
- Energy optimisation in process, process integration
- Thermal Power Station and Transmission & Distribution
- Thermal Insulation & Steam Trap Survey
- Captive Power & Co-Generation – Steam & Gas Turbine plant: Evaluation& Improvements
- Fuel/steam and power optimisation applicable to large continuous process plants
- Electrical Demand side Management
- Water audit and conservation
- Application of metering & monitoring system and Energy Efficient equipments

**National and International assignments Executed:**

- **Guide Books Development on Energy Efficiency:** Prepared the following four Guide books on Energy Efficiency as project leader/author for the purpose of national level examination. (**published by BEE** , Govt of India),2003
  1. General Aspects on Energy Management and Audit.
  2. Energy Efficiency in Thermal Utilities.
  3. Energy Efficiency in Electrical Utilities.
  4. Energy Performance Assessment of Equipment & Utility Systems.



About 10,000 candidates have written this examination for the Certification from 2004

- Implementation of Institutional building & energy efficiency for state of Tamil Nadu supported by **GTZ/BEE** (SDA Development Project- EC ACT 2001)
- Chief faculty in Executive Development programme on Energy auditing at IPHRD –Tehran (**IRAN Govt Project**) conducted by NPC
- Namakkal Eco-city Demonstration Project: APO, Japan, Team Member for Energy Efficiency.

**Special Projects and Captive Power & Co-Generation Projects executed**

\* **Cogeneration Performance Evaluation study**

- \* 5 MW Bio mass based cogeneration plant, paper industry
- \* 20 MW steam turbine cogeneration- sugar Industry
- \* 6 MW DG SET cogeneration- Pharma industry

**MNRE sponsored Co-Generation Potential Evaluation Study-western India**

\* **Gas Turbine- Power Plant Study**

- \* Assessment of Co generation Potential in Western India Process plants ( 50 Nos) and preparation of 10 detailed Project report for implementing Cogeneration.
- \* Cairn Energy Ltd, Rajmundry Pondichery power corporation,Karikal

\* **Electrical Demand Management**

- \* Preparation of DSM Potential for the state of Tamilnadu
- \* Part of the Strategic Plan for implementing EC ACT. For SDA & Pondichery.

\* **Energy & Environment :**

**Cleaner production and Energy Efficiency projects  
Green Productivity Demonstration Project**

- Hotel Industries, Chennai.
- Aavin Dairy- Ambattur
- As member on “Development of model Eco-city through Green Productivity at Namakkal” Tamilnadu, a project sponsored by Asian Productivity Organisation, Tokyo

**Projects executed on National Survey, Technical Audit & Curriculum Development**

**Productivity and Energy efficiency in small & Tiny industries in Tamilnadu**

- Improvements study undertaken in coir, metal,

		<p>umbrella, lock manufacturing industries across the Tamilnadu.</p> <p><b>Energy efficiency in Agricultural Form, Chengam</b></p> <ul style="list-style-type: none"> <li>• Energy efficiency in agricultural pumping, form implements ,Diesel engines ,Drying units etc at Chengam</li> </ul> <p><b>Technical Tender evaluation for selection of energy efficient boilers</b></p> <ul style="list-style-type: none"> <li>▪ Technical audit and evaluation study was carried out for energy optimisation and selection process for IOCL.</li> </ul> <p><b>Setting up Energy Lab at NSIC</b> Professional study and advisory service provided to NSIC for setting up Energy Demonstration LAB project. All energy audit instruments ware procured and setup Appropriate Energy equipments foe practical training. Programme were conducted based on this project</p> <p><b>Curriculum development For Professional Course on Energy Management</b></p> <ul style="list-style-type: none"> <li>• Involved in syllabus development for BEE Energy auditor and Energy manager Course</li> <li>• B.Tech Energy &amp; Environment Agricultural university</li> </ul> <p><b>Software tool Development for energy performance and efficiency calculation</b></p> <ul style="list-style-type: none"> <li>• For Boiler &amp; Furnace performance Analysis.</li> <li>• Technical and Financial feasibility evaluation for Cogeneration projects</li> </ul> <p><b>Capacity Building for Power Sector Engineers:</b> Resource person/ training programmes conducted through CORE International for the following Electricity Boards:</p> <ul style="list-style-type: none"> <li>• Tamil Nadu Electricity Board</li> <li>• Power Department, Pondicherry</li> </ul> <p><b>TNUDF Study on Public Utilities: Energy Efficiency study in 25 Municipalities/Corp oration in the state of TamilNadu</b></p> <ul style="list-style-type: none"> <li>• Detailed energy efficiency study was carried out in 25 manipulates in the Tamil nadu state sponsored by Tamil nadu urban development Fund under World Bank project. The main focus was on water pumping ,transportation ,distribution , street lighting and office buildings</li> <li>• Our study identified the saving potential of 25 % in all public utilities.</li> <li>• Based on this findings workshop was conducted involving all stockholders Tamilnadu including ESCO companies for awareness, dissemination and implantation based on ESCO Basis Based on this study, TN Govt has started for implementation on ESCO Basis.</li> </ul> <hr/> <p><b>7. H. Raghavendra Prabhu</b> Director 22 years experience with the firm</p>
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		<p><b>Key Qualification:</b></p> <ul style="list-style-type: none"> <li>• B.Tech. (Mechanical Engineering),</li> <li>• Post Graduate Diploma in Energy Management.</li> <li>• Post Graduate Programme in Management (M.B.A. Equivalent) in Production &amp; Operations Management, All India Management Association, New Delhi</li> <li>• Diploma in Training &amp; Development, Indian Society of Training &amp; Development, New Delhi.</li> <li>• Certified Energy Auditor (CEA) by Bureau of Energy Efficiency (BEE), Govt. of India.</li> </ul> <p><b>Experience:</b> 22 years of experience in training and consultancy in different energy intensive sectors.</p> <ul style="list-style-type: none"> <li>• A unique combination of service in Energy Management &amp; Audit, Production and Operations Management, and also in Training &amp; Development with rich experience of Consulting and Training.</li> <li>• Carried out more than 250 Energy Audit and Conservation studies in large and medium industries in different sectors such as Dairy, Mining, Pharmaceutical, Building, Automobile, Pulp &amp; Paper, Chemical, Textile, re-rolling, Forging etc. Also done projects in Industrial Engineering discipline.</li> <li>• Imparted training to more than 4000 senior and middle level executive of various public and private organizations such as GAIL, ONGC, NTPC State Electricity Board, Hero Honda, Karnataka Power Corporation &amp; Indian Railways through national level inter-company training programme and in-company training programme.</li> </ul>
		<p><b>8. S.B. Sadananda</b> Director 28 years experience with the firm</p> <p><b>Key Qualification:</b></p> <ul style="list-style-type: none"> <li>• B.Tech. (Mechanical Engineering),</li> <li>• Post Graduate Diploma in Fuel Efficiency (Energy Management)</li> <li>• BEE Certified Energy Auditor</li> </ul> <p><b>Experience:</b> 28 years experience as Consultant and Trainer in Energy Management &amp; conservation.</p> <ul style="list-style-type: none"> <li>➤ <b>Consulting assignments in Energy Audit, Energy Efficiency &amp; Technical Audit for clients (Direct users).</b> <ul style="list-style-type: none"> <li>• Executed more than 100 assignments covering Process, Engineering &amp; Service industry. The sectors covered are textiles, pharmaceuticals, brewery, dairy, paper, fertilizers &amp; petrochemicals, oil &amp; gas processing, automobiles, railways, power, large luxury hotel and commercial buildings.</li> </ul> </li> <li>➤ <b>Capacity Building and Training Programmes</b> <ul style="list-style-type: none"> <li>• Planned and conducted as core faculty more than 100</li> </ul> </li> </ul>

		<p>inter company programmes on energy conservation and management. Planned and conducted as core faculty more than 50 in company programmes on Energy Management and Audit.</p> <ul style="list-style-type: none"> <li>• Prepared Workbooks and Energy Conservation Manuals</li> <li>• Designed &amp; Conducted as Course Director capacity building exercise for marketing/technical sales engineers of Leading oil companies in energy management and audit to provide value added service to their customers.</li> </ul> <p>➤ <b>Presentation of paper and information dissemination :</b></p> <ul style="list-style-type: none"> <li>• Presented paper on energy audit of large and complex process plants in the symposium on Energy Management and Conservation in Heavy Water plants and allied chemical plants, organised by Heavy Water Board, February 2000.</li> <li>• Present paper on energy audit in large continuous process industry in the workshop on Energy Conservation organised by Fertilizer Association of India, March 2002.</li> <li>• Developed background script &amp; commentary and provided editing support for production of instructional film on “Importance of Heat Recovery” for Department of Power, Govt. of India (1988).</li> </ul> <p>➤ <b>Resource person / Team leader in special assignments with emphasis on Technology development and Strategic Planning:</b></p> <ul style="list-style-type: none"> <li>• Technology evaluation of radial tyres for buses and trucks - Modi Rubber (1984) – Introduction of Radial tyres, a new technology during that period, through a pilot plant in India under Technology Absorption and Adaptation Scheme (TAAS).</li> <li>• Identification and implementation of Cogeneration projects – Advisory Board for Energy (1988). The study involved identification of technically feasible and bankable cogeneration projects for implementation.</li> <li>• Impact assessment of Technical Development Funds (TDF), a government of India scheme for import of services and equipments through foreign line of credit / fund support for improving productivity and quality in manufacturing (1992).</li> <li>• Prepared a strategic plan for implementing E.C.act-2001 in Maharashtra(2003-2004)</li> </ul>
		<p>9. <b>T.S.Narayan</b> Director</p>

		<p>25 years experience with the firm</p> <p><b>Key Qualification:</b></p> <ul style="list-style-type: none"> <li>• B.Tech. (Electrical &amp; Electronics Engineering),</li> <li>• Post Graduate Diploma in Energy Management.</li> <li>• BEE Certified Energy Auditor</li> </ul> <p><b>Experience:</b></p> <p>25 years experience as Consultant and Trainer in Energy Management &amp; conservation</p> <ul style="list-style-type: none"> <li>• Executed more than 120 assignments covering Process, Engineering &amp; Service industry. The sectors covered are textiles, dairy, paper, fertilizers, petroleum product pumping, oil &amp; gas processing, automobiles, railways, power, large luxury hotel and commercial buildings.</li> <li>• Performance assessment and efficiency improvement in Heat &amp; Power consuming equipments namely, Steam Generators, Waste Heat Boilers, Process/Fired Heaters, Refrigeration, Compressed Air and Cooling Water System.</li> <li>• Technical audit of Repair &amp; Maintenance of MSEB Thermal Power Station and Transmission &amp; Distribution Circles</li> <li>• Thermal Insulation &amp; Steam Trap Survey</li> <li>• Energy optimisation in process</li> <li>• Captive Power &amp; Co-Generation – Steam &amp; Gas Turbine plants</li> <li>• Fuel/steam and power optimisation applicable to large continuous process plants</li> <li>• Electrical Demand Management</li> <li>• Application of metering &amp; monitoring system and Energy Efficient equipments</li> </ul>
		<p>10. <b>R.Suryanarayan</b>  Director  21 years experience with the firm</p> <p><b>Key Qualification:</b></p> <ul style="list-style-type: none"> <li>▪ <b>BEE Certified Energy Auditor</b></li> <li>▪ B.Tech. (Mechanical Engg.) <b>Anna University</b></li> <li>▪ Post Graduate Diploma in Energy Management- <b>National Productivity Council, Chennai</b></li> <li>▪ <b>National Productivity Council, Chennai- M.S</b> ( Software Systems)</li> </ul> <p><b>Experience:</b></p> <ul style="list-style-type: none"> <li>▪ 21 years experience as Consultant and Trainer in Energy Management.</li> <li>▪ Energy Conservation &amp; energy Efficiency in Industry sector</li> <li>▪ Technology Application &amp; Diagnostic Studies</li> <li>▪ Technology Assessment / Needs</li> <li>▪ Thermal Power Plant Auxiliary Energy use optimization studies</li> </ul> <p><b>Functioned as a Chief Consultant and a specialist in Energy Efficiency improvement studies and energy audit in a wide spectrum of industries including recent ones:</b></p> <ul style="list-style-type: none"> <li>▪ Environments Audits &amp; monitoring at NTPC, RSTPS.</li> </ul>

		<ul style="list-style-type: none"> <li>▪ Faculty in Drum Training Program (Andhra Pradesh State Electricity Board)</li> <li>▪ Preparation of Energy Guide books for Bureau of Energy Efficiency.</li> <li>▪ Sectoral Energy Audits for Deptt. of Power.</li> <li>▪ Assessment of Cogeneration potential in India.</li> </ul> <hr/> <p><b>11. Sunil Kumar</b>  Dy. Director  17 years experience with the firm  Key Qualification:</p> <ul style="list-style-type: none"> <li>• B.Tech. (Metallurgical), Post Graduate Diploma in Industrial Engineering</li> </ul> <p>Experience:  <b>Functioned as a Senior Consultant and a specialist in Energy Efficiency improvement studies and energy audit in a wide spectrum of industries including recent ones:</b></p> <ul style="list-style-type: none"> <li>▪ <b>Accelerated Power Development and Reforms Project of MoP, GoI</b> in states of Himachal Pradesh, Assam and West Bengal</li> <li>▪ Implementation of EC Act in SDA in Six states of India</li> <li>▪ Distribution Reforms and Upgrades Management (Training Programmes e.g. Customer Relationship Management)</li> <li>▪ Impact Assessment study of Renewable Energy Systems Deployed in Leh and Kargil (Ladakh Region)</li> <li>▪ Building Audit in Delhi</li> <li>▪ Facilitation services for developing ISO-9001 standard based on Quality Management System</li> <li>▪ Business Process Analysis and Re-Engineering for Organisational Restructuring</li> </ul> <p>Business Process Engineering for IT package implementation</p> <hr/> <p><b>12. P. Chitra</b>  Asst. Director  5 years experience with the firm  Key Qualification:</p> <ul style="list-style-type: none"> <li>• M.E. (BioEnergy)</li> <li>• PGDCA -PG Diploma in Computer Application</li> <li>• B.E. (Agricultural Engineering)</li> <li>• Certified Energy Auditor (BEE)</li> </ul> <p>Experience:</p> <ul style="list-style-type: none"> <li>• 1 year as Asstt. Director (Energy Mgt.) in AIP, NPC, Chennai in.</li> <li>• 1 year 11 months and 16 days as Sr. Research Fellow in Department of Bio-Energy, AEC&amp;RI, Tamil Nadu Agricultural University (TNAU), Coimbatore.</li> <li>• 5 months and 13 days as Sr. Research Fellow in Forest College &amp; Research Institute, Mettupalayam, TNAU.</li> <li>• 2 years, 1 month and 4 days as JRF in Department of Agricultural Food Process Engineering, TNAU, Coimbatore.</li> </ul>
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		<p>13. Prashant Srivastava Asst .Director 5 years experience with the firm Key Qualification:</p> <ul style="list-style-type: none"> <li>• B.Tech (Chemical Engineering),</li> <li>• BEE Certified Energy Auditor</li> </ul> <p>Experience: <b>Detailed Energy Audit study</b> of various types of companies includes the following</p> <ol style="list-style-type: none"> <li>(i) M/s Oberoi Hotels – all over India</li> <li>(ii) M/S PVR Cinemas – all over India</li> <li>(iii) M/s Continental Carbon India Ltd, Ghaziabad</li> <li>(iv) M/s Tata Teleservices Ltd , New Delhi</li> <li>(v) M/S Radico Khaitan Limited , Rampur (U.P.)</li> </ol> <p>Under the project <b>Process Integration and Optimization in Pulp and Paper Industry</b> – X five Year Plan Project. , a “Detailed Energy Audit, Performance Evaluation and Optimization studies” was conducted in the following four Pulp &amp; Paper mills</p> <ol style="list-style-type: none"> <li>(i) M/s Mysore Paper Mill, Bhadravati, Karnataka</li> <li>(ii) M/s Cachar Paper Mill, Panchgram, Assam</li> <li>(iii) M/s Nagaon Paper Mil, Jagi Road, Assam</li> <li>(iv) M/s Bilt , Unit : ShriGopal ,Yamunanagar</li> </ol> <p><b>Other Energy Audits of Interest:</b> <b>Brief Overview:</b> Under the provision of Energy conservation act energy audit for buildings above 500 kW of connected load were mandatory. On this regard being in NPC I was privileged to conduct energy audit of prestigious government buildings viz</p> <ul style="list-style-type: none"> <li>• Mini Secretariat, Chandigarh ,</li> <li>• Vidhansabha , Dehradun</li> <li>• Secretariat, Dehradun</li> <li>• Aayakar Bhawan , Dehradun</li> <li>• Tel Bhawan , Dehradun</li> <li>• Lal Bahadur Shastri Academy , Mussorie</li> </ul>
		<p>14. D.Rajnikant Dy .Director 7 years experience with the firm Key Qualification:</p> <ul style="list-style-type: none"> <li>• B.Tech (Chemical Engineering),</li> <li>• Post Graduate Diploma in Energy Management</li> <li>• BEE Certified Energy Auditor</li> </ul> <p>Experience: <b>MAJOR PROJECTS EXECUTED – Few key projects at a glance</b> <b>1.APDRP Project</b> As a team member for the APDRP (Accelerated Power Development Reform Project) for which NPC was Consultant cum Advisors (AcC) to three state electricity boards has developed different system improvement schemes to bring down the technical losses in the distribution system. Prepared</p>

		<p>detailed project report for the schemes such as consumer metering, computerized billing system in the state of Himachal Pradesh and the turnkey project on the basis of DPR was successfully implemented</p> <p><b>2. Energy audit at Ferozabad Glass Industries</b>  A detailed energy audit and conservation study conducted at Ferozabad glass industry cluster to evaluate the energy consumption and cost savings options, cost benefit analysis. Assisted in implementation of major suggestions (most of the suggestions are low cost and adopted to local conditions, as most of the industries in the cluster are small scale) and also evaluated the post implementation results. About 15-20 industries implemented the suggestions in the cluster.</p> <p><b>3. Capability Assessment of SDA for implementation of EC Act 2001</b>  Bureau of Energy Efficiency (BEE) in collaboration with German Technical Cooperation (GTZ) assigned a task to assess capabilities of State Designated Agencies (SDA) for successful implementation of EC Act 2001.</p> <p><b>Energy Audit At Delhi International Airport</b>  Detailed energy audit and conservation study carried out at Delhi International Airport, New Delhi.</p> <p><b>5. Development Of PDD for Large Scale Biomass Based Grid Connected Power Plant From India</b>  18 MW large scale biomass based grid connected power plant situated in southern region of India in Ramnad district of Tamil Nadu eligible to register as CDM project under Kyoto protocol of UNFCCC. Project registered under CDM successfully.</p> <p><b>6. GERIAP (Greenhouse Emission Reduction from Industry in Asia &amp; Pacific) Project</b>  India being one of the member countries of GERIAP and NPC being the National Focal Point for India was awarded the GERIAP study to evaluate Green House Emission reduction potential in India.</p> <hr/> <p><b>15. Durgaji Bonam</b>  Asst .Director  4 years experience with the firm  Key Qualification:</p> <ul style="list-style-type: none"> <li>• B.Tech. (Chemical),</li> <li>• M.E. (Chemical Engg.),</li> <li>• Post Graduate Certificate Program in Energy Management.</li> <li>• BEE Certified Energy Auditor</li> </ul> <p>Experience:  Key team member in the various National level assignments such as BEE,s study to assess the Energy Consumption and Conservation Potential in sectors like Commercial, Agricultural, Municipal and SME sector through out Country. BEE/EESL PAT (Perform Achieve and Trade) Baseline Energy Audits for the Cement Plants.  Conducted Energy Audits at various Thermal Power Plants, Cements Plants etc., such as NTPC Ramagundam, NTPC Simhadri, NSPCL Bhilai, Cement Corporation of India,</p>
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		<p>Ordnance Factories, Security Printing Press .  Faculty for USAID sponsored DRUM programs for Electrical Utilities, Boiler Directorates, BEE, NEDCAP, NMDC training programs</p> <p><b>Training:</b>  Energy conservation and efficiency  Demand side Management ,APDRP.R-APDRP  Energy audit in Power plant audits, process industries  PAT scheme</p>
	II. No. of part-time energy auditors in position during the current year / previous year associated with the energy auditor / energy auditor's firms.	About 6
21	Sectors in which the energy auditor/energy audit firm has conducted energy audits since inception	Aluminium, Buildings (Hospitals, Hotels, Malls, Schools, Tourist Offices),Chemicals Inorganic, Chemicals Organic,Cement, Chloralkali, Dyes Engineering, Frabraction, Glass, Ceramic & Tiles, Iron & Steel , Fertilizers, Jute & Jute products, Lamination Industries, Mineral Ores, Mining Industries, Naval Vessels, Pulp & Paper, Power Plants, Pharmaceuticals, Railways, Roadways,Tea Estates,Transmission & Distribution
22	Subject wise expertise	<ul style="list-style-type: none"> <li>• <b>Aluminum</b> - RV,SBS,AC,BN,AKS</li> <li>• <b>Buildings</b> (Hospitals, Hotels, Malls, Schools, Tourist Offices) - RV,DRK,AKS,TSN,PB,SBS,BD,PKR,VV,PC,PS,AM,SK, BR</li> <li>• <b>ChemicalsInorganic</b> - RV,DRK,SBS,TSN,PB,JNK,GG,AKS, HRP</li> <li>• <b>Chemicals Organic</b>-RV,SBS,TSN,PB,JNK,GG,AR, AKS,HRP</li> <li>• <b>Cement</b>- RV,JNK,TSN,PB,GG,DRK,BD,PKR,HRP</li> <li>• <b>Chloralkali</b> – DRK,RV,SBS,TSN,PR,JNK,AKS,HRP</li> <li>• <b>Dyes</b> – DRK,RV,SBS,TSN,PB,JNK,RS,GG,AR,HRP,AKS</li> <li>• <b>Engineering</b> – DRK,RV,AKS,TSN,SBS,JNK,GG,PB,HRP,DB,PKR</li> <li>• <b>Frabraction</b> – DRK,RV,AKS,TSN,SBS,JNK,GG,PB,HRP,DB,PKR</li> <li>• <b>Glass,Ceramic&amp;Tiles</b> – DRK,RV,AKS,TSN,SBS,JNK,GG,PB,HRP,DB</li> <li>• <b>Iron &amp; Steel</b> – DRK,RV,AKS,HRP,JNK,PD,DB,VV</li> <li>• <b>Fertilizers</b> – DRK,RV,SBS,TSN,JNK,PD,AKS</li> <li>• <b>Jute</b> - RV,DRK,AKS,PB,SBS,TSN,JNK,PD,AKS</li> <li>• <b>Lamination</b> – DRK,RV,AKS,PB,SBS,TSN,JNK,PKR, DB</li> <li>• <b>Mineral Ores</b> – DRK,RV,AKS,SBS, TSN,JNK</li> <li>• <b>Mining</b> - DRK,RV,AKS,SBS,TSN,JNK</li> <li>• <b>Naval Vessels</b> - RV,AKS,TSN, SBS,JNK</li> <li>• <b>Pulp &amp; Paper</b> – DRK,RV,AKS,TSN, JNK,HRP,PD</li> <li>• <b>Pharmaceuticals</b> - DRK,RV,AKS,TSN, JNK,HRP,PD</li> <li>• <b>POWERPLANTS</b>- DRK,RV,AKS,TSN,JNK,HRP,HRP,AC,AR,DB,GG, BD,</li> </ul>

		<p>PKR, PD,PS, BR, AM,SK</p> <ul style="list-style-type: none"> <li>• <b>Railways-DRK,RV,AKS,TSN, SBS,JNK,PB,PC</b></li> <li>• <b>Roadways-DRK,RV,AKS,TSN, JNK,PB,SBS,PC</b></li> <li>• <b>Tea Estates –DRK,RV,AKS,AC,AR,HRP,SBS,PB, TSN</b></li> <li>• <b>Transmission &amp; Distribution—</b> DRK,RV,AKS,AC,AR,HRP,SBS,PB, TSN</li> </ul> <p><b>DRK</b> - D.RAJANIKANT,Dy.Director  <b>RV</b> - R.VIRENDRA,DIRECTOR  <b>AKS</b> - A.K.SINHA,Director  <b>SBS</b> - S.B.SADANAND,Director  <b>AM</b>- ALOK MITTAL,Dy.Director  <b>TSN</b> - T.SANKAR NARAYANAN,Director  <b>SK</b> - SUNIL KUMAR,Dy.Director  <b>PB</b> - P.BHANDARI,Dy.Director  <b>AC</b> - ANUPAM CHAKRAVORTHY,Dy.Director  <b>PD</b> - P.DHARMALINGAM,Director  <b>BD</b> - B.DURGAJI, Asst.Director  <b>HRP</b> - H.R.PRABHU,Director  <b>PKR</b> - PAVAN KUMAR RYALI,Asst.Director  <b>VR</b> - VIPIN ROPHILLA,Asst.Director  <b>PC</b> - P.CHITRA,Asst.Director  <b>JNK</b> - J.NAGESH KUMAR,Director  <b>VV</b> - V.VELAYUTHAM,Asst.Director  <b>RS</b> - R.SURYANARAYANAN,Dy.Director  <b>CK</b> - CHANDRA KUMAR,Asst.Director  <b>GG</b> - G.GOPINATHAN,Asst.Director  <b>AN</b> - AVJIT NAYAK,Asst.Director  <b>AR</b> - AMITAVA RAY,Dy.Director  <b>KM</b> - K.MALLICK,Asst.Director  <b>DM</b> - D.MISHRA,Asst.Director  <b>PS</b> - PRASANTH SRIVATSAV,Asst.Director  <b>AV</b> - ANAND VARMA,Asst.Director  <b>JK</b> - JiTIn KAPOOR,AssT.Director  <b>SB</b> - SURENDRA BUNKER,Asst.Director  <b>NY</b> - NAKUL YADAV,Asst.Director</p>
(a)	<p>Energy audit process system (list sectors) - If no energy audit has been carried out of the process system and parameters, please list nil. Bureau of Energy Efficiency will be calling for detailed information in case agency has listed its energy audit expertise in the process systems</p>	<ul style="list-style-type: none"> <li>• Aluminum Production Process</li> <li>• Cement Production Process</li> <li>• Textiles Production Process</li> <li>• Iron &amp; Steel Production Process</li> <li>• Fertilizers Production Process</li> <li>• Pulp &amp; Paper Production Process</li> <li>• Sugar Production Process</li> <li>• Pharmaceuticals Production Process</li> <li>• Dyes &amp; Chemicals Production Process</li> </ul>
(b)	<p>Energy audits in thermal utility systems (list sectors)</p>	<ul style="list-style-type: none"> <li>• Aluminum</li> <li>• Buildings (Hospitals, Hotels, Malls, Schools, Tourist Offices)</li> <li>• Chemicals Inorganic</li> <li>• Chemicals Organic</li> <li>• Cement</li> <li>• Chloralkali</li> <li>• Dyes</li> <li>• Engineering</li> <li>• Fabrication</li> <li>• Glass, Ceramic &amp; Tiles</li> <li>• Iron &amp; Steel</li> </ul>

		<ul style="list-style-type: none"> <li>• Fertilizers</li> <li>• Jute &amp; Jute products</li> <li>• Lamination Industries</li> <li>• Mineral Ores</li> <li>• Mining Industries</li> <li>• Naval Vessels</li> <li>• Pulp &amp; Paper</li> <li>• Power Plants</li> <li>• Pharmaceuticals</li> <li>• Railways</li> <li>• Roadways</li> <li>• Tea Estates</li> <li>• Transmission &amp; Distribution</li> </ul>
(c)	Energy audit electrical utility system (list sectors)	<ul style="list-style-type: none"> <li>• Aluminium</li> <li>• Chemicals Inorganic</li> <li>• Chemicals Organic</li> <li>• Cement</li> <li>• Chloralkali</li> <li>• Dyes</li> <li>• Engineering</li> <li>• Frabraction</li> <li>• Glass, Ceramic &amp; Tiles</li> <li>• Iron &amp; Steel</li> <li>• Fertilizers</li> <li>• Jute</li> <li>• Lamination</li> <li>• Mining</li> <li>• Naval Vessels</li> <li>• Pulp &amp; Paper</li> <li>• Power Plants</li> <li>• Pharma</li> <li>• Railways</li> <li>• Roadways</li> <li>• Buildings (Hospitals, Hotels, Malls, Schools, Tourist Offices)</li> <li>• Transmission &amp; Distribution</li> </ul>
23	Instruments available	<ul style="list-style-type: none"> <li>• Power Analyser</li> <li>• Lux Meter</li> <li>• Strobo Scobe</li> <li>• I R Thermo Gun</li> <li>• Flue Gas Analyser with Probe</li> <li>• Manometer and Pitot Tube</li> <li>• Anemo Meter</li> <li>• Hygro Scope</li> <li>• Ultra Sonic Water Flow Meter with Transducers</li> <li>• K-Type Thermometer and Thermo couple</li> </ul>
	(a) Electrical (list the name of the instruments)	<ul style="list-style-type: none"> <li>• Power Analyser</li> <li>• Lux Meter</li> <li>• Strobo Scobe</li> </ul>
	(b) Thermal (list the name of the instruments)	<ul style="list-style-type: none"> <li>• I R Thermo Gun</li> <li>• Flue Gas Analyser with Probe</li> <li>• Pitot Tube and Digital Manometer</li> <li>• Anemometer</li> </ul>

		<ul style="list-style-type: none"> <li>• Hygroscope</li> <li>• Ultra Sonic Water Flow Meter with Transducers</li> <li>• K-Type Thermometer and Thermo couple</li> </ul>
<p>24 (i)</p>	<p>Details of training programme/ seminars/ workshops conducted during the last 3 years in the field of energy efficiency / energy audit</p>	<ul style="list-style-type: none"> <li>• Training programme on "Energy auditing and conservation</li> <li>• Avenues for GHG Emission Reduction in Energy Generation, Distribution and Demand side Activities for Rina India Pvt., Ltd</li> <li>• Preparatory training course for prospective EM / EA Candidates appearing for 9<sup>th</sup>, BEE National Certification Exam</li> <li>• Preparatory training course for prospective EM / EA Candidates appearing for 10<sup>th</sup>, BEE National Certification Exam</li> <li>• Preparatory training course for prospective EM / EA Candidates appearing for 11<sup>th</sup>, BEE National Certification Exam</li> <li>• Preparatory training course for prospective EM / EA Candidates appearing for 12th BEE National Certification Exam</li> <li>• Preparatory training course for prospective EM / EA Candidates appearing for 13th BEE National Certification Exam</li> <li>• Energy Conservation in HVAC &amp; Refrigeration</li> <li>• Energy Conservation in Buildings in Hyderabad</li> <li>• Energy Clinic</li> <li>• Efficient operation of Boilers</li> <li>• DRUM Programmes for Distribution companies</li> <li>• RAPDRP Training Programmes for Distribution companies</li> <li>• Cleaner production &amp; Energy Efficiency work shops for ministry of environment in Hyderabad</li> <li>• 5 day work shop on energy conservation in process utilities in Hyderabad</li> <li>• Electrical Energy efficiency training for <ul style="list-style-type: none"> <li>○ Electric motor, VFD &amp; Harmonic</li> <li>○ Energy conservation in Pumps &amp; Fans</li> </ul> </li> </ul>

		<ul style="list-style-type: none"> <li>○ Energy conservation in compressed system</li> <li>○ Energy Conservation in refrigeration &amp; Air Conditioning</li> <li>○ Advance Lighting Technology &amp; Conservation</li> <li>○ Electrical Energy Audit &amp; Conservation</li> <li>● Thermal Energy Efficiency Training For <ul style="list-style-type: none"> <li>○ Industrial Furnance &amp; WHR</li> <li>○ Energy Conservation in Process Boilers</li> <li>○ Energy Conservation in Steam Systems</li> <li>○ Heat Exchanger &amp; Performance Evaluation</li> <li>○ Thermal Energy Audit &amp; Conservation</li> </ul> </li> </ul>
(ii)		
(iii)		

<b>D</b>	<b>Remarks( if any)</b>
	<ul style="list-style-type: none"> <li>● Have 10 years of experiece in Energy Auditing, Conservation and Management.</li> </ul>

(Note: Responsibility of the authenticity of the above information rests with the concerned energy auditor/energy auditing agency.)