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

Serial Number:- (AEA - 0098)			**As on:- 26 February, 2013**
A.			
1	Name of accredited energy auditor	Kulbhushan Kumar	
2	Father's name	Y P Bhagat	
3	Date of certification as Energy Manager	2004 (Energy Auditor)	
4	Date of passing the examination in "Energy Performance Assessment for Equipment and Utility Systems"	2004	
5	Examination Registration Number of (i) Energy Manager (ii) "Energy Performance Assessment for Equipment and Utility Systems"	EA-1639	
6	Certificate Registration Number of (i) Energy Manager (ii) "Energy Performance Assessment for Equipment and Utility Systems"	EA-1639	
7	Date of issue of accreditation certificate	(to be filled by BEE)	
B.	**Information in respect of trade name or firms' name**		
8	Trade name / firms name under which energy audit is proposed to be conducted	**PricewaterhouseCoopers Private Limited**	
9	Date of accreditation as accredited energy auditor	(to be filled by BEE)	
10	Type of firm/ private/ Government / NGO etc.	Private	

11	Name of contact person along with designation, address, telephone, mobile and fax number along with STD codes and email address (All details compulsory)	**Amit Kumar** Associate Director – GRID, Energy and Utilities PricewaterhouseCoopers (pwc.com) 17th Floor, Building – 10, Tower – C, DLF Cyber City, Phase – 2, Gurgaon , 122002, India Direct: +91 124 330 6028 Board: +91 124 330 6000 Mobile: +91 9899452400 Fax: +91 124 330 6999 Email: amit2.kumar@in.pwc.com
12	Professional postal address with Pin Code of the accredited energy auditor	PricewaterhouseCoopers Pvt. Ltd., 17th Floor, Building – 10, Tower – C, DLF Cyber City, Phase – 2, Gurgaon , 122002, India
13	E-mail address	kulbhushan.kumar@in.pwc.com
14	Telephone numbers . with STD Code (R) (O) Mobile no:	91 (011) 25173500 (R) +91 (124) 3306256 (O) Mobile: +91 9711091007
15	Year of establishment of the trade name / firms' name for undertaking the energy audit	On 26th March 1983, at Kolkata firm was established as Pricewaterhousecoopers Limited and on 8th March 2001 name has changed to PricewaterhouseCoopers Private Limited
16	Year of commencement of energy audit of the firm	2007
17	Whether any certificate to support the excellence in the system has been obtained (ISO etc.)	ISO 9001:2008, ISO/IEC27001:2005, TICK IT
18	No. of branch offices (List of complete addresses including heads of all branch offices with telephone, fax and email addresses)	15
C	**Details of Associated Energy Experts**	
19	Number of resource persons available	25

20	I. Number. of full-time energy auditors in position with work experience of all energy auditors associated with the firm

Name of Resource Person 1: Mr. Kulbhushan Kumar

Years of Experience: >15 Years

Energy Audit Sectors:	***Contact Details***
• Power Plants • Chemical • Cement • Aluminum • Petro Chemical • Textile • Engineering • Commercial Buildings • Municipalities • MSME	PwC, Senior Manager Energy, Utilities and Mining Direct: +91 (124) 3306000 Mobile: +91 (0) 97 1109 1007 Email:kulbhushan.kumar@in.pwc.com PricewaterhouseCoopers Private Limited 17th Floor, Building No. 10, Tower C, DLF Cyber City, Gurgaon – 122 002

Brief Description:

With more than 15 years of experience in energy auditing, energy efficiency, renewable energy and energy conservation area, I am currently working as a Senior Manager with the Energy Efficiency Practice of PricewaterhouseCoopers, India.

I have been the team leader for a large number of energy audit studies covering a wide range of industrial units and commercial buildings including hotels and hospitals in India. I have been working with many bilateral and multilateral agencies on energy management and renewable energy assignments.

During my tenure with PwC since 2008, I was initially involved in carrying out energy audits of Bihar Caustic and Chemical Limited and Cheviot Company Limited. Then, I have been involved in retainer consultancy services to Bureau of Energy Efficiency (BEE) for the Agriculture Demand Side Management (Ag DSM) Programme. I was an active part in implementing the first pilot DSM project in agriculture sector in Solapur, Maharashtra. I have experience in conducting feasibility studies, bid process management, financial and business modeling, demand assessment and other aspects of energy sector assignments.

I led the team involved in developing Demand Side Management Action Plan for the State of Himachal Pradesh. I have also organized large number of training programs for bankers and various stakeholders including policy makers, consultants, energy audits, manufacturers, NGOs, ESCOs, etc. under World Bank line of credit to IREDA for financing projects in energy efficiency and conservation sector.

Apart from this, I was the Project leader of the LED Demand Aggregation study,

sponsored by Climate Works. As part of the project I contributed to the estimation and forecasting of the National space lighting demand in the residential and commercial building categories.

I am currently working on baseline energy audits for 9 designated consumers in the textile sector under the PAT scheme and the assessment of ESCO market in South Africa project sponsored by The IDC in cooperation with KfW. The initial phase of the project has been focused to design appropriate strategies, risk mitigation instruments and policy interventions to create incentives for the stakeholders (ESCOs and energy consumers) in energy efficiency investments.

Name of Resource Person 2: Mr. Manoj Kumar Bansal

Years of Experience: >11 Years

Energy Audit Sectors:	***Contact Details***
• Power Plants • Iron & Steel • Petrochemicals • Pharmaceuticals • Textiles • Automobiles • Engineering • Food Processing • Commercial Buildings • Municipalities • MSME	PwC, Manager Energy, Utilities and Mining Direct: +91 (124) 3306257 Mobile: +91 9910154500 Board: +91 (124) 3306000 Fax: +91 (124) 3306999 Email: manoj.bansal@in.pwc.com PricewaterhouseCoopers Private Limited 17th Floor, Building No. 10, Tower C, DLF Cyber City, Gurgaon – 122 002

Brief Description:

Manoj kumar working as a Manager with Energy Efficiency Practice of PricewaterhouseCoopers, India since Jan., 2008. He has more than 11 years of experience in the field of energy efficiency / energy conservation in various sectors of the economy. His expertise in various segments of energy efficiency like energy audits, demand side management, preparation of feasibility studies and detailed project reports, demonstration of pilot projects, training and capacity building. He has executed many projects for agencies like Bureau of Energy Efficiency (BEE), the Asian Development Bank, the World Bank, BHC, GIZ, IREDA, PCRA, MoEF, DST, CPCB, PPCB, ClimateWorks, various State governments and corporate clients. He has also carried out many energy audits including audits of designated consumers like Bihar Caustic & chemicals Limited, BSL Processing Limited, Anant Syntex Limited.

Manoj worked with Winrock International India from Feb. 2007 till Dec. 2007 as Program Officer. As a part of the energy team I was involved in conducting detailed energy audits of energy intensive industries and buildings. He carried out detailed energy audits of many big plants/ designated consumers like GAIL, Uttam Galva

Steel, Bhushan Steel, K S Oil, Cipla etc.

Manoj worked with Conzerv Systems P Limited from Jan. 2006 till Feb. 2008 as Senior Engineer – Energy Audit. As a part of the energy team He was involved in conducting detailed energy audits of energy intensive facilities like industries and buildings. He carried out detailed energy audits of many big plants/ designated consumers like NTPC power plants at Singrauli and Auraya, Buildings like VSNL (Tata Communications Limited), Star TV, automobile plants like Sona Koyo Steering Systems, Sandhar Auto etc.

Manoj worked with Punjab State Council for Science & Technology from March 2001 to Dec. 2005 as Assistant Process Engineer (Consultancy Cell). In council he was involved in executing assignments on energy conservation and pollution control. I worked for the development of technologies for energy conservation for the sectors like foundries, brick kilns, rice mills, electroplating plants etc. There he designed a cupola furnace which was able to give energy savings of around 50%. He also helped a lot of SME units to save energy through better operating practices. He was also involved in training programmes for operators and firemen of these units.

Name of Resource Person 3: Mr. Jayakrishnan P Nair

Years of Experience: **>**14Years

Energy Audit Sectors:	***Contact Details***
• Iron & Steel • Foundry • Fertilizers • Chemicals • Pharmaceuticals • Textiles • Railways • Petroleum • Engineering • Telecommunication / Data Centers • Commercial Buildings	PwC , Manager Energy, Utilities and Mining Direct: +91 (124) 3306000 | Mobile: +91 (0) 99 1008 2154 Email: jayakrishnan.nair@in.pwc.com PricewaterhouseCoopers Private Limited 17th Floor, Building No. 10, Tower C, DLF Cyber City, Gurgaon – 122 002

Brief Description:

Jayakrishnan P Nair has more than 14 years of experience in energy efficiency area and he is Presently working with PricewaterhouseCoopers Pvt. Ltd. as Manager in the Energy Efficiency Practice of the firm. Among other assignments, conducted Baseline energy audits for 09 Designated Consumers in the Textile Sector, under the PAT scheme.

Worked with TUV SUD South Asia Pvt. Ltd., From Feb 2006 till December 2010 as Energy Auditor. Was involved in conducting some energy audits for energy intensive industries and buildings. TUV SUD was the retainer consultant to BEE for the national programme of Municipal Demand Side Management (MuDSM). He was coordinating the programme, he was participated in designing and specifying the DPR format and requirements, and he does the technical review of more than 75 DPRs prepared by consultants. Bankable DPRs were ensured with Measurement and verification (M&V) aspects as well as project IRR calculations.

Worked with SGS India Pvt. Ltd. as Executive / Energy Auditor from April 2000 to Jan 2006.He was part of More than 40 Energy Audits in various industries and building, including energy intensive industry sectors

Name of Resource Person 4: Mr. Rajeev Ralhan

Years of Experience: >11Years

Energy Audit Sectors:	***Contact Details***
• Iron & Steel • Cement Plants • Textile Units • Electroplating Units • Non Ferrous Plant (Graphite Plants) • Food Processing • Buildings • Glass Units • MSME • Brick Kilns	PwC , Senior Manager Energy, Utilities and Mining Direct: + (91) 124 3306259 Mobile: +91 9910063775 Email: rajeev.ralhan@in.pwc.com PricewaterhouseCoopers Private Limited 17th Floor, Building No. 10, Tower C, DLF Cyber City, Gurgaon – 122 002

Brief Description:

Rajeev Ralhan has more than 11 years of experience in energy efficiency area and he is presently working with PricewaterhouseCoopers Pvt. Ltd. as Senior Manager in the Energy Efficiency Practice of the firm. He worked in the area of energy efficiency with various prestigious clients which includes Bureau of Energy Efficiency (BEE), World Bank, ADB, AfD, British High Commission/DFID, IREDA, PCRA, CLASP, Shakti foundation and more. He is working very closely with BEE team on prestigious programs like Buildings, PAT, Appliance standards & Labeling and other programs. He has experience in following areas. (Jan 2008- Till Date)

- Managed BEE's program for Baseline studies for Textile Units.
- Managing energy efficiency program of BEE for Buildings and creating true investment grade audit reports for implementation. Created pilot templates for investment grade audit reports, M&V plan, sample performance contracts to be adopted at National level.
- Capacity Building Initiatives for energy efficiency in the country.
- Managing Appliance Standard & Labeling Program

- Representing at various forum of BEE and other agencies for promoting energy efficiency in the country.
- Developed Business Plan of EESL.
- Certified Monitoring & Verification Expert in 2011
- Green Belt – Lean Six Sigma Specialist in 2012 (Yet to receive certificate in this regard)

Worked with Winrock International India from July 2006 till January 2008 as Program Officer. He worked with various prestigious clients like World Bank, PCRA, IREDA, British High Commission and Private Clients. He was involved in doing following activities.

Energy audits of Bhushan Steels, KS Oil, HEG limited, Steel Industries and other industries. Was involved in developing energy efficiency measures in SME units in India and auditing of these industries. It includes energy interventions in clusters of forging, utensils, steel and more. Organized 30 capacity building programs for bankers across India for awareness for energy efficiency. Set up various demonstration projects in different clusters for energy efficiency initiatives.

Worked with Punjab State council for Science and Technology, Chandigarh as Assistance Process Engineer from 2000 to 2006. He played key role in this organization was to promote energy efficiency in small and medium scale industries.

Designed and Developed Energy efficiency/conservation options for SME cluster which includes Rolling Mills, Brick Kilns, Electroplating Units, Forging Units, Dyeing units, Rice shellers, Induction furnaces, Laminating Units, Fluidized Bed Boilers etc.
Worked on analysis of various fuel options for industrial applications which includes coal, furnace oil, LDO and producer gas from Gasification process.Worked on designing furnaces, burners, fans for industrial applications. Worked on application of pulverized coal in industries especially steel industries. Designed Environmental solutions for various industries. Organized onsite training programs for work force and operators regarding better practices.

Worked with Cad Chem Pvt.Ltd. as Production Engineer from 1999 to 2000. Cad Chem was a pharmaceutical unit in Punjab.

Name of Resource Person 5: Mr. Anurag Verma

Years of Experience: >5 Years

Energy Audit Sectors:	***Contact Details***
• Cement Plants • Textile Units • Pharmaceuticals	PwC , Senior Consultant Energy, Utilities and Mining Direct: +91 (124) 3306214 Mobile: +91 (0) 97 1749 4565 Email:anurag.x.verma@in.pwc.com PricewaterhouseCoopers Private Limited

	17th Floor, Building No. 10, Tower C, DLF Cyber City, Gurgaon – 122 002

Brief Description:
Anurag Verma has more than 5 years of experience in energy efficiency area and he is Presently working with PricewaterhouseCoopers Pvt. Ltd. as Senior Consultant in the Energy Efficiency Practice of the firm. He has been working in the area of energy efficiency with various prestigious clients which includes Bureau of Energy Efficiency (BEE), World Bank, ADB, , IREDA, and more. He is working very closely with BEE team on prestigious programs like PAT, Appliance standards & Labeling and other programs. He have experience in analyzing feasibility studies, Bid Process Management, Financial Modeling, Development of Business Models, demand assessment and other aspects of consulting Industry.

Name of Resource Person 6: Mr. Niranjan Rao Deevela

Years of Experience: >4 Years

Energy Audit Sectors:	***Contact Details***
• Textile • Pharmaceutical • Iron & Steel • Engineering • Buildings • Municipality	PwC , Consultant Energy, Utilities and Mining Direct: +91 (124) 3306210 Mobile: +91 (0) 9560003730 Email:niranjan.r.deevela@in.pwc.com PricewaterhouseCoopers Private Limited 17th Floor, Building No. 10, Tower C, DLF Cyber City, Gurgaon – 122 002

Brief Description:
Niranjan rao has more than 4 years of experience in energy efficiency area and he is Presently working with PricewaterhouseCoopers Pvt. Ltd. as Consultant in the Energy Efficiency Practice of the firm. He is expertise in various segments of energy efficiency like energy audits, demand side management, preparation of feasibility studies and detailed project reports, training and capacity building.

He worked with APPC-Hyderabad as Assistant Director. As a part of the energy team he was involved in conducting detailed energy audits of energy intensive industries and buildings. He carried out detailed energy audits of many plants/ designated consumers like Pennar, VPT, Cochin Shipyard, Srini Pharma, etc

Name of Resource Person 7: Mr. Pradeep Singhvi

Years of Experience: >3 Years

Energy Audit Sectors:	***Contact Details***

• Iron & Steel • Buildings	PwC , Consultant Energy, Utilities and Mining Direct: +91 (124) 330 6207 Mobile: +91 95 6060 0710 Email: p.singhvi@in.pwc.com PricewaterhouseCoopers Private Limited 17th Floor, Building No. 10, Tower C, DLF Cyber City, Gurgaon – 122 002

Brief Description:

Pradeep has more than 3 years of experience in energy efficiency area and he is Presently working with PricewaterhouseCoopers Pvt. Ltd. as Consultant in the Energy Efficiency Practice of the firm.He have expertise in energy audits, demand side management and preparation of feasibility studies He worked with Ispat steel industries as a Engineer. As a part of the energy management team he was involved in conducting energy audit of steel plant.

II. No. of part-time energy auditors in position during the current year / previous year associated with the energy auditor / energy auditor's firms.	Nil

21 Sectors in which the energy auditor has conducted energy audits since inception

S.NO	NAME OF ENERGY AUDITOR	SECTORS	S.NO	NAME OF ENERGY AUDITOR	SECTORS
1	Kulbhushan Kumar	Textile	3	Rajeev Ralhan	SMEs
		Power Plant			Textile
		Chemical			Chlor-Alkali
		Paper			Buildings
		Engineering	4	Manoj Bansal	Power Plants
		Cement			Iron & Steel
		Aluminum			Automobiles
		SMEs			Chlor-Alkali
		Chlor-Alkali			Textiles
		Petro chemical			Buildings
2	Jayakrishnan P. Nair	Railways			Engineering
		Petroleum	5	Pradeep Singhvi	Iron & Steel
		Chemical/Pharmaceutical			Buildings
		Textile	6	Anurag Verma	Textile
		Engineering			Cement
		SMEs			Pharmaceutical
		Iron& Steel	7	Niranjan Rao	Textile
		Foundry			Pharmaceutical
		Buildings			Iron & Steel

		Telecom& Data centers			Engineering Buildings	

22	Subject wise expertise	
(a)	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	Nil
(b)	Energy audit thermal utility system (list sectors)	• Power Plants • Chemical • Cement • Aluminum • Paper • Chlor – Alkali • Petro Chemical • Textile • Engineering • Commercial Buildings • Municipalities (Street Lighting, Water Pumping etc) • MSME
(c)	Energy audit electrical utility system (list sectors)	• Power Plants • Chemical • Cement • Aluminum • Paper • Chlor – Alkali • Petro Chemical • Textile • Engineering • Commercial Buildings • Municipalities (Street Lighting, Water Pumping etc) • MSME
23	Instruments available	

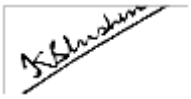
	(a) Electrical (list the name of the instruments)	• 3- Phase Portable Power Analyzer-ARL5 • Power Analyzer-C80 • Single – phase Clamp on Meter • Lux Meter- Extech
	(b) Thermal (list the name of the instruments)	• Portable Flue Gas Analyzer-KANE 900 Plus • Contact & Non Contact Laser Tachometer- Extexh461995 • Infrared Thermometer-Testo845 • Thermo Hygrometer-Testo625 • Vane Anemometer-Testo416 • Differential Pressure Meter –Testo510 • Ultrasonic flow meter- GE Sensing
24 (i)	Details of training programme/ seminars/ workshops conducted during the last 3 years in the field of energy efficiency / energy audit	I have conducted training programmes for many energy audit clients on various energy conservation measures in their plants. Some of the these are: • One day Workshop on DSM IT Portal was conducted in Delhi on 21st June 2010 and in Hyderabad on 2nd July 2010 on behalf of PwC • One day Workshop on procurement tool was conducted on 20th May 2011 on behalf of PwC • Two Day training program on DSM was conducted for HPERC, HPSEB and SDA Officials on January 2011 on behalf of PwC • One day Workshops on Ag DSM was conducted for DISCOM in six different states • Three day Workshop on assessment of energy efficiency financing mechanisms under IPEEC was conducted from 14th to 16th December 2011 on behalf of PwC • Two Day Training program on Energy Conservation/Energy Audit was conducted for Cheviot Company Limited on October 2008 on behalf of PwC • One day workshop on Energy

		Efficiency Improvements was conducted for BBCL in August 2008 on behalf of PwC

D	Remarks(if any)

I hereby state that information furnished above is true and correct to the best of my knowledge.

Place: Gurgaon

Signature: 

Date:25-06-2012

Name **Kulbhushan Kumar**

Designation **Sr.Manager**