

Energy Management Centre - Kerala (Department of Power, Govt of Kerala)

CERTIFICATE OF EMPANELMENT

This is to certify that M/s GCE CONSULTANTS INDIA PVT LTD, (1.1, 1st Floor, Southern Park Building, Avanta Business Centre, District Centre, Saket, New Delhi) is empanelled as Energy Audit firm in Energy Management Centre Kerala to conduct mandatory energy audit as per Government of Kerala G.O (Rt) No.2/2011/PD dated 01.01.2011.

Empanelment No:

EMCEEA- 3415F

Scope/Area	Building	Industry -Electrical	Industry Thermal
Scope/Area	Yes	Yes	Yes

This empanelment is valid up to 12th May 2018

Issuing Date: 13/05/2015

Place: Thiruvananthapuram

Director,

Energy Management Centre Kerala

	Ι	nformation of firm
1.	Name & address of the firm	GCE Consultants India Private Limited, Avanta Business Centre, Plot No D-2, First Floor, District Centre, Saket, New Delhi 110017, India
	Office(with STD)	+91 11 41022425
	Mobile	
	Fax number	
2.	W ebsite (if any)	www.groupgce.com
3.	Email o f f i c e . i n address	d i a @ g r o u p g c e . c o m
4.	Name Designation and address of Contact person	A nastasya Save Iyeva, Director
	and address of Cornact person	A vanta Business Centre, PbtNoD-2, First Fbor, District Centre, Saket, New Delhi 110017, India
5.	Office(with STD)	+91 11 41022425
	Residence(w ith STD)	
	M ob ile	+918130536213 / +79219526084
6.	Email a . s a v e l y e v address	a @ g r o u p g c e . c o m
7.	Year of establishment	2010
8.	Year of commencement of energy audit by the film.	Started in 1994 (by parent company –GCE Energo) GCE Consultants India Private Limited is who lly owned subsidiary of GCE Energo
9.	No. of branch offices (List of complete addresses including heads of all branch offices with telephone, fax and email addresses)	Headquarters Saint Petersburg Russia, 192102, Bukharestskaya st., 6 Phone: +7 (812) 331-9675 International Department: +7 (812) 334-8798 E-mail: office@ groupgce.com Main offices in EU Munich Germany, 81829, Stahlgruberring 7a Phone: +49 (0) 89 /89 08 332 – 50 Fax: +49 (0) 89 /89 08 332 – 95 E-mail: contac@ gce-europe.com W ebsite: http://gce-europe.com/en/ Offices M oscow Russia, 109129, 8th Textilsch ikov Street

bldg. 11, Suite 410

Phone: +7 (499) 176-8772, 176-9029

E mail:msk@ gce.ru

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Kazakhstan, 010000,

A maty, Gabdu lina Street, 18, VP 11

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New Dehli

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Phone: +91 11 4102-2425

E mail: office.india@ groupgce.com

Barce bna

Spain, 08006, Av. Diagonal 534, Entb. Izda.-C/Moia 9

Phone: +34 (93) 545-4028, 200-4322

E-mail: v lad in ir Saln ikov@ gce-europe.com

	Details of Associated Energy Ex	perts and Audits Conducted by firm
1.	Number of resource persons available	More than 20 from different offices (Indo-international team)
2.	Number of full-time energy auditors in position, with work experience of all energy auditors associated with the firm	(1) / In Indian attical
3.	No. of part-time energy auditors in position during the current year / previous year associated with the firm.	•
4.	Sectors in which the energy audit firm has conducted energy audits since inception and number of audits in each sector	Global: O il& gas-more than 100 full aud its Metal & Mining-more than 100 full aud its Power-more than 300 Chemical-more than 100 full aud its Food, Automobile& O thers-more than 100 full aud its Cement-more than 50 Pulp and Paper-more than 50 Buildings-more than 5 000 in different sectors

5.	energy audit	process system has been carrie	doutofthep		 Food Indu Cement – Metal – 1 Oil& gas – 	1 (in process) -1 (is in pro) ocess)		
6.		t of thermal		n (list	A II sectorsm	entioned in l	Point4		
7.	Energy audir sectors)	t of electrical	utility system	ı (list	A II sectorsm	entioned in l	Point4		
8.		(a) E lectrical (list the name of the instruments)		Descr	ription	Manufa cturer/ Supplier	S. No.	Year of purc hase	Calibrati on status
			Polifunctior al gauge «Energymon itor 3.3» (2)	registr printing energy (curred in 3 pland red cos ϕ)	ical quality	Mars Energo (Russia)	091 129	2005	Calibrated September 2014 (next calibration is September 2015)
	Instruments available		Multimeter (luxmeter, thermometer) « KA- P » (3)	intens spectr relativ and te	nation ity in visible um region, ve air humidity emperature urement	NTK (Russia)	43990, 43991, 43992	2010	Calibrated February 2015
			Energy tester (6)		ng electrical y quality	Mars- energo (Russia)	133, 134 137 138 152 153	2011	Calibrated March 2014 (next calibration is March 2015)
			Energy consumption analyzer «AR 5-1 » (6)	energy harmo	uring electrical y flow rate, onics and al current	Circutor (Spain)	408047008 408047020 408046022 408047001 408047012 408046006	2010	Calibrated in January 2015
		(b) Thermal (list the name of the	Instrument (nos.)	Descr	iption	Manufac turer/ Supplier	S.number	Year of purch ase	Calibrati on status

	instruments)	Ultrasonic liquid and heat flux energy flow meter «Portaflow SE» (1)	Measurement, detection and recordkeeping of fluids volumetric flow rate, heat transfer properties, thermal conductivity; testing thermal resistance	Micronic s Ltd (UK)	4527	2010	Calibrated May 2014 (next calibration May 2015)
		Ultrasonic thickness gauge «Bulat-1 » (2)	Measuring the thickness of metal and nonmetal equipment	Konstanta (Russia)	2587, 2588	2007	Calibrate d February 2015
		Thermal imager « - 7700» (1)	Contactless measurement of walling (other enclosures) insulation quality	NEC Corporati on (South Korea)	6040278	2006	Calibrated February 2015
		Gas analyzer «Monolit MT» (3)	Measurement of flue gas temperature and composition, ambient temperature, barometric pressure, calculation of energy losses and boiler efficiency	Monitorin g (Russia)	0013-04 0026-05 0071-06	2005	Calibrated February 2015
		Digital laser rangefinder «PLR 30» (1)	Measuring distances, lengths, heights; calculating and areas and volumes	Robert Bosch GmbH (Germany	10782867	2010	Calibrated February 2015
		Thermomete r «Testo 735-2» (5)	Temperature measurement	Testo AG (Germany	01901732/ 009	2010	Calibrated February 2015
		Pyrometer «Optris MS» (2)	Identification of contact couplings with defects, areas of cable overloads; temperature control of electrical lines, transformers, thermal lines, etc.	Optris (Germany)	12109986 12109975	2011	Calibrated March 2014 (next calibration is March 2015)
	Gas analyzer «Testo 340» (3)	Measurement of flue gas temperature and composition, ambient temperature, barometric pressure, calculation of energy losses and boiler efficiency	Testo AG (Germany	01947034 01971596 01962454	2010	Calibrated February 2015	

	Thermal imager «Testo» (1)	Contactless test of walling (other enclosures) insulation quality	Testo AG (Germany	1973715	2010	Calibrated February 2015
	Ultrasonic liquid and energy flow meter «Portaflow SE 220» (1)	Measurement, calculation, reading and recording volumetric flow rates and liquid volume in pipes	Micronics Ltd (UK)	8012	2010	Calibrated May 2014 (next calibration May 2015)
	Ultrasonic liquid flow meter «Portaflow SE 330» (1)	Measurement, calculation, reading and recording volumetric flow rates and liquid volume in pipes	Micronics Ltd (UK)	8505	2010	Calibrated May 2014 (next calibration May 2015)
	Anemometer «Testo 416» (2)	Airflow speed metering	Testo AG (Germany	01988149/ 012, 01988145/ 012	2010	Calibrated February 2015
	Gas analyzer «Monolit MT Ex T» (1)	Measurement of flue gas temperature and composition, ambient temperature, barometric pressure, calculation of energy losses and boiler efficiency	Monitorin g (Russia	0335-11	2010	Calibrated February 2015
	Pitot tube PT 121, S-type (1)		Bombay Instrumen ts		2014	Calibrated 2014

		*Bio data o	of Certified Energy Au	ditor
1	Name of energy auditor		Dr. Anil Kumar Goel	
2.	Qualifications.		Ph.D	
3.	Experience. (use additional sheet if required)		Oil refinery, TPS ,Fertilizers, Steel. Textile, Foundary, Ceramics	
4.	Residence(with STD)	011 43064831	
5.	Mobile		09811897004	
6	Email address	Akgoel2906@gmail.	com	
7	Date of certification as Energy Manager or Energy Auditor (pl specify) by Bureau of Energy Efficiency (BEE) (if not appeared list as nil		Energy Auditor 2 nd Nov. 2006	
8	Date of passing the examination in "Energy Performance Assessment for Equipment and Utility Systems"		23 rd May 2006	1.3
9	Examination Registration Number of		Certified EA 4637	
	(i) Energy I	Manager		
	Assessment Utility Syst (In case of	Certified Energy ease write CEA		
10	Certificate of	Registration Number	1772	
	(i) Energy I	Manager		
	(ii) "Energy Performance Assessment for Equipment and Utility Systems"			
11	Are you a F Energy aud If so:	BEE accredited itor.	Yes	
	Date	e of accreditation reditation No.	11 th Aug 2014 0192	
			Remarks(if any)	

Attached herewith are CVs of 1) Dr Anil Kumar Goel (BEE Accredited energy auditor), 2) Jitendra Srivastava (BEE Certified Energy auditor), 3) Vasilii Tarasovskii, 4) Galina Eremeeva, 5) Pavel Gorelov, 6) Dmitry Pchelnikov, 7) Natalia Raith, 8) Alexey Shorokhov and 9) Valerii Kelman 10) Mr. Dhandapani P.T. (BEE Certified Energy Auditor) 11) Mr Kalla Venkata Suresh (BEE Certified Energy Auditor)

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

Place: New Delhi Signature:

Date: 4th June 2015 Name: Anastasia Savelyeva

Designation: Director,

GCE Consultants India Private Limited

Joseph





Update: February 12, 2015 **Curriculum Vitae**

Anil Kumar Goel Principal Energy Auditor Date of Birth: June 29, 1954

Ph.D. in Energy Efficiency

Education:	1975	Specialization: Mechanical Engineering, Degree: B.Tech. Indian Institute of Technology, Delhi (IIT-D)
Other qualifications:	2006,	Accredited Energy Auditor
	2014	Bureau of Energy Efficiency, Ministry of Power, Govt. of India
	2008	Master's Degree in Business Administration (M.B.A.) Guru Jambheshwar University (Haryana Govt. University)
Key skills:		 Energy Audit Occupational Health, Safety and Environment ISO standards Thermal insulation Air handling systems, Fans, Blowers, Compressors Steam Technology, Boilers Heat Exchangers CDM
Total work experience – more than 30 years	2015- present moment	GCE Consultants India Pvt Ltd Principal Energy Auditor (accredited by BEE) Organization of work process during detailed energy audits, instrumental surveys and data analysis,

development of EnCon initiatives based on advanced technologies, presentation of project deliverables to the

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customer





2013- Indian Oil Corporation Limited (IOCL)2014 Executive Director

Control over Energy Efficiency, Health, Safety and Environment activities in Indian Oil, Profitability increase thru improvement in Thermal Insulation Technology, Air handling systems e.g. Fans, Blowers, Compressors, Steam Technology, Boilers etc in all 9 oil refineries of IOCL

2003- Petroleum Conservation & Research Association2013 (PCRA)

Director

Control over efficient utilization of energy, Delivering CDM and Energy Efficiency courses abroad to international audience. I also got several officers trained in ISO certification, collaboration with reputed organization like IITs, IISc, IIMs, Research Organizations including major CSIR Labs and Industry Associations like FICCI, CII, ASSOCHAM, State Chambers of Commerce, manufacturers.

1977- Indian Oil Corporation Limited (IOCL) 2003 Engineer, promoted to Deputy General Manager

Construction of refineries (Procurement, Execution, and Contracting etc.), Project Execution, Maintenance, Design, and Procurement in various refineries like Mathura, Gujarat and Barauni Refineries, introducing and utilizing latest technology in Thermal Insulation technology, Air handling systems, Fans, Blowers, Compressors, Steam Technology, Boilers etc to ensure high Energy Efficiency

Written/Co-Authored books:

Energy conservation in Refineries and other industries.

Energy conservation in Textile Industry. Energy conservation in Dairy Industry







Curriculum Vitae Updated: January 13, 2015 Alexey Shorokhov

Designation: Leading Expert, Energy Audit Department for Petrochemical

Plants and Refineries Date of Birth: April 10,1976

Education:

1999 Specialization: Power Installations Engineer,

St.Petersburg State Electrotechnical University "LETI" (Russia)

Candidate for PhD degree in Power Technologies

Key professional skills:

Long-term experience in detailed energy surveys in different industrial sectors

Significant scientific experience in production process efficiency

advancement

Advanced training programs development for energy auditors

Teaching experience covering new technologies and energy saving topics

-15 years

Total work experience Since Technical Director of International Department 2014 GCE Group

> Management of energy audit and energy efficiency consulting projects in CIS and BRICS countries

2011 Leading Expert, Energy Audit Department for Petrochemical plants and Refineries

Participation in Energy Audits (Documentary and instrumental surveys of industrial enterprises)

Energy Audit Experience (several projects):

- Production facilities of Gazprom neft
- Orsknefteorgsintez one of the oldest Russian refineries with 6,6 mln tons of annual product output
- subdivisions of Interregional Distributing Companies Holding — one of the world's largest electrical grid company
- Production facilities of Ruchi Group, leading Indian soya oil exporter
- Several facilities Far-East Distribution Grid Company major electrical energy supplier in the Khabarovsk Territory, Primorskiy Territory, The Amur Region
- Production facilities of ArcelorMittal, global leader in steel production





- Itambe Cement, one of the leading cement producer in Latin America
- Production facilities of EuroChem, global international agrochemical company
- Etc.

2002 University of Padua (Padua, Italy), researcher Modeling, optimization and experimental testing of electromagnetic system for high-purity metals production in levitating condition

1999 St.Petersburg State Electrotechnical University "LEEI" (Russia), researcher, power engineer

- Participation in energy audits and energy conservation programs development (electrical heating)
- Development of energy consumption norms
- Design, commissioning and startups of industrial HF power supply induction heating
- Development of automatic control systems for electrical heating installations
- Design, commissioning and startups of industrial electrical heating installations
- Mathematical modeling of technological processes
- Database development for energy consumption and production processes control

R&D activity:

- Development of methodology for electrical arc furnaces operational parameters optimization (requires no investments)
- Development of methodology for cement plant technological processes optimization (requires no investment)
- Research work within TEMPUS/TASIS Fund international project - designing of process installation for high-purity metals production in levitating condition
- Teaching, scientific activity, control of laboratory activities in St.Petersburg State Electrotechnical University "LETI" (Russia): induction heating, laser technologies, HV equipment, mathematical modeling

Awards and Publications:

The author of international publications related to efficiency advancement of electro-thermal processes in industries

Awarded by GCE Group President for professional achievements in 2013





Curriculum Vitae Update: February 5, 2015

Vasilii Tarasovskii

Designation: Director for Energy Efficiency

GCE Group

Date of Birth: June 5,1962

PhD, Associate Professor

Energy Engineer Emeritus of Russia

Education.	1985	Specialization: Engineer for newer installations
Education:	1900	Specialization: Engineer for power installations
		Leningrad Higher Naval Engineering School named after Vladimir Lenin (Russia)
Advanced	2010	Energy management system based on the requirements of the standard DIN EN
professional		16001:2009 / ISO 50001
training:		TÜV International RUS
		Energy surveys (energy audit) of thermal and fuel based installations and networks
		State Educational Institution "Ivanov State Power University"
Total work	1980-1993	Military Forces of the Russian Federation
experience - 32		Transportation and power equipment operations
years	1993 –2004	R&D activities and tutoring in Naval Engineering Institute (Russia)
	2001 –2004	GCE-energo,LLC (company of GCE Group)
		Energy auditor
	2004 - till	GCE-energo, LLC
	present	Technical Director
	moment	Today Vasiliy Tarasovskiy is Director for Energy Efficiency in GCE Group. He heads and coordinates projects at all levels (resources planning, project documentation reviews, monitoring of the project implementation, and results presentation). Mr.Tarasovskii took part in energy audits of more than 100 companies in Russia, Brazil, Germany, Spain, India, and Kazakhstan.
		He participates in standards and guidelines development, controls the projects related to energy management systems development and implementation in accordance with ISO 50001standard
		Industrial experience (by sectors): oil and gas (extraction, refining), power energy (generation, grids), metallurgy (ferrous, non-ferrous, mining), cement, pulpand-paper, chemical industry, public utilities.





Experience in Energy Audit:

In Russia

- Kotlass Pulp and Paper Mill (Ilim Group) the largest enterprise in Russian pulp and paper sector
- Kamchatka TPP No.1, 2 which belong to Kamchatskenergo, OJS main electrical energy supplier in the Kamchatka region
- Production facilities of RUSAL the third largest aluminium producer in the world
- Facilities of Gazprom, OJSC the largest energy company in Russia.
 Percentage share of Gazprom in world's gas reserves is 18% and 70% in Russian gas reserves
- Polar Division of Norilsk Nickel, JSC the enterprise of the Arctic Circle, the largest producer of nickel and palladium
- Facilities of Sakhalinenergo largest electrical energy supplier in the Sakhalin Region
- Varyoganneft, OJSC which belongs to TNK-BP one of the ten largest private oil companies in the world by oil production capacity.
- Evrazruda, OJSC ore-mining division of Evraz Holding, leading mining and metallurgical holding in Russia.
- Oil and gas production facilities of Rosneft leader of Russian oil industry and one of the largest public oil and gas companies in the world.
- Khabarovsk Oil Refinery, OJSC leading Far East producer of motor and boiler oil. Plant capacity is 4.35 MPTA
- Etc.

In Latin America

- Plant of the chemical concern 3M in Piracicaba (Brazil)
- Aluminum smelter of the metallurgical corporation Alcoa in Sorocaba (Brazil)

In Europe

- TPP of the petrochemical company PKN Orlen the largest refiner of crude oil in central Europe (Poland)
- Petronor Muskiz refinery (Repsol) -the largest oil and gas company owned by Spain's Repsol YPF (Spain)

In India

- TPP of Reliance Industries Ltd. the largest oil and gas holding of oil and gas sector in India.
- Plants of Ruchi Soya Industries Ltd. in Madhya Pradesh, Maharashtra and Gujarat – India's largest manufacturer of edible oil

R&D activities and publications:

- Author of books and manuals on steam boilers, diagnostics of power equipment and energy audit practices.
- Author of several publications: "Development of energy management systems in enterprises. Main challenges during development and implementation" "Energy Management System: overcoming the kick-off problems", "External Energy Audit: maximum effect and minimum cost", "About the algorithm of developing and implementing energy management systems".

Congress activity

Regular speaker of key industrial events, round tables for energy managers, engineers, top managers and other specialists who are interested in energy savings, energy loss reduction and building of energy management corporate policy.

Awards:

Awarded as Energy Engineer Emeritus by the Minister of Energy of Russian Federation (Order No.192 as of October 30, 2009)







Curriculum Vitae Updated: January 13, 2015

Valerii Kelman

Designation: Specialist

Energy Audit Department for Petrochemical Plants and

Refineries GCE Group

Education:

2008

Specialization: Boiler and Steam Generator Design Engineer Saint Petersburg State Polytechnic University (St.Petersburg, Russia)

Professional experience:

Since 2011

Specialist, Energy Audit Department for Petrochemical Plants and Refineries

Detailed and express energy surveys: initial data collection and analysis, documentary and instrumental surveys, energy efficiency assessment, energy saving measures development, benchmarking of energy efficiency technologies

Energy Audit experience (by sectors): oil refining, petrochemical, chemical, agrochemical, power, metal & mining

2008 -2011

Engineering management experience in energy supply company (heating and hot water supply for a huge residential district)

Control of regular energy supply for consumers and energy equipment safe and efficient operation

Experience in Energy Audits:

- Production facilities of global oil and gas companies: Repsol, LUKOIL and Gazprom
- Comprehensive energy survey of several refineries (from 1,2 to 17 MTPA)
- Multiple facilities of SIBUR Holding (including petrochemical and gas processing facilities)
- Production facilities of Kazzinc leading mining and oreenrichment company in Kazakhstan
- Production facilities of EuroChem (one of the largest agrochemical companies), PhosAgro (leading Russian producer of chemicals) and BashChem Group
- Production facilities of Henkel Group
- Etc.

Awards and publications:

The author of several publications in "Scientific and technical reports of St. Petersburg State Polytechnic University" (ISSN 1994-2354) related to steam boilers operation advancement and reduction of emissions impact on the environment





Curriculum Vitae
Update: January 13, 2015

Natalia Raith

Designation: Lead Energy Auditor / Energy Management System Auditor

Education:	2006	Specialization: Power Engineer
		Belarusian National Technical University (Belarus)
	2010	MSc. In Energy Conversion and Management
		University of Applied Sciences Offenburg (Germany)
Advanced Professional	2012	Energy Management Systems Auditor/Lead Auditor Training Course (based on ISO 50001:2011 Standard)
Training:		by TÜV SÜD Academie
	2013	Energy Management System Auditor/Lead Auditor Training Course by Bureau Veritas
Professional experience:	2007-2008	 Energy Efficiency Committee of the Republic of Belarus Lead Specialist of the Department of Scientific-Technical Policy and Foreign Economic Activities Dealing with international energy efficiency projects involving public buildings renovations Documentation and reports
	2008-2010 2010 - till	 Econzept Energieplannung GmbH (Germany) Lead Specialist Professional guidance for the energy facilities' optimization Energy concepts development for public and residential buildings Design of public building and residential service installations such as heating- and cooling systems Responsible for statistical data evaluation and re-design process GCE Energy Consulting GmbH (a member of GCE Group) Project manager, Energy Auditor
	nowadays	Description of the commercial for the Francisco

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Preparation of the companies for the Energy management systems (ISO 50001) certification (analysis of the initial situation, setting up of goals and definition of the EnMS-limits, developing and adjustment of the documentation to the EnMS-standards, developing of the energy conservation programs, developing of

Supervision and coordination of the all steps of energy efficiency

the motivation measurements to save energy etc.);

Energy management trainings for personnel





	 projects (planning of the man power, developing of the project documentation, preparation and control of implementation of the project; reporting, presentation of the results); Preparation and performing of energy audits (initial data analysis setting up of the project goals, carrying out of measurements developing of the energy conservation measurements, technica and economical analysis of the energy conservation measurements) Documentary and instrumental surveys of industrial companies Evaluation and analysis of technical data; report generating or carried out energy audits
Experience in Energy Management Systems development and trainings:	 ArcelorMittal Temirtau, JSC – the largest mining and smelting sector enterprise in Kazakhstan. The company is incorporated in ArcelorMittal - the world's leading integrated steel and mining company BASHNEFT —among Top Ten of the largest oil extraction companies in Russia
	 BMW – world known manufacturer of automobiles and motorcycles
Experience in Energy	 Petronor Muskiz refinery - the largest oil and gas company owned by Repsol YPF
Audits:	 Natural gas and helium plant in Odolanow, Gas storage facility in Sanok, Gas mine in Jasionka incorporated into Polish Oil and Gas Company (PGNiG) - leader in the natural gas market in Poland
	 Siggenthal cement plant which belongs to Holcim (Schweiz) AG one of the world's leading suppliers of cement and aggregate
	 Polsky Koncern Naftovy «ORLEN» which belongs to ORLEN — one of the major European oil refiners
	• Etc.
Publications:	 "Simulation of a heat pump-based energy production in a new laboratory building of Fraunhofer ISE by using IDA ICE" (2010 Fraunhofer ISE, Freiburg, Germany) Study «Renewable Energies. Outlook for Belarus» (Belarusian National Technical University)
Awards:	Awarded by TÜV SÜD Academie as Docent for Trainings in Energy Optimization and Energy Audits in 2012