

Dr. P.P. MITTAL
Faridabad (Haryana)

Auditor Profile

Dr. P.P. Mittal, PhD, is a retired Executive Engineer from DHBVN (a Power distribution company of Haryana) where he served for 37 years and played a major role in improving efficient operation of Distribution Company. In his endeavor to take forward the cause of Energy Efficiency in the County, consequent to his superannuation, passed the National Certification Examination for Energy Auditor's Conducted By BEE and subsequently was accredited an Accredited Energy Auditor. He founded Proprietorship Company **M/s Energy Engineers** on 21st Feb 2009 and further upgraded it as Private Limited Company "**M/s A-Z Energy Engineers Private Limited**" since May 2012 as one of the Director, with the aim to provide clean energy solutions, energy & power sustainable consultancy, energy management services for commercial, industrial & residential establishments. A-Z Energy Engineers Pvt. Ltd. is **ISO 9001:2015 certified**.



Dr. P.P. Mittal, has also attended ISO 50001 training **and has completed E-course on Green Productivity and Management System "ISO 9001, ISO 14001, ISO 14051, ISO 27001, ISO 26000, OHSAS 18001 from APO Tokyo**. He is also an **IGBC Accredited Professional for Green Buildings** and one of the **Compliance Auditors for REC** mechanism in pan India, out of total 10 auditors empanelled by CERC.

He is performing all kind of Energy related works including Demand Side Management, Solar Consultancy, Efficiency in Power Distribution System & conducting regular Energy Audits.

Energy Conservation Projects Completed

Since its inception following major ENCON projects had been accomplished by him:

- Energy efficiency project by HAREDA (Haryana Renewal Energy Department) for conducting Baseline/walk-through energy audits in 5 districts of Haryana with 40 nos. industries cluster-wise in each district totaling 176 nos. industries

and further 39 nos. Detailed Energy Audit of Energy Intensive sectors i.e. Rice-sellers, Textile, Auto-parts, Metal & Forging in 5 district of Haryana.

- Consultancy in **Solar Power** including the preparation of DPR and grid connectivity **under JLNNSM scheme of Govt. of India in 2010-11.**
- Conducted baseline Energy Audits (i.e. 16 nos.) under PAT Scheme of Designated Consumers scattered at Allahabad, Namrup (Assam), Raipur, Bareilly, Babrala, Surat, Vadodara, Ahmdabad. Further after being empanelment by BEE for PAT Monitoring & verification, conducted 13 nos. M&V projects and 11 nos. Mandatory Energy Audits.
- Carried out the impact assessment of Solar Energy Projects.
- Conducted detailed Energy Audit of many schools in Gurgaon, Faridabad, Noida, Delhi including all DPS schools.
- Important projects of Energy Audit were carried out in CPWD Delhi, Railways which includes Safdarjung Hospital, SSK Hospital, New Delhi, RML Hospital, NGMA Building, India Gate, NAI Building India Gate, Patiala Court India Gate, Railway Hospital, Old Delhi, New Delhi Railway station Hospital, New Delhi Railway station, Old Delhi Railway station, DRM Office etc. etc. Also Sir Ganga Ram Hospital & St. Stephen's Hospital.
- Completed the World Bank Projects through SIDBI, UNDP for Railway (Carried out: Energy Audit of C/W Bhopal, railway station Kota, railway station Lucknow, Railway Hospital Hyderabad & GM Office Hyderabad). Carried out Detailed Energy Audit of CERC Building, & CAG Building.
- Conducted Detailed Energy Audit of Railways Electrical Workshop of Dayabasti, Mechanical Workshop Amritsar, C/W Workshop Jagadhari & Rail Coach factory Kapurthala, C/W Workshop Kalka & following Railway establishment/station: Jalandhar Cantt., Pathankot, Firozpur, Moradabad, Bareilly, Shajhanpur & HarDOI with GM Office Moradabad.

Variety of Sectors Covered in Auditing:

Mandatory Energy Audit- 6 Sectors

(1) Fertilizer (2) Chlor-Alkali (3) Cement (4) Textile (5) Railway T & S (6) Paper & Pulp

Building Sector (9 Sectors)

(1) School **(2)** Colleges **(3)** Railway Station **(4)** Hospitals **(5)** Railway GM Office **(6)** Domestic Building (7) Bank, (8) NDCC Buildings, (9) District Administrative Office

Energy Conservation Project identified in 2014-15 & 2015-16

Sl. No.	Year	Saving Identified (in toe)	Remarks
1	2014-2015	2373.78 toe	It is the resultant of 32 nos. detailed audits which includes the identified saving in Electricity, Bagass, HSD, LPG & PAT verification with proposed identified saving.
2	2015-2016	19017.5 toe	It is the resultant of 33 nos. detailed audits/ PAT Audits which includes the identified saving in Electricity, HSD, LPG, PNG, FO & PAT verification with proposed identified saving
	Total	21391.28 toe	Total nos. of detail audits : (32+50) = 82

Energy Conservation Project implemented during the last two years :

Sl.	Year	Saving Identified (in toe)
1	2014-2015	948.15 toe
2	2015-2016	3117.12 toe
	Total	4065.27 toe

Achievement / Awards:

1. Dr. P.P. Mittal had pen-down many articles on Energy Conservation & related fields which were published in many journals in the year 2015-2016.
2. On 18th Oct. 2016, his company bagged First Prize , instituted by MSME Ministry. **Hon'ble Prime Minister Awarded a Shield, Certificate and Cash Prize of Rs. 3 lakhs to Dr. Mittal in a function held at Ludhiana.**
3. On 20th Sept. 2016, AEE, Atlanta Awarded Dr. P.P. Mittal as "**Energy Engineer – 2016**" for **South-East Asia Continental** and was awarded "Legend of Energy" also.
4. In Dec. 2015, Received National Energy Conservation Award.
5. On 19th April 2015, Hon'ble Chief Minister Haryana Awarded an Appreciation Letter to Dr. P.P. Mittal, for his services in Energy Conservation.

6. In March 2015, Dr. P.P. Mittal was Awarded by Director General HAREDA – Award in the Category of “Individual Energy Auditor” as Certificate & Cash Prize of Rs. 50,000/-.
7. In Dec. 2013, Received National Energy Conservation Award.



Mr. RANGARAJ RAJMOHAN

Auditor Profile

Mr. Rangaraj Rajmohan, CEO, DESL graduated in Chemical Engineering from Annamalai University, India in the year 1978 and later obtained his Masters Degree in Chemical Engineering from the same university in 1980. He had undertaken two years' Post Graduate Certificate Program in Energy Management from National Productivity Council, India.



Mr. Rangaraj Rajmohan started his career in energy management in 1980's and has so far been involved in numerous energy efficiency studies in India and abroad. He has extensive experience (over 35 years) in implementing and leading energy management projects, productivity improvement studies, energy audit studies, project evaluation & implementation of various energy efficiency projects, process modernization & upgradation projects from concept to commissioning. As a member of senior management, he has supported in making DESL as one of the largest and most successful Energy Service Companies (ESCO) in India with penetration into various international markets.

Mr. Rajmohan, so far, has led in successfully carrying out over 1,500 energy efficiency, water efficiency, renewable energy, waste minimization, shared savings and guaranteed savings performance contract assignments in industrial, commercial and municipal sectors. He has been involved in a wide range of unit & macro-level studies in facilities that include:

- **Industries** - Iron & steel, Refinery, Petrochemical, Power Plant, Sugar, Pulp & Paper, Textile, Rayon, Cement, Engineering, Foundry, Pharmaceuticals, Tyre, Fertilizer, Glass, Distilleries and Breweries, etc thus covering a large number of process and engineering industries.
- **Commercial Sector** - Government and privately owned offices and buildings, multiplexes, hospitals, malls, telecommunication switching centers, etc.
- **Municipal Sector** - Street lighting, water pumping systems, water distribution & effluent treatment.
- **Agriculture** - Energy optimization in agriculture pump sets.

Mr. Rajmohan has to his credit several technical publications in journals including one 'patent'. He is a regular invitee at various conferences/workshops as speaker & delegate. Some of the recent events where Mr. Rajmohan participated:

- Speaker at the 'Workshop on Energy Efficiency Financing' in Mumbai in July 2016
- Chaired a session on a technical meet on 'Industrial Thermal Technologies', organized by FICCI at New Delhi in August 2016
- Speaker on one Awareness workshop in Ludhiana under 'World Bank-GEF project energy efficiency financing in MSME sector' in 2015- 16.
- Speaker at the 'Wastech International summit-2016' at Gandhinagar, Gujarat; presented a paper on 'Technology and innovations for MSMEs- Challenges and opportunities'.

Mr. Rajmohan has had a number of professional affiliations during the course of his professional career that include:

- Executive Council Member, Alliance for an Energy Efficient Economy (AEEE), India
- KQP (Key Qualified Person), ESCO, NEA/ESU, Singapore
- Certified Measurement and Verification Professional, IPMVP
- Certified Energy Auditor - Bureau of Energy Efficiency, Govt. of India
- Member, International, Association of Energy engineers, USA
- Past Corporate Member, Sustainable Energy association of Singapore
- Past Member: Tamil Nadu Small & Tiny Industries Association, Chennai
- Past Expert group of advisors, Tamil Nadu Energy Development Agency; Expert group of advisors, Energy Committee, Tamil Nadu Electricity Board

Major energy conservation research projects/activities implemented during 2014-16 include the following:

- Design of Recuperator for forging furnace
- Automation with PID controller (Switch the feedback signal from current to Temperature) to reduce heating load
- Installation of 4GX CNC machine to replace the conventional machining such as drill, edge cutting and reaming
- Anti-Friction Bearing for Roller Mill and Installation of Universal Spindle and Coupling
- Waste heat recovery (WHR) from flue gases of rotating tunnel roaster
- Recirculation of hot air of cooling blower to chamber circulation air
- Production enhancement through loading optimization of heat treatment furnaces
- Energy efficient dual fired burner and Mono rail for ladle
- CPP performance optimization opportunities in a refinery
- Application of COOPERE tool based on 'Pro-Sim' in a paper industry and refinery