

# Comprehensive LSPs Mapping Report Indore Foundry Cluster

## GEF-UNIDO-BEE Project Promoting Energy Efficiency and Renewable Energy in selected MSME clusters in India

*Prepared for:*  
Bureau of Energy Efficiency



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## Abbreviations

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BEE	Bureau of Energy Efficiency
BOP	Best Operating Practices
DIC	District Industries Centre
DPR	Detailed Project Report
EE	Energy Efficiency
GEF	Global Environment Facility
IIF	The Institute of Indian Foundrymen
LSP	Local Service Provider
MSME	Micro, Small & Medium Enterprises
OEM	Original Equipment Manufacturers
RE	Renewable Energy
SWOT	Strengths, Weaknesses, Opportunities, and Threats
TERI	The Energy and Resources Institute
UNIDO	United Nations Industrial Development Organization
VFDs	Variable Frequency Drives



# 1.0 Introduction

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Bureau of Energy Efficiency (BEE) is Promoting Energy Efficiency and Renewable Energy in selected MSME clusters in India under the GEF-UNIDO-BEE Project. A proposal for capacity building of local service providers (LSPs) was submitted by TERI to BEE under GEF-UNIDO-BEE project.

A contract for providing the consultancy services was awarded to TERI by BEE as per the terms of reference given in the Lol No. 13/GEF-UNIDO-BEE/LSP/14/4561 and 13/GEF-UNIDO-BEE/LSP/14/4562 dated 2<sup>nd</sup> August, 2017 for the following Ceramic and Foundry clusters on 26<sup>th</sup> September 2017.

**Table 1.0:** Focus sectors/ clusters awarded to TERI

Sector	Clusters
Ceramic	<ul style="list-style-type: none"><li>• Khurja</li><li>• Morbi</li><li>• Thangadh</li></ul>
Foundry	<ul style="list-style-type: none"><li>• Belgaum</li><li>• Coimbatore</li><li>• Indore</li></ul>

This comprehensive LSPs mapping report of the project outlines the methodology followed for identification and mapping of LSPs based on demand and supply needs of local industries for Indore foundry cluster. This report should be read in conjunction with the ‘Cluster specific list of LSPs’ submitted separately.

The following sections in the report outlines the cluster background, methodology adopted, production process flow-sheet, demand-supply matrix and SWOT analysis for the LSPs in the Indore foundry cluster.





## **2.0 Background of the cluster**

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### **2.1 General information**

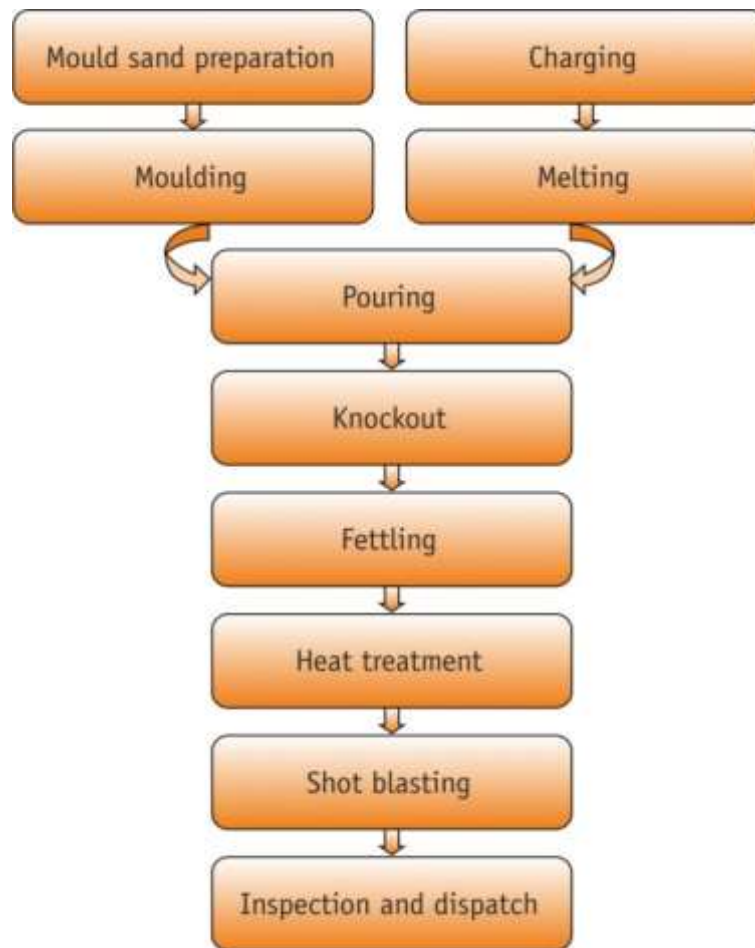
Indore located in the state of Madhya Pradesh, is an important industrial cluster. A large number of small and medium enterprises manufacturing components for the automobile, engineering, railway and infrastructure sectors are located in and around Indore. The foundry industry in Indore came up to cater to the textile machinery manufacturing units which were required by the cotton mills in the area. Subsequently, the foundry units started catering to the demands of the automobile and engineering industries located in Indore and neighbouring districts.

There are about 25 foundry units in Indore cluster. The cluster is spread across Indore city, Pithampur, Devas and Ujjain. The foundries produce both gray iron and SG iron castings. As per industry estimates, the cluster produces about 3,000 tonnes per month of castings. The castings manufactured in the cluster are for different end-use applications.

### **2.2 Production process**

The major steps in the production process include mould sand preparation, charge preparation, melting, pouring, knockout and finishing.

A simplified process flow chart of a typical foundry is given in the figure 2.2.



**Figure 2.2:** Typical flow sheet of a foundry

## 2.3 Major stakeholders

The major stakeholders in the cluster like industry associations, training institutions and government support institutions for MSMEs, identified through secondary literature survey are given below:

### 2.3.1 Industry Associations

There are a number of industry associations in Indore. The nodal industry association for foundry units in Indore is IIF (The Institute of Indian Foundrymen). There are separate industry associations for the major industrial areas like;

- Pithampur Audhyogik Sangathan
- Sanwer Road Industrial Association

These associations are closely linked to each other and even some of the officer-bearers are common.

### **2.3.2 Training Institutions**

Indore is a hub for technical education and training in Madhya Pradesh. There are a large number of reputed universities and colleges in the city offering high class undergraduate engineering courses. The following institutes are particularly known in Indore

- Devi Ahilya Vishwavidhyalaya (DAVV)
- Malwa Institute of Technology (MIT Indore)
- Vindhya Institute of Technology and Science (VITS Indore)
- Jagadguru Dattatray College of Technology
- Institute of Engineering and Technology (IET-DAVV)
- Institute of Engineering and Science IPS Academy (IES-IPS)

### **2.3.3 Government Support Institutions**

Indore has a large number of government supported institutions offering courses related to foundry technology. Some of the major government supported institutions related to foundry industry in Indore are the following:

- Shri Vaishnav Polytechnic College
- Women Polytechnic College
- Central Institute of Technology (Polytechnic)
- Government Polytechnic College, Jhabua
- Indo – German Tool Room, Indore



## 3.0 Methodology adopted

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### 3.1 Identification and mapping of LSPs

Before the identification and mapping of the LSPs, the project undertook an extensive exercise to understand the equipment/sections in the plant where LSPs are used by industry. TERI interacted with key stakeholders like progressive industrial entrepreneurs, cluster-level industry associations and selected LSPs to understand the needs and supply of LSPs in the cluster.

In order to understand the equipment/sections in the plant, TERI prepared the process flow-diagram for the foundry industry. The identification of the major equipment/ sections and services used was done in consultation with industry stakeholders.

TERI then prepared structured survey questionnaires, separately for MSMEs and service providers, to understand the demand supply gaps for LSPs in the cluster. The MSME and LSP questionnaires used for the survey are provided in Annexure 1 and Annexure 2 respectively.

Efforts were made to classify the LSPs keeping in view the major equipment/sections and related services used by the industry. The structured questionnaires were used for discussions with MSMEs and LSPs to understand the demand and supply side barriers in the cluster.

TERI undertook an extensive survey for collection of cluster level information related to needs of LSPs. Key stakeholders like progressive MSMEs and LSPs were covered in the survey. The inputs from the stakeholders helped in obtaining a holistic view of the demand and supply needs of local industries.

The information about the cluster's needs was summarized using structured analytical tools like 'SWOT' and demand-supply matrix. The SWOT analysis helped to determine the strengths, weaknesses, opportunities and threats

pertaining to the LSPs in the cluster. The demand-supply matrix was useful to determine the demand side and supply side constraints with respect to key services at the cluster level.

These analyses helped in better understanding of the gaps in services available locally as well as to identify the capacity building needs of the LSPs for promotion of EE & RE in the cluster. There was continuous dialogue with the industry association in the cluster to brief them about the gaps identified and remedial measures. The analyses and dialogue also helped to identify potential EE & RE technologies which can be taken up for preparation of detailed project reports (DPRs) under the assignment.

The study was designed in two parts; quantitative survey of LSPs and MSMEs (through structured questionnaire), and qualitative discussion with focused groups, opinion leaders, and a variety of stakeholders in the cluster.

A questionnaire survey of about 20 MSMEs and LSPs was done in the cluster. Some of the MSMEs and LSPs provided response as per the structured questionnaire while some provided feedback through a generic discussion with regard to the demand-supply requirements of services in the cluster. Sample survey questionnaires filled during the field survey are enclosed in annexure 3.

## 4.0 Analysis of LSP segregation based on questionnaire survey

### 4.1 Type of process/technology and role of LSP's

A questionnaire survey was conducted in the cluster to understand the present status of LSPs in the cluster and the needs of the local industry. Based on the questionnaire survey, the current LSPs were classified into different categories according to the types (process, utilities, and support services). The information on current LSPs in the cluster is summarized in table 4.1a.

**Table 4.1a:** Types of LSPs in Indore cluster

Sr. No	Type of LSPs	Nos.
1	Process (furnaces, major process equipment)	21
2	Die & pattern making	2
3	Fabricators	5
4	Utilities (electrical)	18
5	Utilities (mechanical)	10
6	Other services	30
	<b>Total</b>	<b>86</b>

The information collected on the LSPs in the cluster was further analyzed to categorize them according to the type of main process/technology commonly in use and the role of LSP. The detailed classification and the types of LSPs and their role are provided in table 4.1b.

**Table 4.1b:** Detailed classification of the types of LSPs and their role

Category	Section	Equipment/service	Role of LSP
<b>Process equipment</b>	Melting	Induction melting furnace, spares & maintenance Cupola melting furnace /fabricators Pollution control system Refractory & thermal insulation	Manufacture/ sales/ service
	Material handling system	Cranes, scrap press, skip charger and forklift machines Ladles, ladle preheating & pouring system	

Category	Section	Equipment/service	Role of LSP
	Moulding	Sand plant, sand preparation machinery, moulding machine	
		Moulding boxes	
		Moulding machines	
		Knockout/ shakeout machines	
		Sand recovery / reclamation unit	
Core shop	Pattern & die making		
	Accessories & consumables		
	Core shooter machines		
Heat treatment	Core ovens		
	Sand dryer		
Fettling shop	Heat treatment furnace		
	Burners & combustion system		
Testing laboratory	Shot blasting machine		
	Grinders		
	Tumblast machine		
Utility equipment	Testing services		
Utility equipment	Electrical equipment	Motors, VFDs, APFC, voltage controllers, stabilizers, lighting, harmonic filters, transformers etc.	Manufacture/ sales/ service
		Electrical motors	
Utility equipment		Motor rewinding	
	Mechanical	Air compressors	
Utility equipment		Compressed air system spares and accessories, auto-drain valve	
		Pumps, spares & service	
other services	Awareness programs and training	Government schemes	Training and technical consultancy
		Financing & taxation	
		Environment & energy conservation	
		Technical skill development	
other services	Consultants	Energy conservation	
		Financial, Energy conservation, technology & process, Lean Manufacturing	
other services	Renewable Energy	Solar PV, solar heaters, solar lighting, waste management	
	Foundry automation	Energy monitoring system, process automation & Foundry simulation software	



## 4.2 Mapping needs based on demand and availability of services

Based on the information collected on LSPs, an exercise to analyse the demand side and supply side constraints with respect to services available in Indore Foundry Cluster was undertaken. The summary of the analysis is presented in table 4.2.

**Table 4.2:** Demand and supply side analysis of LSPs in Indore foundry cluster

Sr. No.	Area	LSP	
		Demand side constraints	Supply side constraints
01	Motor rewinding practices & electrical maintenance	Important area for improving the efficiencies of existing stock of electrical equipment and motors used in industry	Formal training avenues not available for existing LSPs
02	Compressed air, cooling water circuit	LSPs do not have the technical know-how/expertise in selection and operation of air compressors and furnace/panel water cooling circuits	Consultants and industry do not have adequate expertise in selection of efficient equipment and best practices
03	Pollution control system	Lack of awareness about appropriate pollution control technologies	Lack of trained LSPs in the cluster
04	Energy conservation (focus on melting)	Lack of awareness about energy saving potential in melting operation, no energy benchmarking among MSMEs	Low competence of existing auditors and monopolistic behaviour of existing furnace manufactures inhibit knowledge sharing



## 5.0 SWOT analysis of LSPs

A SWOT (Strengths, Weaknesses, Opportunities and Threats) analysis of LSPs in the cluster was done to understand the demand supply gaps of the technical services available in the cluster. The SWOT analysis table is given in table 5.0.

**Table 5.0:** SWOT analysis of LSPs in Indore cluster

Current situation		Future	
Strengths	Weaknesses	Opportunities	Threats
Several colleges and technical training institutes existing in the cluster	Lack of training/exposure latest developments like lean manufacturing practices	Industry keen on training of workforce	Asymmetries in information about new equipment leading to improper selection of new equipment
LSPs are catering to all types of industries and hence there are opportunities for cross-learning	Motor re-winders and foundries lack knowledge to test efficiency of motors, select proper materials and best maintenance/operating practices.	High interest to learn new skills among LSPs and industry	Foundries reluctant to invest in high value capital equipment
	Lack of knowledge on measuring, benchmarking and optimization of major energy intensive equipment like induction furnaces, air compressors and pumps.	Prices of raw materials and energy has risen sharply putting pressure on industry to cut operating costs	Equipment selected based on lowest capital cost rather than life-cycle cost
	Low level of awareness on best operating practices of energy intensive equipment lead to wastages in energy	Stricter implementation of pollution norms likely to force industry to adopt appropriate pollution control systems	Low cost/low competence service providers
	No LSPs available for design of pollution control systems		



## 6.0 Conclusions

A questionnaire survey was conducted in the cluster between September 2017 to January 2018, to get information about the services in the cluster with respect to each of the above categories and also to access the industry's perception of the need to develop these services within the cluster.

The exercise helped to analyse the demand side and supply side needs with respect to local service providers in the cluster. The summary of the demand side and supply side needs of local industries is presented in table 6.0.

**Table 6.0:** Demand and supply side analysis of LSPs Indore cluster

Sr. No.	Area	LSP	
		Demand side needs	Supply side needs
01	Motor rewinding practices & electrical maintenance	Need for improved practices for repair and maintenance of electrical equipment and motors used in industry	Formal training courses should be made available for existing LSPs
02	Compressed air, cooling water circuit	Need to strengthen knowledge base of LSPs on technical know-how/expertise in selection and operation of air compressors and furnace/panel water cooling circuits	Capacity building required on selection of efficient equipment and best practices
03	Pollution control system	Strengthen awareness about appropriate pollution control technologies	Provide training to LSPs in the cluster
04	Energy conservation (focus on melting)	Improved awareness about energy saving in melting operation	Training courses for existing auditors and service providers on energy conservation in melting



# Annexures





## Annexure 1: Questionnaire 1: For collecting information of the LSPs from foundry MSMEs

### QUESTIONNAIRE / DETAILS

1. Company background

- Name of the Company :
- Address :
- Contact Person :
- Mobile / Landline :
- Email ID :
- Product Manufactured : Grey Iron/SG/Steel

2. Local Service Providers (LSPs) :

Section	Equipment/Service	LSPs
<b>Process Machinery</b>		
Melting	Induction Furnace maintenance services	
	Cupola Furnace (fabricators)	
	Pollution control systems (designers)	
	Refractory suppliers	
	Others	
Material Handling	Furnace Charging Systems	
	Ladles/ Lid covers	
	Ladle preheaters	
	Mould handling system	
	Others	
Moulding	Sand Plant	
	Sand Preparation machinery (Mixers/Mullers)	
	Moulding Boxes	
	Knockout machine	
	Sand Regeneration plant	

Section	Equipment/Service	LSPs
	Moulding machine	
	Other areas (pattern makers)	
Core Shop	Core shooter machine	
	Shell moulding machine	
	Core oven	
	Resin coating machine	
	Sand dryer	
Heat Treatment	Heat Treatment furnace	
	Burners/Controllers	
Fettling shop	Shot Blasting machine	
	Grinders	
	Sand/water jet blasting	
	Tumblast machine	
Testing Laboratory	Material testing services	
	Hardness tester	
	Spectrometer	
	Tensile tester	
	Sand testing	
	Ultrasonic/Radiography/NDT	
	Universal testing machine	
<b>Utilities</b>		
Induction Motor	Energy Efficient Motors (Distributors)	
	Motor Rewinding Services	
VFD (Variable Frequency Drives)	Suppliers	
Air Compressor	Air Compressor (servicing)	
	Auto Drain Valves/Spares supplier	
	Air Piping	
Pumping	Energy Efficient Pumps	
	AMC/Maintenance	

Section	Equipment/Service	LSPs
	Automation	
Fans & Blowers	Energy Efficient Fans	
	AMC/Maintenance	
	Automation	
Belt & Gear System	High-torque cog belts	
Bearing	Energy Efficient (E2) bearings	
Lighting	Electrical maintenance	
	LED lamps	
Solar	PV Solar	
Energy Monitoring System		
Harmonic controller	Consultants/Filter suppliers	
Power factor	Consultants/capacitor suppliers	
Others		
Others		
<b>Other Services</b>		
<b>Support services</b>	Government liasoning	
	Financial consultants	
	Energy Audits	
	Lean Manufacturing	
	Foundry simulation software	
	Others	
	Others	

3. Are there any areas where reliable local service providers are not available



## Annexure 2: Questionnaire 2: For collecting information about the type of services offered by the LSPs

Questionnaire for EE (Energy Efficiency) /RE (Renewable Energy) Service Providers

### Indore Cluster

#### 1. General information

Name of the firm		
Nature of firm	Individual/sole proprietorship/Pvt. Limited/Limited/Partnership	
Year of establishment		
Name of the CEO/MD	Dr/Mr./Ms.	
Contact person(s) regional		
Mobile		
Email		
Mailing address		
Factory/H.O. address		
Number of employees	Technical:	Non-technical:

#### 2. Categories of business/service (please tick one or more boxes)

Category	Technology/Service	Please specify
Energy Efficiency (EE)		
	EE Equipment Manufacturer	
	EE Material Manufacturer	
	EE Consultancy	
	EE Fabrication	
	EE Maintenance	
	EE Others	
Renewable Energy (RE)		
	RE Equipment Manufacturer	
	RE Material Manufacturer	
	RE Consultancy	
	RE Operation	
	RE Maintenance	
	RE Others	
Other services (Please specify)		

### 3. Technology features, projects and clients

Technology/Service*	Features and benefits (e.g. rating, energy saving, investment, payback period)	No. of implementations	Clients

\* Please attach technical brochure, if available

### 4. Any other information

## Annexure 3: Sample survey questionnaires filled during the field surveys

Questionnaire for EE (Energy Efficiency) /RE (Renewable Energy) Service Providers

### Indore Cluster

#### 1. General information

Name of the firm	<b>Asiatic Marketing Co</b>	
Nature of firm	Sole Proprietorship	
Year of establishment	1995	
Name of the CEO/MD	Mr. Subhash Singh	
Contact person(s) regional	Mr. Subhash Singh	
Mobile	9425055507/ 7869955401	
Email	subhash@asiaticgroup.in	
Mailing address	503, Shagun Tower, 7-PU4, Vijay Nagar, A-B Road, Indore - 452010	
Factory/H.O. address	503, Shagun Tower, 7-PU4, Vijay Nagar, A-B Road, Indore - 452010	
Number of employees	Technical: 10	Non-technical: 8

#### 2. Categories of business/service (please tick one or more boxes)

Category	Technology/Service	Please specify
Energy Efficiency (EE)		
	EE Equipment Manufacturer	Yes
	EE Material Manufacturer	
	EE Consultancy	
	EE Fabrication	
	EE Maintenance	
	EE Others	
Renewable Energy (RE)		
	RE Equipment Manufacturer	Yes
	RE Material Manufacturer	
	RE Consultancy	
	RE Operation	Yes
	RE Maintenance	
	RE Others	
Other services (Please specify)		





### 3. Technology features, projects and clients

Technology/Service*	Features and benefits (e.g. rating, energy saving, investment, payback period)	No. of implementations	Clients
Kaeser Compressors	Energy Efficient System Payback 1 – 2 years	More than 500 Nos.	Mahle, Pratibha synt Tata International Johndeere, Case New Holland, VECV
KSB Pumps Ltd	Energy Efficient Pumps on Higher Temperature & Efficiency by 80 – 87 % Payback period 1 – 2 years	More than 30 Nos.	Vardhman Pratibha Saurabh Metal Mable Engine VECV Johndeere

\* Please attach technical brochure, if available

### 4. Any other information

You can recommend us for any industry to conduct studies to save power and reduce power cost.

## Questionnaire for EE (Energy Efficiency) /RE (Renewable Energy) Service Providers

**Indore Cluster****1. General information**

Name of the firm	Technocom Marketing	
Nature of firm	Individual/ sole proprietorship/ Pvt. Limited/ Limited/ Partnership	
Year of establishment	15/05/1995	
Name of the CEO/MD	Mr. Mahesh Aggarwal	
Contact person(s) regional	Mr. Mahesh Aggarwal	Mr. Ramavatar Aggarwal
Mobile	09425055626	09826052721
Email	maheshtechocom@gmail.com	maheshtechocom@gmail.com
Mailing address		
Factory/H.O. address	A-15, Block 3, New Siyaganj, Indore (M.P)- 452006	
Number of employees	Technical: 04	Non-technical: 06

**2. Categories of business/service (please tick one or more boxes)**

Category	Technology/Service	Please specify
Energy Efficiency (EE)		
	EE Equipment Manufacturer	
	EE Material Manufacturer	
	EE Consultancy	Yes
	EE Fabrication	
	EE Maintenance	
	EE Others	Power quality analyzation
Renewable Energy (RE)		
	RE Equipment Manufacturer	
	RE Material Manufacturer	
	RE Consultancy	Yes
	RE Operation	
	RE Maintenance	
	RE Others	Solar power projects
Other services (Please specify)		

### 3. Technology features, projects and clients

Technology/Service*	Features and benefits (e.g. rating, energy saving, investment, payback period)	No. of implementations	Clients
Energy Auditing	Energy savings	02	M/s Dalmiya Cement
Walk through Energy Audit	Looking into energy saving audit	01	M/s Rajshree Forex, Pithampur
Energy Audit	Energy saving	01	M/s Rajaram Industries, Mandsaur

\* Please attach technical brochure, if available

### 4. Any other information

- We are into business of sales & support, energy auditing, thermography, protection relays & EHV/ HV/ MV/ LV switchgear, transformer, CTs & PTs.
- We are certified Energy Auditor with power quality analyzer & measuring equipment.
- We are an A class electrical contractor.
- We can provide training on electrical protection, safety & preventive – Break down maintenance.

## Questionnaire for EE (Energy Efficiency) /RE (Renewable Energy) Service Providers

**Indore Cluster****1. General information**

Name of the firm	Infinite Solution	
Nature of firm	Individual	
Year of establishment		
Name of the CEO/MD		
Contact person(s) regional	Rajdeo Sah	
Mobile	9583182981	
Email	rajdeo@infisolutions.org	
Mailing address	611 Chetak Centre, R N T Marg, Near Madhumilan square, Indore	
Factory/H.O. address		
Number of employees	Technical: Yes	Non-technical:

**2. Categories of business/service (please tick one or more boxes)**

Category	Technology/Service	Please specify
Energy Efficiency (EE)		
	EE Equipment Manufacturer	
	EE Material Manufacturer	
	EE Consultancy	Yes
	EE Fabrication	
	EE Maintenance	Yes
	EE Others	
Renewable Energy (RE)		
	RE Equipment Manufacturer	
	RE Material Manufacturer	
	RE Consultancy	Yes
	RE Operation	Yes
	RE Maintenance	Yes
	RE Others	
Other services (Please specify)		

### 3. Technology features, projects and clients

Technology/Service*	Features and benefits (e.g. rating, energy saving, investment, payback period)	No. of implementations	Clients
Services	<ul style="list-style-type: none"> <li>IT, Arc Furnace Started as manual production is going on, very shortly the furnace will be started with Auto regulation panel, DC motors and gearbox</li> <li>Associate wilk project work for Oritech Ind. Furnace of IT cap</li> </ul>		Porwal Auto
Services	Improvement of P.F for 0.96 to 0.99/ Unity Reduction of C.D for 1800 kva to 1500 kva Smooth operation of Arc furnace		Raneka Industries Ltd.
	Improvement of P.F for 0.95 to 0.99/ unity Efficient use of contract demand Energy consumption work in Air compressor/ water pump – continued		Gallard Steel Ltd
	Designing/ commissioning of all HT/ LT switch gears- Transformers, isolation, Earthing, L.T panels, APFC panel P.F. improvement work- continued		Ground Polymer New Bharat Radeath
	P.F improvement works + other works		Aditay

\* Please attach technical brochure, if available

### 4. Any other information

Interested in solar & wind power



## Questionnaire for EE (Energy Efficiency) /RE (Renewable Energy) Service Providers

**Indore Cluster****1. General information**

Name of the firm	Niche Quality Solutions Private Limited	
Nature of firm	Pvt. Limited	
Year of establishment	Oct., 2006	
Name of the CEO/MD	Mr. Yogesh Jain	
Contact person(s) regional	Yogesh Jain	
Mobile	9303205440, 8989573663	
Email	<a href="mailto:Yogesh@nicheqs.com">Yogesh@nicheqs.com</a> ; <a href="mailto:info@nicheqs.com">info@nicheqs.com</a>	
Mailing address	Banarasi Bhawan, 20 Prince Yeshwant Road, Machhi Bazaar Chouraha, INDORE - 452007 M.P., INDIA	
Factory/H.O. address	Same as above	
Number of employees	Technical: 3	Non-technical: 1

**2. Categories of business/service(please tick one or more boxes)**

Category	Technology/Service	Please specify
Energy Efficiency (EE)		
	EE Equipment Manufacturer	
	EE Material Manufacturer	
	EE Consultancy	
	EE Fabrication	
	EE Maintenance	
	EE Others	
Renewable Energy (RE)		
	RE Equipment Manufacturer	
	RE Material Manufacturer	
	RE Consultancy	
	RE Operation	
	RE Maintenance	
	RE Others	
Other services (Please specify): Management Consulting to Foundries for ISO 9001, 14001, OHSAS 18001 (Now ISO 45001)		

### 3. Technology features, projects and clients

Technology/Service *	Features and benefits (e.g. rating, energy saving, investment, payback period)	No. of implementations	Clients

\* Please attach technical brochure, if available

### 4. Any other information

We have consulted following foundries for various Business Management Systems i.e.:

1. **Porwal Auto Components Ltd.:** Vendor to Automotive OE i.e. VECV, MAN, Force; Indian Railways, Crompton Greaves, Shakti Pumps, etc.
2. **Indotech Industries Ltd.:** Vendor to Automotive OE i.e. VECV
3. **Raneka Industries Ltd.:** Railway Foundry
4. **Mittal Corp Ltd.:** All Three Units
5. **Mittal Appliances Ltd.:** Coin Blanking Division