







August 2018

# CAPACITY BUILDING OF LOCAL SERVICE PROVIDERS (LSP) UNDER GEF-UNIDO-BEE PROJECT "PROMOTING EE/RE IN SELECTED MSME CLUSTERS IN INDIA Workshop Proceedings Report-Jalandhar Hand Tool Cluster

Submitted to (Prepared under GEF-UNIDO-BEE Project)



# Bureau of Energy Efficiency

4<sup>th</sup> Floor, Sewa Bhawan, Sector – 1, R. K. Puram, New Delhi - 110066

Prepared by



# Confederation of Indian Industry CII – Sohrabji Godrej Green Business Centre

Survey No. 64, Kothaguda Post, Near HITEC City Hyderabad 500064

## Table of Contents

1.	EXECUTIVE SUMMARY	1
2.	WORKSHOP PROCEEDINGS	1
	2.1 First LSP Training Program, Jalandhar	.2
	2.2 Second LSP Training Program, Jalandhar	.5
	2.3 Third LSP Training Program, Jalandhar	.8
	2.4 Fourth LSP Training Program, Jalandhar	11
3.	CONCLSUION OF TRAINING PROGRMAMES	13
4.	ANNEXURE	15
	4.1 Scan copy of training programs Agenda	15
	4.2 Scan copy of attendance sheet for training programs	.1

# List of Tables

Table 1: Workshop summary	2
Table 2: Summary of 1st Workshop	4
Table 3: Summary of 2 <sup>nd</sup> Workshop	7
Table 4: Summary of 3 <sup>rd</sup> Workshop	9
Table 5: Summary of 4 <sup>nd</sup> Workshop	. 12

# List of Figures

Figure 1: First Training Program Augural2
Figure 2 First Training Program Augural2
Figure 3: Power Factor and Power Quality Management
Figure 4: Explaining about solar photo voltaic system for renewable energy generation
Figure 5: Second Training Program
Figure 6: Energy Efficient Furnaces, EN EFF Thermal Engineers5
Figure 7: PRS Permacel Pvt Ltd, on best insulation practices for thermal systems
Figure 8: United Systems and Automation on measuring and monitoring of furnace parameters
Figure 9: Presentation on Thermal systems6
Figure 10: Third Training Program
Figure 11: Energy Efficient Compressed Air Piping System and Advantages Of Aluminum Compressed Air
Piping8
Figure 12: Presentation on sky pipe day lighting
Figure 13: Presentation on Energy Efficient Lighting LED9
Figure 14: Presentation on Energy Efficient Pumping System9
Figure 15: Fourth Training Program11
Figure 16: Presentation on Energy Efficiency Opportunity In Electroplating Rectifiers Through IGBT 11
Figure 17: PST & CSP, GMF, Autotech India Pvt Ltd, on long life, low temperature cleaning/degreasing
technology11
Figure 18: saving opportunities and best operational practices in electroplating
Figure 19: Workshop participation13

# List of Abbreviations

AC	Alternate Current
ANSI	American National Standards Institute
BEE	Bureau of Energy Efficiency
DC	Direct Current
DPR	Detailed Project Report
EE	Energy Efficiency
GEF	Global Environmental Facility
IRR	Internal Rate of Return
kW	Kilo Watt
LSP	Local Service Provider
MSME	Micro and Medium Scale Industries
NPV	Net Present Value
OEM	Original Equipment Manufacturer
PSPCL	Punjab State Power Corporation Limited
PV	Photovoltaic
RE	Renewable Energy
TOE	Tons of Oil Equivalent
UNIDO	United Nation Development Organization
CII	Confederation of Indian Industry
IGBT	Insulated Gate Bipolar Transistor

# **1. EXECUTIVE SUMMARY**

Bureau of Energy Efficiency (BEE), a statutory body under Ministry of Power, Government of India, in collaboration with United Nations Industrial Development Organization (UNIDO) is executing a Global Environment Facility (GEF) funded national project "Promoting energy efficiency and renewable energy in selected MSME clusters in India".

The overall aim of the project is to develop and promote a market environment for introducing energy efficiency and enhanced use of renewable energy technologies in process applications in 12 selected energy-intensive MSME clusters across 5 sectors in India (with expansion to more clusters later). This will enable improvement in the productivity and competitiveness of units, as well as reduce overall carbon emissions and improve the local environment.

Key activities involved in the project are shown below

- > Detailed Mapping of LSPs in the cluster
- Preparation of 10 Bankable DPRs
- > Development of 5 customized training materials
- Conduct 4 training programs in the cluster for the capacity building of local service providers
- > Facilitation of LSPs in becoming local dealers of OEMs

The report summarized the four training programs conducted in Jalandhar Hand Tool Cluster to train the local service providers and hand tool units on Energy Efficiency/Renewable Energy. The objective of the workshop was to provide awareness on the concept of EE to fill the knowledge gaps and assist in creating an enabling environment for implementation energy efficient measures in the Cluster. In these workshop lectures and presentations were delivered by representatives of Major OEMS, Hand Tool Units, UNIDO, and CII and the proceedings of all the workshop are discussed in this report.

# **2. WORKSHOP PROCEEDINGS**

In Jalandhar Hand Tool Cluster four training programs were conducted at Jalandhar to train the local service providers and hand tool units on best operating practices, latest technologies/innovations and create awareness on importance of energy efficiency & renewable energy. These workshops also provided a platform to 170+ stakeholders to interact with each other in the cluster.

The detailed agenda for each workshop was decided based on the training need assessment survey and multiple meetings conducted with all the stakeholders in the cluster. At each event, CII introduced the workshop, followed by UNIDO providing vision and more details of the project.

This was followed by presentations from technology suppliers on energy efficient technologies and services available in the market with open Q & A sessions after each presentation. Each workshop was attended by different stakeholders such as MSMEs, consultants, association, technology suppliers and subject experts.

The following table shows the summary of workshops completed at Jalandhar Hand Tool Cluster

S. No	Dates	Workshop Theme	No of LSPs/OEMs	Total No of Participants
1	09-May-18	Electrical System and Renewable Energy		
2	12-Jun-18	Thermal System	50	170
3	26-Jun-18	Thermal System and Electrical Utilities	59	170
4	10-Jul-18	Electroplating		

#### Table 1: Workshop summary

# 2.1 First LSP Training Program, Jalandhar

The first training program was organized on 9<sup>th</sup> May 2018 at Jalandhar which had a participation of 55 people including local service providers, OEMs and representation from hand tool units. The program started with a welcome address by Mr. Sukhdev Raj, President, Jalandhar Hand Tool Association and special remarks by Mr. Ajay Goswami, Chairman CII Jalandhar Zonal Council and MD - Ajay industries Jalandhar and Mr. Suresh

Kennit, National Project Manager, UNIDO. Closing remarks was given by Mr. R A S Bhatia, President –



Figure 2 First Training Program Augural



Figure 1: First Training Program Augural

Tool Exports & Manufacturing Association, Jalandhar. During the opening session Mr. Niranjan Rao Deevela, National Technology Coordinator, UNIDO has briefed the participants on the key project elements such as technology feasibility studies for the preparation of DPR and different models for engaging the LSPs with OEMs to promote EE/RE in the cluster. The technical sessions started with presentation by Mr. Manpreet Singh, Senior Counsellor Energy Management, Confederation of Indian Industry on energy saving approach and methodology for hand tool sector. He also highlighted different approached of energy conservation. This was followed by session on energy efficient motors by Mr. Yogesh Sood, Consultant, International Copper Association India. He explained different class of motors i.e., IE3 and IE4 energy efficient motors and discussed about energy saving potential in smaller rating IE3 in case of replacement with standard motors and also the applications of new generation IE4 motors in units.



After energy efficient motors there was a session on power factor and power quality management, Mr. Shwetank Jain, MD and CEO P2 Power Solutions Pvt Ltd, has explained were importance of power factor management and harmonics mitigation to improve system reliability and saving energy.

Figure 3: Power Factor and Power Quality Management

The last technical session was on application of solar photo voltaic system for renewable energy generation. Mr. Vaibhav Singhal from Jakson Group has shared different implantation models of solar rooftop and also covered in detail about the investment and cash flow through projects and highlighted the economic returns and environment benefits possible through renewable energy interventions.



Figure 4: Explaining about solar photo voltaic system for renewable energy generation.

The following table shows the summary of 1<sup>st</sup> LSP workshop at Jalandhar

Table 2: Summary of 1st Workshop

1	<sup>st</sup> LSP Workshop , Jalandhar Hand Tool Cluster
Total no of Participants	55
No of technical sessions	5
No of LSP's attended	20
No of Hand Tool Units	35
attended	
Outcomes	<ul> <li>Increased capacity building of LSPs and other stake holders</li> <li>Facilitated B2B discussion between LSPs and OEMs</li> <li>Training for LSPs to consider EE as an important parameter in their services (mechanical fitter, technicians, welders, dealers etc.)</li> <li>Facilitated B2B meeting between LSPs and local service providers with an objective of LSPs becoming service provider for electrical distribution panels, solar PV systems.</li> <li>Training given on EE measures such as <ol> <li>Energy Efficient Electrical Systems</li> <li>Energy Efficient Motors</li> <li>Power Factor &amp; Power Quality Management</li> <li>Application of Solar PV System for Renewable Energy Generation</li> </ol> </li> <li>Supplier Unit Engagement</li> <li>Field visit of delegates to power system and controls Jalandhar</li> <li>Facilitation of Jakson Group visit to conduct site feasibility study and scope of RE rooftop solar PV system</li> <li>Discussion on importance of good quality copper material for rewinding of electrical motors</li> <li>Facilitation of CII's visit to different hand tool units for understanding present electrical systems and scope for improvements</li> <li>Introduced the significance of EE electrical system</li> <li>Introduced the different classes of EE motors and their advantages</li> <li>Introduced the significance of power factor and power quality management</li> <li>Introduction for application of solar PV system for renewable energy generation</li> </ul>

## 2.2 Second LSP Training Program, Jalandhar

The second training program was organized on 12<sup>th</sup> June 2018 at Hotel President New Court Jalandhar which had a participation of 40 people including local service providers, OEMs and representation from hand tool unit. The program started with a welcome address by Mr. Ashwini Kumar, President, Jalandhar Hand Tool Association and Partner, Victor tools Pvt Ltd Jalandhar. Thereafter Mr. Ajay Goswami, Chairman CII Jalandhar gave a brief insight on



Figure 5: Second Training Program

UNIDOs activities in Jalandhar Hand Tool Cluster. A detailed presentation was made on the energy saving opportunities in hand tool sector by Mr. Khalid Khan, Associate Counsellor, CII. During this session the participants were briefed on the key project elements such as technology feasibility studies for the preparation of DPR and different models for engaging the LSPs with OEMs to promote EE/RE in the cluster. The theme of the second was thermal system.



Figure 6: Energy Efficient Furnaces, EN EFF Thermal Engineers

First technical sessions started with presentation by Mr. Sanjay Namdeo, Senior Counsellor, CII, on best energy efficient practices Organisation. This was followed by session on energy efficient furnaces by Mr. N P Singh, EN EFF Thermal Engineers. He explained fuel fired furnaces and their auxiliaries in detail. He has also kept focus on semi-automated and fully automated furnaces. The next technical presentation was from Mr. Monish Sharma, Sales Manager IBD, PRS Permacel Pvt Ltd, on best insulation practices for thermal systems, he has also shared case studies on best insulation practices with different thermal systems.



Figure 7: PRS Permacel Pvt Ltd, on best insulation practices for thermal systems



Figure 8: United Systems and Automation on measuring and monitoring of furnace parameters

Next session started with presentation by Mr. Amandeep Singh, Technical Head, United Systems and Automation on measuring and monitoring of furnace parameters through instrumentation.

This was followed by session from Mr. Khalid Khan, Associate Counsellor, Confederation of Indian Industry on thermal systems. He has explained opportunities available for energy savings in thermal systems with the help of case studies from different industries.



Figure 9: Presentation on Thermal systems

The following table shows the summary of 2<sup>nd</sup> LSP workshop at Jalandhar

#### Table 3: Summary of 2<sup>nd</sup> Workshop

2 <sup>nd</sup> LSP Workshop , Jalandhar				
Total no of Participants	40			
No of technical sessions	6			
No of LSP's attended	14			
No of Hand Tool Units attended	26			
Outcomes	<ul> <li>Increased capacity building of LSP's and other stake holders</li> <li>Facilitated discussion between LSPs and OEMs</li> <li>Training for LSPs to consider EE as an important parameter in their services (Furnace manufacturer, insulation material provider, furnace auxiliary provider etc.)</li> <li>Training given on EE measures such as <ol> <li>Energy efficient organisation</li> <li>Energy efficient furnaces</li> <li>Best insulation practices</li> <li>Measuring and monitoring of furnaces through instrumentation</li> <li>Case studies on thermal systems</li> <li>Case studies on energy saving opportunities in hand tool sector</li> </ol> </li> <li>Supplier Unit Engagement</li> <li>Facilitated the visit of EN EFF Thermal Engineers to conduct site feasibility study and saving potential for installation of energy efficient furnaces</li> <li>Facilitated the visit of PRS Permacel Pvt Ltd to understand the scope for energy saving and material requirement for insulating existing furnaces</li> <li>Facilitated the visit of United Systems and Automation to understand the existing technology/services</li> <li>Introduced semi-automated and full automated energy efficient furnaces</li> <li>Introducet the light weight low cost insulating material for reducing surface radiation losses and their ease of operation</li> </ul>			

# 2.3 Third LSP Training Program, Jalandhar

The third training program was organized on 26<sup>th</sup> June 2018 at Hotel President New Court Jalandhar which had a participation of 37 people including local service providers and OEMs.

The program started with a welcome address by Mr. Ajay Goswami, Chairman CII Jalandhar Zonal Council and MD Ajay Industries Jalandhar and special address by Mr. Ashok, Additional SE, PSPCL

Jalandhar. Thereafter a detailed presentation was made on the project objectives, deliverables and



Figure 10: Third Training Program

present status by Mr. Khalid Khan, Associate Counsellor, and Confederation of Indian Industry. Mr. Balwinder Singh Gill, Cluster Leader, BEE gave a session on UNIDO's activities in hand tool cluster. During the opening session the participants were briefed on the key project elements such as technology feasibility studies for the preparation of DPR and different models for engaging the LSPs with OEMs to promote EE/RE in the cluster.



The technical sessions started with presentation by Mr. Joy Dewan, Country Head, Parker Legris on energy efficient compressed air piping system and advantages of Aluminum compressed air piping.

Figure 11: Energy Efficient Compressed Air Piping System and Advantages Of Aluminum Compressed Air Piping

The next session was followed by Mr. Anand Bajpai, Project Director, E-View Global Pvt Ltd, he discussed about the importance of harnessing solar light during day time along with cost saving that can achieved by switching off the artificial lights. Session on sky pipe day lighting



Figure 12: Presentation on sky pipe day lighting

The Next session by Mr. Rajiv Sharma, Regional Manager – North Emerging Markets, Wipro Lighting. He discussed various technical parameters to be consider for designing energy efficient lighting system.



Figure 13: Presentation on Energy Efficient Lighting LED

In the last session Mr. Sameer Chandra, Regional Manager sales, Grundfos India on energy efficient pumps and best operating practices on pumping system.

Figure 14: Presentation on Energy Efficient Pumping System

The following table shows the summary of 3<sup>rd</sup> LSP workshop at Jalandhar.

#### Table 4: Summary of 3rd Workshop

3 <sup>rd</sup> LSP Workshop, Jalandhar			
Total no of Participants	37		
No of technical sessions	5		
No of LSP's attended	14		
No of Hand Tool Units	27		
attended			
Outcomes	Increased capacity building of LSPs and other stake holders		
	<ul> <li>Facilitated B2B discussion between LSPs and OEMs</li> </ul>		
	• Training for LSPs to consider EE as an important parameter in their		
	services (mechanical fitter, technicians, welders, dealers etc.)		
	• Facilitated B2B meeting between LSPs and OEMs with an objective of		
	LSPs becoming service provider for the bigger OEM		
	<ul> <li>Training given on EE measures such as</li> </ul>		
	1. Energy Efficient Thermal Systems		
	2. Energy efficient compressed air piping system		
	3. Sky pipe day lighting – a healthy way of energy conservation		
	4. Energy efficient lighting system		
	5. Energy efficient pumping system		
	Supplier Unit Engagement		

<ul> <li>Facilitation of Parker Legris visit to different units for installation of energy efficient piping system</li> </ul>	3 <sup>rd</sup> LSP Workshop , Jalandhar			
<ul> <li>Facilitated the visit of E-view Global to understand the feasibility of Solar light pipe in the units</li> <li>Facilitated the visit of Wipro Lighting to understand the existing lighting practices adopted by the units and scope for upgradation</li> <li>Facilitation of Grundfos visit to 1 units for assessment of furnace cooling water pumps</li> <li>Introduction of new technology/services</li> <li>Introduced aluminum compressed air piping system</li> <li>Introduced the concept of solar Light pipe</li> <li>Introduced energy efficient pumping system</li> </ul>		<ul> <li>Facilitation of Parker Legris visit to different units for installation of energy efficient piping system</li> <li>Facilitated the visit of E-view Global to understand the feasibility of Solar light pipe in the units</li> <li>Facilitated the visit of Wipro Lighting to understand the existing lighting practices adopted by the units and scope for upgradation</li> <li>Facilitation of Grundfos visit to 1 units for assessment of furnace cooling water pumps</li> <li>Introduction of new technology/services</li> <li>Introduced aluminum compressed air piping system</li> <li>Introduces LED lighting system</li> <li>Introduced energy efficient numping system</li> </ul>		

## 2.4 Fourth LSP Training Program, Jalandhar

The Fourth training program was organized on 10<sup>th</sup> July 2018 at hotel President New Court Jalandhar which had a participation of 38 people including local service providers, OEMs and representation from Hand Tool Units. The program started with a welcome address by Mr. Ajay Goswami, Chairman CII Jalandhar Zonal Council and MD Ajay Industries Jalandhar. Thereafter a detailed brief on the project objectives, deliverables and project journey till date by Mr. Khalid Khan, Associate Counsellor,



Figure 15: Fourth Training Program

Confederation of Indian Industry.



The theme of the fourth Program was Electroplating, as electroplating plays are important role in the manufacturing of hand tool. First technical sessions started with presentation on energy efficiency opportunity in electroplating rectifiers through IGBT technology by Mr. Rajeev Sharma, Regional Head North, Kraft Powercon India Pvt Ltd, Delhi. He discussed in details about the scope of new IGBT technology.

Figure 16: Presentation on Energy Efficiency Opportunity In Electroplating Rectifiers Through IGBT

This was followed by Mr. Shahab Shakeel, Marketing Manager – PST & CSP, GMF, Autotech India Pvt Ltd, on long life, low temperature cleaning/degreasing technology in electroplating and discussed about the energy saving possible for rinsing application through this low temperature cleaners.



Figure 17: PST & CSP, GMF, Autotech India Pvt Ltd, on long life, low temperature cleaning/degreasing technology



The next session was from Confederation of Indian Industry, Mr. Khalid Khan has shared saving opportunities and best operational practices in electroplating. The workshop concluded with closing remarks by Mr. Ajay Goswami, Chairman CII Jalandhar Zonal Council and MD Ajay Industries Jalandhar.

Figure 18: saving opportunities and best operational practices in electroplating

Following table shows the summary of 4<sup>nd</sup> LSP workshop at Jalandhar.

#### Table 5: Summary of 4<sup>nd</sup> Workshop

4 <sup>th</sup> LSP Workshop , Jalandhar			
Total no of Participants	38		
No of technical sessions	essions 5		
No of LSP's attended	11		
No of Hand Tool Units attended	27		
Outcomes	<ul> <li>Increased capacity building of LSP's and other stake holders</li> <li>Facilitated discussion between LSPs and OEMs</li> <li>Training for LSPs to consider EE as an important parameter in their services (Electroplating)</li> <li>Training given on EE measures such as <ol> <li>Energy efficient compressed air system</li> <li>Energy efficiency opportunity in Electroplating Rectifiers through IGBT Technology</li> <li>Long life, low temperature cleaning/ /degreasing technology in electroplating</li> </ol> </li> <li>Saving opportunity and best practices in electroplating</li> <li>Supplier Unit Engagement</li> <li>Facilitated the visit of Kraft Powercon India Pvt Ltd to conduct site feasibility study and scope of IGBT technology</li> <li>Facilitated the visit of Autotech India Pvt Ltd for understanding the type of process involved in electroplating process of hand tool sector</li> <li>Introduction of new technology/services</li> <li>IGBT Rectifier technology</li> </ul>		

# 3. CONCLUSION OF TRAINING PROGRAMME

The four training programs organized in Jalandhar Hand Tool Cluster helped in the capacity building of all the stake holders in the cluster which include service providers, OEMs and hand tool units. All the workshops had several discussions among the participants focusing on various energy efficient technologies, various technical challenges faced in implementing a new technology in the cluster and also on availability of local service providers for any technology.



The graph below shows the workshop participation in Jalandhar.



Following are some of the key highlights of the workshops:-

- 170 stakeholders trained through four workshops which include 111 people from hand tool units and 59 LSPs associated with Jalandhar hand tool cluster
  - LSP includes local fabricators and technicians associated with hand tool units, solar consultants, dealers for pumps, furnace, burner, induction furnace DG set suppliers, electrical system service providers, pump and compressor dealers etc.
- 21 different technical topics covered during the four training programs in which several new technologies like EE furnace , pumps, compressors, motors, solar PV system, compressed air piping, day lighting, insulating material, monitoring instruments, IGBT based rectifiers, low temperature cleaners for electroplating etc. were introduced to the cluster

- Training given by major OEMs such as Grundfos India, P2 power Solutions Pvt Ltd, Jakson group, EN EFF Thermal Engineers, PRS Permacel Pvt Ltd, Wipro Lighting, Parker Legris, E-View global Pvt Ltd, kraft Powercon India Pvt Ltd, Autotech India Pvt Ltd to the local service providers associated with the hand tool cluster
- Facilitated B2B meeting between OEMs and LSPs with an objective of LSP becoming local service provider.

# 4. ANNEXURE

## 4.1 Scan copy of training programs Agenda









### 1<sup>st</sup> Workshop

#### on

## Capacity Building of Local Service Providers at Jalandhar, under GEF-UNIDO-BEE project, "Promoting Energy Efficiency and Renewable Energy in selected MSME clusters in India"

Wednesday, 9 May 2018: Jalandhar

#### Wednesday, 9 May 2018

0900 – 0930 hrs	Registration/ Networking Tea & Coffee	
0930 – 1010 hrs	Inaugural Session	
0930 – 0935 hrs	Welcome Address	Mr. Sukhdev Raj
		Managing Director
		Victor Tools Pvt Ltd, Jalandhar &
		President Jalandhar Hand Tool Association
0935 – 0945 hrs	About "Promoting Energy Efficiency and	Mr. Niranjan Rao Deevela
	Renewable Energy in selected MSME clusters	National Technology Coordinator
	in India"	UNIDO
0945 – 0955 hrs	Special Address	Mr. Suresh Kennit
		National Project Manager
		UNIDO
0955 – 1005 hrs	Special Address	Mr. Ajay Goswami
		Chairman CII Jalandhar Zonal Council &
		Managing Director - Ajay Industries
1005 – 1010 hrs	Closing Remarks	Mr. R A S Bhatia
		President
		Tool Exports & Manufacturing Association
1010 – 1300 hrs	Technical Session I	
1010 – 1025 hrs	Energy Saving Approach & Methodology	Mr. Manpreet Singh
		Senior Counsellor – Energy Management
		CII - Centre of Excellence for Competitiveness
1025 – 1130 hrs	Energy Efficient Electrical System	Mr. Manpreet Singh
		Senior Counsellor – Energy Management
		CII - Centre of Excellence for Competitiveness
1130 – 1200 hrs	Energy Efficient Motor	Mr. Yogesh Sood
		Consultant
		International Copper Association India
1200 – 1230 hrs	Power Factor & Power Quality Management	Mr. Shwetank Jain
		Managing Director & CEO
		P2 Power Solutions Pvt Ltd
1230 – 1300 hrs	Application Solar PV System for Renewable	Mr Vaibhav Singhal
	Energy Generation	Jakson Group
1300 – 1315 hrs	Q & A and Closing Remarks	
1315 – 1415 hrs	Networking Lunch	

#### Technical Session II

1500 – 1630 hrs Field Visit

Power System & Controls Jalandhar









## 2<sup>nd</sup> Workshop

#### on

## Capacity Building of Local Service Providers at Jalandhar, under GEF-UNIDO-BEE project, "Promoting Energy Efficiency and Renewable Energy in selected MSME clusters in India"

Tuesday, 12 June 2018: Hotel President New Court Jalandhar

### Tuesday, 12 June 2018

0900 - 0930 hrs	Registration/ Networking Tea & Coffee	
0930-1000 hrs	Inaugural Session	
0930 - 0935 hrs	Welcome Address	Mr. Ashwini Kumar
		Partner
		Victor Tools Pvt Ltd, Jalandhar &
		President Jalandhar Hand Tool Association
0935 - 0945 hrs	Case Study Presentation from MSME Industry	Mr. Ajay Goswami
		Chairman CII Jalandhar Zonal Council &
		Managing Director - Ajay Industries
		Mr Khalid Khan
		Associate Counsellor
		Confederation of Indian Industry
0945 - 0955 hrs	Sharing of experience on UNIDO visit to	Mr. Praveen Sharma
	Chennai on "Best operating practices in	Electrical Engineer
	Energy Management for MSMEs"	Anant Tools
0955 - 1000 hrs	Closing Remarks	Mr. Ashwini Kumar
1000 - 1300 hrs	Technical Session I	
1000 - 1030 hrs	CII Presentation on Energy Efficient	Mr Sanjay Namdeo
	Organization	Senior Counsellor
		Confederation of Indian Industry
1030 - 1100 hrs	Energy Efficient Furnaces	Mr. N P Singh
		EN EFF Thermal Engineers
1100 - 1130 hrs	Best Insulation practices	Mr Monish Sharma
		Sales Manager IBD
		PRS Permacel Private Limited
1130 - 1200 hrs	Measuring & Monitoring of Furnaces	Mr Amandeep Singh
	Parameters through instrumentation	Head Technical
		United Systems & Automation
1200 - 1230 hrs	Case Study Presentations on Thermal Systems	Mr Khalid Khan
		Associate Counsellor
		Confederation of Indian Industry
1230 - 1300 hrs	Q & A and Closing Remarks	
1300 - 1400 hrs	Networking Lunch	
1500 - 1630 hrs	Live Demonstration & Training on Energy Efficie	ent Equipments









### 3<sup>nd</sup>Workshop

on

## Capacity Building of Local Service Providers at Jalandhar, under GEF-UNIDO-BEE project, "Promoting Energy Efficiency and Renewable Energy in Selected MSME Clusters in India"

Tuesday, 26 June 2018: Hotel President New Court Jalandhar

#### Tuesday, 26 June 2018

0930 – 1000hrs	Registration/ Networking Tea & Coffee	
1000 – 1005 hrs	Welcome Address	Mr Ajay Goswami
		Managing Director
		Ajay Industries Limited &
		Chairman
		CII- Jalandhar Zonal Council
1005 – 1015 hrs	Special Address	Mr Ashok
		Additional SE, PSPCL
		Jalandhar
1015 – 1300 hrs	Technical Session I	
1015 – 1100hrs	Furnaces & Thermal System	Mr Khalid Khan
		Associate Counsellor – Energy Management
		Confederation of Indian Industry
		Chandigarh
1100 – 1130hrs	Energy Efficient Compressed air Piping system	Mr. Joy Dewan
		Country Head
		Parker Legris
1130 – 1200 hrs	Skypipe Day lighting – A healthy way of	Mr. Anand Bajpai
	Energy Conservation	Project Director
		E-View Global Pvt Ltd
1200 – 1230 hrs	Energy Efficient Lighting system	Mr. Rajiv Sharma
		Regional Manager – North Emerging markets,
		Wipro Lighting
1230 – 1300 hrs	Energy Efficient Pumping system	Mr. Sameer Chandra
		Regional Manager Sales
		Grundfoss Pumps
1300 – 1315hrs	Q & A and Closing Remarks	
1315 – 1415hrs	Networking Lunch	
1500 – 1630 hrs	Live Demonstration & Training on Energy Efficie	ent Equipments









### 4<sup>th</sup> Workshop

on

# Capacity Building of Local Service Providers at Jalandhar, under GEF-UNIDO-BEE project, "Promoting Energy Efficiency and Renewable Energy in selected MSME clusters in India"

Tuesday, 10 July 2018: Hotel President New Court Jalandhar

#### Tuesday, 10 July 2018

0930 – 1000hrs	Registration/ Networking Tea & Coffee	
1000 – 1005 hrs	Welcome Address	Mr Ajay Goswami
		Managing Director
		Ajay Industries Limited &
		Chairman
		CII- Jalandhar Zonal Council
1015 – 1300 hrs	Technical Session I	
1015 – 1100hrs	Energy Efficient Compressed Air System	Mr Khalid Khan
		Associate Counsellor – Energy Management
		Confederation of Indian Industry
		Chandigarh
1100 – 1130hrs	Energy Efficiency Opportunity in Electroplating	Mr Rajeev Sharma
	Rectifiers Through IGBT Technology	Regional Head-North (Marketing)
		KraftPowercon India P. Limited, Delhi
1130 – 1200 hrs	Long Life, Low temperature	Mr. Shahab Shakeel
	Cleaning/Degreasing Technology in	Marketing Manager - PST & CSP, GMF
	Electroplating	Atotech India Private Limited
1200 – 1230 hrs	Energy Efficiency in Furnaces & Thermal Systems	Mr Khalid Khan
		Associate Counsellor – Energy Management
		Confederation of Indian Industry
		Chandigarh
1230 – 1300 hrs	Saving opportunities & best practices in	Mr Khalid Khan
	Electroplating; Case Study Presentation	Associate Counsellor – Energy Management
		Confederation of Indian Industry
		Chandigarh
1300 – 1315hrs	Q & A and Closing Remarks	
1315 – 1415hrs	Networking Lunch	

# 4.2 Scan copy of attendance sheet for training programs

	Er	nergy in selected MSME clusters in Ind 09 May 2018, Jalandhar	ia"	
5.No.	Company Name	Delegate Name	Designation	Signature 09-05-2018
1	Ajay Industries	Mr. Gurinder	Manapel	Agos
2	Ajay Industries	Sukhder Singh .	Electrical Engy.	Q:
3	Bajaj Electrical Industries	Mr. Siddharth Sawhney		
4	Bhatia Electric Stores Private Limited	Guneet Pal singh Bhoutin		SmBlatig
5	Bhatia Electric Stores Private Limited			
6	Bocki Compressor	Gurroct Righ		Corgh.
7	Bocki Compressor			
8	EM & EFF Thermal Engineers	Mr. N.P. Singh		1
9	Forgings And Chemicals Industries	Mr. Harish Purohit	G-14	425

S.No.	Company Name	Delegate Name	Designation	Signature 09-05-2018
10	Forgings And Chemicals Industries	Mr. Tirath Brar	Q.A Heal.	168
11	Forgings And Chemicals Industries	Mr. Majer Singh	Q. A. Head.	T
12	Forgings And Chemicals Industries	Mr. Munish Guglani	NPD Erglweek.	and
13	Forgings And Chemicals Industries	Mr. Manjit		
14	GDPA Fastner	Mr. S.K Ghosh		
15	GDPA Fastner			
16	Gripwell Tools Industries	Mr. Dogra	GM(QC)	Dory
17	Gripwell Tools Industries	NAROTAM KUMAR	Anyth Enger	Defalare
18	HR International	KC Sharme Mr. Avtar Singh	AtM.	H2
19	HR International	Amarfat.	Project Myr	-15
20	J S Engineers	Mr. Puneet Syal		
21 .	J S Engineers			

S.No.	Company Name	Delegate Name	Designation	Signature 09-05-2018
22	JMP Industries	Mr. Hardeep Singh	Maint incharge	Bull
23	JMP Industries			
24	Kumra Sons			
25	P2 Power Solutions Private Limited	ARNAS MITRA Mr. Shwetank Jain	Managing Director & CEO	A3
26	P2 Power Solutions Private Limited	Mr. Akash Mishra	Associate	Manglo
27	Power System and Control	Mr. Ajay Mahajan		
28	Power System and Control	the second s		
29	Rattan Hammers			
30	Rockwell Automation		- East	and a
31	The Jakson Group	Mr. Vikas Arya + )	GM – Marketing & Sales	Amp
32	Titan Tools Industries			
33	Unison Engineering Industries		1 Salara	

S.No.	Company Name	Delegate Name	Designation	Signature 09-05-2018
34	Unison Engineering Industries			
35	Varendra Tools	Yogesh Sharma	Electrical Enginer	traina
36	Varendra Tools			
37	Vishal Tools and Forging	Mr. Ramnik Singh	R & D Manager	frz~
38	Vishal Tools and Forging	Mr Surinder Kumar	Quality Manager	Ader.
39	, Carsultart	Mr. Dinesh Ahuja	dertried byg	Sm
40		Mr. Baljit Singh Ubhi	Professor	2 mari-
41	Advena Engg	Sacle Hand She	Martine meh	They
42	cut wel sigs Weste	Amist Rol Smi	Partond	vouft.
43	Junefay forgrug.	Vinch Kapur	R& D Manuf	lif
44	Sterliz Cost & Forthe	Bedwast Sign	Sty matry	A
45	Vinod shacing	Uprod sha	Partna	Lihaan

S.No.	Company Name	Delegate Name	Designation	Signature 09-05-2018
46	UNIDO-BEE	B.S.GILL	Cluster Leader Hand Tents Jalantha	L
47	SURINDER SING	SURINDIE R	PARTAIR HUMMA TOOL	s
48	Jagmeter Serviction	"Jaginder Song	Engineer C Scintee	St.
49	ADAY GOSWAMI	GOSLI APr+1	The second second	An
50	Annale & Con	Amler	Partmen	Any
51	Stor Metal Tudustiins	Mr. Vorinder Mahendus	Prefector	22
52	SM International	Currel Sigh Saini	Manger.	the second
53	Vlekan Tools	Osní Mohan	Porp.	Mub-
54	Yogerh Lood (ICAI)	Yogel End	Constant	CrS.
55	ACTIVE TOOLS	NARINDER SING	Mip	Aus
56	JATIN SHOPL	JATIN	NID	ŧ,
57		Kishon palley	Enersy Auditor	gers

58	Company Name	Delegate Name	Designation	Signature 09-05-2018
59	Jakson Engineers Ltd.	Ankush Sharma	Asst. Maneyer	Frid.
<b>`60</b>	SHANT W	SHANT IL	WV	h
61	nemes ispate R.v.r.l.t	Neury'sa	Supervision	nter
62	nembo ispate P.v.t	Indersect	Suprensor	Inder
63	Hence liket R.U.t	Kuldee bSigl	Supropisos	Kulded Sigt
64	tramco ispat by. ctol	Master gipta	Superviser	Smanthea
65	Titan Tools Jud.	VARINDER KUMAR	Maskeling	Verut
66	Heer Sugg works.	Vijey Kmor	Manafer	My
67	Heel Brother and	Kolan heer	Manager	Kola
68	EN.EFF	N.P.S.p	m. D.	0
69	Vorindele Tools (P/C7D.	Sarsjit Suigh	M.9	ly
70	EN-EFF	Lovenhade Site	Employee	an

S.No.	Company Name	Delegate Name	Designation	Signature 09-05-2018
71	JUNEJA FORGINGS	SARABJIT	PARTNER	test
72	Hima she Kaustik ZIEMENA	Himanshu Kaushin		He
73	UNIDO	Mr. Suresh	National Propert	
74	UNIDO	Mr. Nirangal	Mahmel Technolyo Consider.	
75	Victor Forging	Mr. Ashwani Kum	Portner	
76	Euro forge	Visander		
77	Juneja Forginss	Simeryil.	Intern	8
78	Jawan Share.		Marine Provensi in	~
79	P.N Automation	Perwen Stere	Jestmen	D.
80	P. N Awonata	prose Rem.	Postner	Q.
81	C-91	Khalif Khn	Ass. cansu	( )ds
82	C 11	kistore polley	Engineer	Blabley.

Capac	Confederation of Indian Industry ity Building of Local Service Providers	at Jalandhar, under GEF-UNIDO-BEE pr Energy in selected MSME clusters in 12 June 2018, Jalandhar	roject, "Promoting Energy Efficien	of Excellence apetitiveness for SMEs acy and Renewable
S.No.	Company Name	Attendance Sheet Delegate Name	Designation	Signature
1	Ajay Industries	A.K.Gosummi	, i P	12-06-2018 fr
2	Ajay Industries	Gunder El	MR	le
3	Anant Tools	Mr Praveen Sharma	Electrical Engineer	Q
4	Anant Tools	Pawan Sharm.		Ren
5 1	End & EFF Thermal Engineers	Mr. N.P. Singh	Loventude.	Zatt
6 1	EN& EFF Thermal Engineers	hovenight		Que
7 E	Euromax International	Mr Sanjay Singh Yadav	Senior Engineer	by
8 E	Euromax International	Mr Dharmendra Das		

S.No.	Company Name	Delegate Name	Designation	Signature 12-06-2018
10	Forgings And Chemicals Industries	Mr Major Singh	Quality Engg	1 the
11	Forgings And Chemicals Industries	Mr Siddhant Aggarwal	Executive	Suddheat
12	Forgings And Chemicals Industries	Mr Manish Gilani	Purchase officer	
13	Gripwell Tools Industries	Maj. J.S Ghuman	General Manager	
14	Gripwell Tools Industries	Col. Dogra	General Manager	98rg
15	Gripwell Tools Industries	Mr. RC Datta	General Manager	
16	Gripwell Tools Industries	Col Swaran Singh	General Manager	augh
17	Gripwell Tools Industries	Sub. KK Sharma	Forging Section	Arund
18	Gripwell Tools Industries	Mr. Davinder Singh	Electrical Section	Das
19	HR International	Mr. Avtar Singh	MANAGER	· Jsigh
20	HR International	ROHIT	agins g. p.	482
21	Ingersoll Rand	Maninder Singh	Assistant Manager- Air Assessment	100

S.No.	Company Name	Delegate Name	Designation	Signature 12-06-2018
22	Ingersoll Rand	Ishu Sharma	Manager-Sales	
23	Ingersoll Rand	Kamal Sharma	Manager- Sales	Acaul.
24	JMP Industries	Mr. Hardeep Singh		Hall
25	PRS Permacel Private Limited	Mr Monish Sharma	Jales Mgr.	M.
26	PRS Permacel Private Limited	Mr Rajneesh	Zonal mgo	Qu
27	Titan Tools Industries			
28	United Systems & Automation	Mr Amandeep Singh	Head Techinical	Augue 1
29	United Systems & Automation	safiil	E-29	setil.
30	Varindera Tools	Sunde Or		.}
31	Victor Tools Put Ltd	DILBag Sirgh	1/C maintanance	Dillagen
32	Victor Fors 9 Mg	Bandhan Marie	Superviser datad	Ronalde Mar.
33	Vishal Tools and Forging	Mr Surinder Kumar	Quality Manager	Ada

S.No.	Company Name	Company Name Delegate Name		Signature 12-06-2018
34	Vishal Tools and Forging			
35	Consultant	Mr. Baljit Singh Ubhi	Professor	8.5 White
36	Gripwell Tools Industrie	Mr. Satnam Singh	Eccloral	-
37	Gripuell Tools Industries	Mr. Harpal Singh	Section Inchange	thel
38	Euromax International	Mr Sarabh ka Tyerej	Rlanctrolan	dig
39	AJay Industrien.	Suichder Sigh.	Electrical Hor	ZI:
40	GEF-UNIDO-BEE(Prograd)	B.S.GILL	cluster Lader	'l
41	VICTOR Forgings	Astish	Director	A
42	Rava Eugg Confo	Vinod Sk ale	Partin	Schalter
43	HUMMA TOOL	Schude Sy		fr
44	A-G. Stel Coh	Amalesy	Part-ne.	ASI
45	STAR METAL lanustress.	s. Ludmore S. Some.		10

S.No.	Company Name	Delegate Name	Designation	Signature 12-06-2018
46	Sim- MiGRNASIONAC	Sonjeon.	Porson .	Otr.
47	OAPERAY FORGING	Neary Ke.	Jucliange	Loff
48	OAHISAY forging	G. H. Harrish	6.17	Met
49	G.J. Suith + 1 DEA	Prop		A.
50	Vinele Kapon 2	Dut	Manafer	Mat
51	C\$1	Khalid them.	Ass. consile.	m
52	< 11	Kishore Palley	Engineer	Party.
53	confederation of Indian Industry	Vivele Choucharsi	Engineers Energy Management	@hmi
54	0		0	
55				
56		Margan Provensi		
57				

Capa	Confederation of Indian Industry Confederation of Indian Industry Capacity Building of Local Service Providers at Nagaur, Under GEF-UNIDO-BEE Project, "Promoting Energy Efficiency and Renewable Energy in selected MSME Clusters in India" 26 June 2018, Jalandhar Attendance Sheet						
S.No.	Company Name	Delegato Name	Designation	Signature 26-06-2018			
1	WIPRO LIGHTING CHD	GAURAN DHIMAN	Ene cutive - Lighting substrands	Com			
2		PRASHANT PATIL	SALES	Res			
3	NHIDO-BEE-GEF	B.S.GILL	CLUSTER LEADER	Ľ			
4	Josom Erigs	Joya Snigh	M. an charge	A			
5	S.M Internalcoul	Ragin	ELE	Res-			
6	Stor martial	Rom Klassesh ligh	Dectrician	REA			
7	AG Sleep coop.	Sita Ram sah	mechanical	sitg Ram			
8	Cut well Tooks	Gauran	Plamber	Gauren			

S.No.	Company Name	Delegate Name	Designation	Signature 26-06-2018
9	Tallow forgant	Sagre	medund	
10	Anant. Forta	Kuldeet Sint -	mele	Kul
11	Grandfos Romps India Put	Samir Chandra	Area Monager (North)	Soman
12	Vishal Torts Ee forging Pvi-Ltd	Surinder Kumas	Head of Depir	Adre
13	Wet no Enderfrist und.	Antos Melte.	AST	A
14	M Forgeny & chemical and	Mayor Singh	Q.A. Engy.	FF
15	~ 0	Joy Dewan		F
16	Forging & Chemical Ind	Siddhort Aggornal	Enemidine ,	fidstheat
17	Anut tool (G) Utel.	Pawan Shun	Ere Eignien	De
18	And too, R, Ud.	Mase ferr	Sloc Sigtup	R
19	Mr HTANDA Pueto. OAYKAY Forgy	Mr. Harrish Publit Mr. T. Bra	- Plant Head. Enginer	WH 118

S.No.	Company Name	Delegate Name	Designation	Signature 26-06-2018
20	OAYKay Tools	Homish Runshit	Plant Heard	Him
21	PSPCL	Er-ASHOK KUNAR	Sn. Xee DS East Dins.	flerence 18
22	PSPCL	Er. Nauele Rou	SDO Engl. Aseo Jal.	Jr 2616
23	AJAY My CO	A-K.GOSNAMI	Parta	An
24	Amondoop Singh Sandhu	Grywell tools Ind		
25	MARA TONS GRIPWELLTONI MARAN TONS GRIPWELL TONI	Major JSGhurman	Gm (P)	Crif.
26	- do-	MY RC DUTTA	GM(P)	12 25 6/18
27	-do-	LT COI SWARANSIN	164 GM (ADM)	and
28	for Ajay Industrius	framod los sigh	Hos(ebety	27
29	A)ay infustion	Deefalk landay	Mos(OA)	A
30	Dined Alig F.M.I	Dinest. Alige	Electrical Engg	A A
31	Deliet Stath	Dalfeet Silyh	Per Mgr	82

S.No.	Company Name	Delegate Name	Designation	Signature 26-06-2018
32	Stas metal lut:	Shivan Pravery	SUPERLA GER	The voin fandrey
33	Bedi Industrial Tools Gr	b. Balject Singh	Manager	Beli 18l
34	HUMMA TOOLS	Surmder Suz	Partener	Sules for
35	Anand Balpai	Anand Bayper	Bool Director	Abori
36	contract laystate of Hend	Asheveni Jeune	70-2	89
37	Central Institute at Mand Tools Sul.	Makesh Drat	Incharge forzing.	tas
38	carendati & tolion.	Achalial Khan.	Au. Censler.	Ma
39	CII, chandigarh	Kishore Palley.	Egineer	Palley
40	c", chandigash	Ponkaj Plote	Energy Engineer	Shote
41	confederation of Indian Industry	vivele choudhows	Engineer	Ahmen'
42				
43				

Capac	Confederation of Indian Industry Confederation of Indian Industry Capacity Building of Local Service Providers at Jalandhar, under GEF-UNIDO-BEE project, "Promoting Energy Efficiency and Renewable Energy in selected MSME clusters in India" 10 July 2018, Jalandhar						
S.No.	Delegate Name	Company Name	Designation	Mobile No	Email Id	Signature 10-07-2018	
٦	Pasdeed Sinch	M/S Junoja Forgings	H.O.P. Class chloting	95920-43937		Singh	
2	Amondap Singh	M/S GAUDWell Tool	Traine	9872153277	Ottopor.edu	Ame	
3	B.S.GILL	UHIDO	CLUSTER LEADER	991561990	begill 1957 @ yabod-in	L	
4	Downder Smith	MIS ariphel Tall ind	Electrial see	01872902266	Minken Sami 5737	by	
5	R.C. DATTA	GRIPDELL TOOLS ( H.P.	COM UNIT-2	9779204104	GRIMALLONITZ	13	
6	Mayor JSGhuman	du	Gm(P)UNT-1	981457285		Turid .	
7	blear AS sooga feby	-bu-	Gm (8 5)	99528784)	- 2	ORY	
8	Rai's Rai	- 10	EpH Inch	73558519	HI UNHII.	- eff	
9	Nazer Snight.	Forging & change	G.A. Engg	9914102384	Wn. Fridanting.a.	the	

						and the second
S.No.	Delegate Name	Company Name	Designation	Mobile No	Email Id	Signature 10-07-2018
10	Gawav Rathi	Kraft Powercon	CS-PQA- Support.	9654390567.	gamarralli 840	Cantar.
11	Sandell singh	KraftPowercon	Engineer	9717226101	ssausainsinah Qamaid com	Quent
12	Sukhder Singh	A) By Industries	Slot sog	98781579	88	H.
13	Josh Pel	A) Agindustries	Todioour nehance	9592100397	-	ł
14	Rajear Sharma.	Kraft Domercom	Lestonel Hen	97177443	3)	A
15	Proven & singhe	Nictor Roging	Elf-Incharge	94-57190826		Ca
16	Defatsul	- Der	Pur Mgr	8873620 M	fuchance underfording	de-
17	A-K. Gosway	AJAY MA LO	v.P.	9814060295	ajoye ajay ind in	Au
18	Jodh Sigh	Atotech	Sr. Area Maraje	9875366225	Jodh Lyl & altoria	n k
19	Chahab Sharrey	Aloien	Marsey nouge	9750 Lisous	Shakas shere after	6-
20	ANTAL SINGH	H.L. Duterrodianal	MALAGELO.A	977729451)	An bordingh 2 Det Comi J. Con	Ingh
21	ROHIT	.,	Erguer a. A	1988357994	robit. Styrt at eges lice	fste_

S.No.	Delegate Name	Company Name	Designation	Mobile No	Email Id	Signature 10-07-2018
22	Amant Tooth Ul Day	SAGAR		85288880590	-	Angor2
23	Basser Touls Carpor	sita Raw sal		9878625320		Sita Kam
24	Gaggens Enge	Joga Sril		978053635	ď	A
25	Rara Engs.	Ram Narresh Brigh	Sect.	QS419473K		Red
26	Star Mclait.	Ganar	Plumber	6280773702		Gunar
27	Humme Fach	1201 nume		95010023/2		Baja
28	S. M. mlén nalis	Kuldeek SmL		98786		- All
29	Pawan Share.	Aust Jeans. (1) feel	Tericut Adrism	9877891582 98144-91694		A
30	Hase Ron	And freed Preps	Tertruck Advigen	987794245		(F)
31	Twath Brun	DAYKAY forgui	On Hed	88720-4200	-f	- 1/5
32	Mr. Harsh Purshits	do	G. m	8872000581		Not .
33	Mr. Sednan Slugh	do	MICHeef	68 700 2233	Satram. vicky 150	Btogura

5.No.	Delegate Name	Company Name	Designation	Mobile No	Email Id	Signature 10-07-1018
34	G.J. Singh	Delta Energy Notine	Prop	981401414	denguise the con.	4Re
35	Rajprath Singh	Delta Emergy naturo	the sul	9988603012	Rajbralh 240 gmail com	Raffield
36	Salinder Kuma	vished Torle 20 Paging	4.0.A.	978/27179	pyaleurindetu Ognar	m Ada
37	Varindor Singh	Kalsi Electrials	Astt. Eng.	7814136259	Chine in	But
38	Pankaj Kumar	Kalsi Metal works	Ast Chedd	947863953	Pontaj sys 1 2 gon	don forks
39	Khoid the.	capitation Allin	Sere Coursel	828384114	eladol the Cailly	a
40						
41						
42			1000			
43						
44						
45						