



Centre of Excellence
for Competitiveness for SMEs

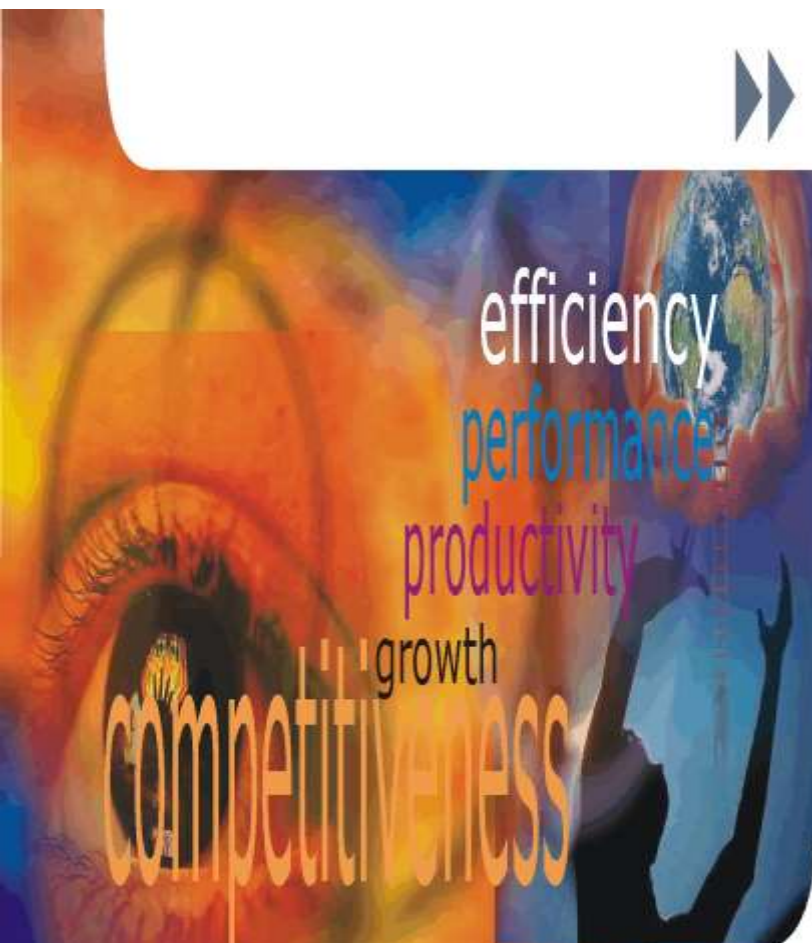


Confederation of Indian Industry



CII – Centre of Excellence for Competitiveness for SMEs

(An ISO 9001:2008 Certified Center)



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CII Energy Audit & Management

- CII Energy Services:
 - CII – Godrej Green Business Centre, Hyderabad
 - CII – Centre of Excellence for Competitiveness for SMEs, Chandigarh
 - CII – EMC, Chennai
 - CII – EMC, Ahmadabad
 - More than 100 experts involved in energy services
 - Team of Accredited & Certified Energy Auditors

CII Energy Audit & Management

- Energy Services
 - Detailed Energy Audit
 - Mandatory Energy Audit
 - Training Programs on Energy
 - Developing road map/benchmarking on Energy Consumption
 - Missions/workshops/seminars on energy
 - Audited more than 1500 units

CII Energy Audit & Management

- Major Initiatives & Projects
 - World Class Energy Efficiency in Power Plant
 - World Class Energy Efficiency in Sugar, Paper & Cement Sectors
 - IREDA Project for Energy Efficiency in Textile sector
 - Energy Audit of major DCs sector under PAT Scheme
 - BEE – SME program for Energy Efficiency in SME sectors
 - BEE – GEF – WB Faridabad Cluster
 - GEF – UNIDO – BEE Project for Promoting EE & RE in selected MSME Cluster (Jalandhar and Nagaur)
 - Developed Manual on Energy Efficiency at Design Stage

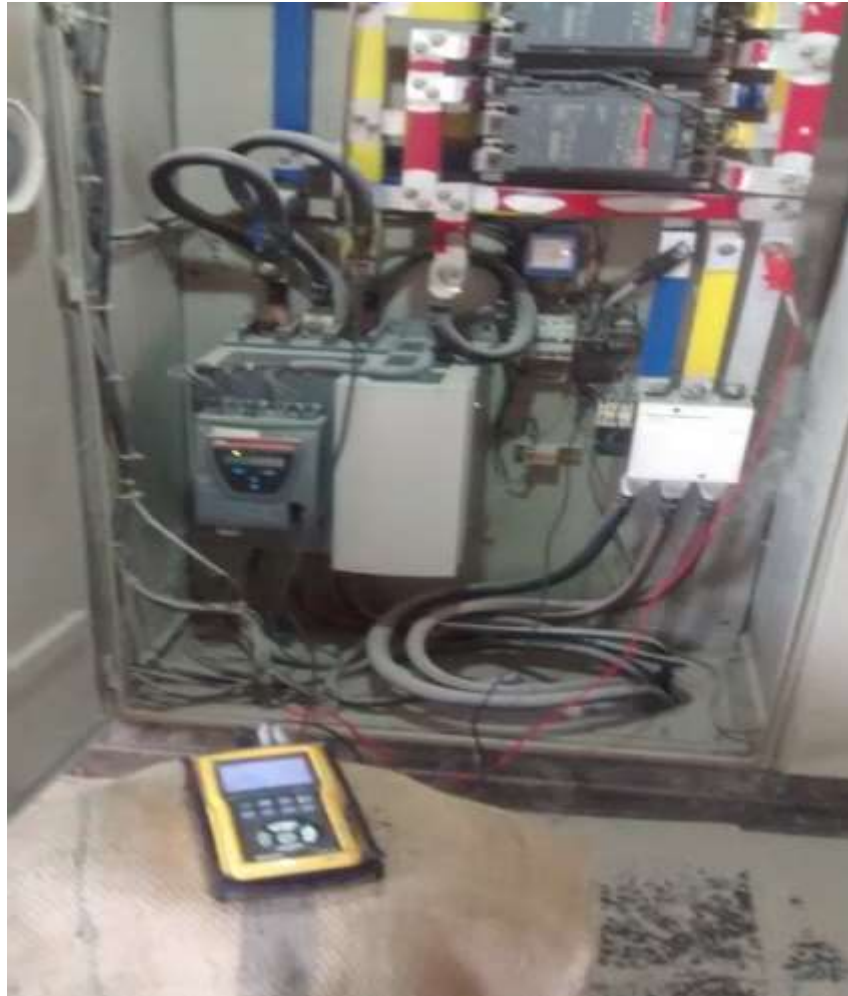
Sectors – Presence in all spectrums

- **Foundry**
- **Forging**
- **Hand Tools**
- **Cycle & Cycle Parts**
- **Edible Oil**
- **Pharma**
- **Chemical**
- **Leather**
- **Cement**
- **Paper**
- **Ceramics**
- **Sugar**
- **Textile**
- **Mines and Metals**
- **Automobile Sector**
- **Food Processing**

List of Instruments used during Audit

- **Ultrasonic Flow Meter**
- **Power Analysers 3 Phase & 1 Phase**
- **Digital Pressure Gauges**
- **Thermal Imager**
- **Vane type anemometer**
- **IR Temperature Gun**
- **Lux meter**
- **Hygrometer**

Installation of Power Analyser



Installation of Flow Meter



Why energy saving?

There have always been good reasons for energy saving

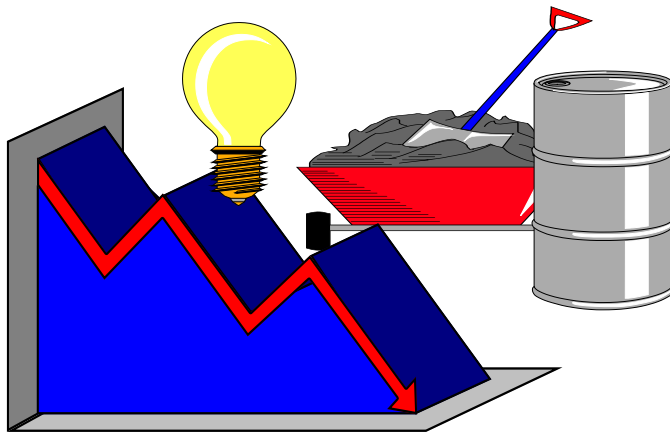
- CO2 reductions
- Environmental pollution
- Reduced operation costs

Two reasons force the market to act

- Legislation – worldwide and local
- Increasing energy costs

Energy Conservation at Macro Level

**Measure of
encon activities**

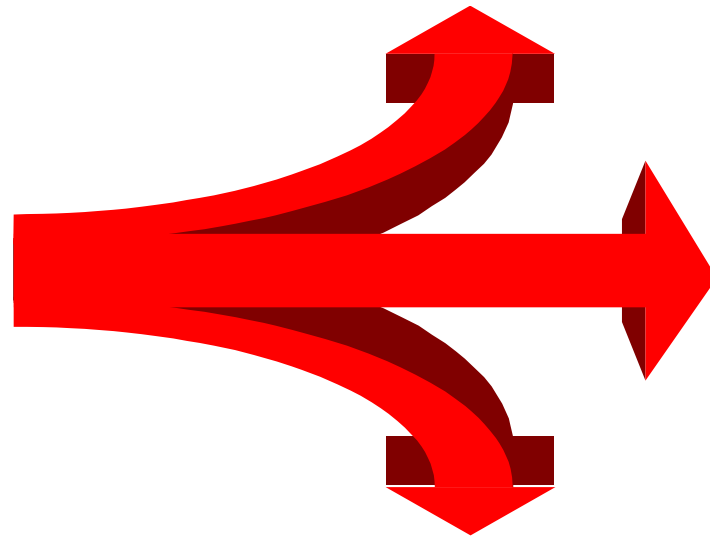


**Reduction in specific
energy and Water
consumption**

Energy Conservation at Macro Level ...

Capacity utilisation

**Three-
pronged
approach**

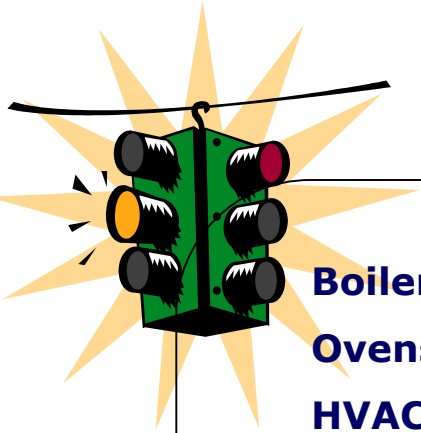


Fine-tuning

**Technology
upgradation**

Coverage

Thermal/Mechanical/Electrical



Boiler and Steam System

Ovens

HVAC System

Air compressors System

Leakage and Capacity Test

Cooling Towers

Major Motors

Thermal Imaging

Mixers and Grinders

Process Equipments

Electrical distribution System

Bill Analysis

Harmonics Study

Power Factor Improvement

Capacitors Health Checkup

Electrical Safety & Cables

Lighting

Fans & Blowers (AWU & AHU)

All Major Pumps

Dust Collectors



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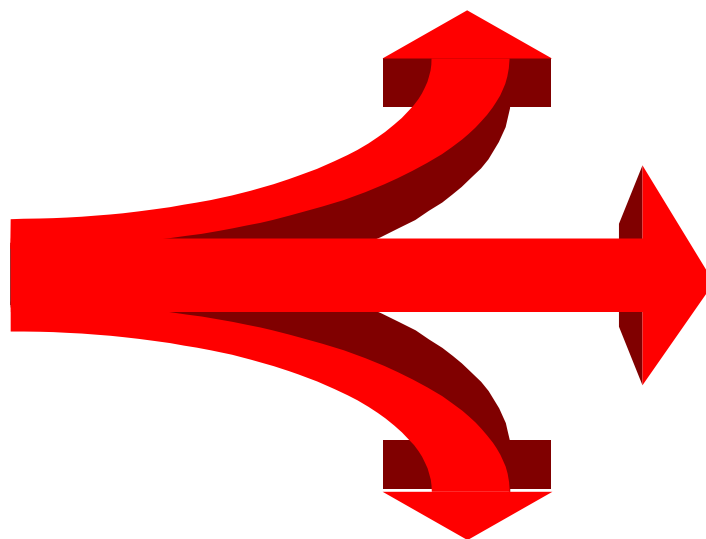


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Three Pronged Approach

**Simple Projects
(< 6 months payback)**

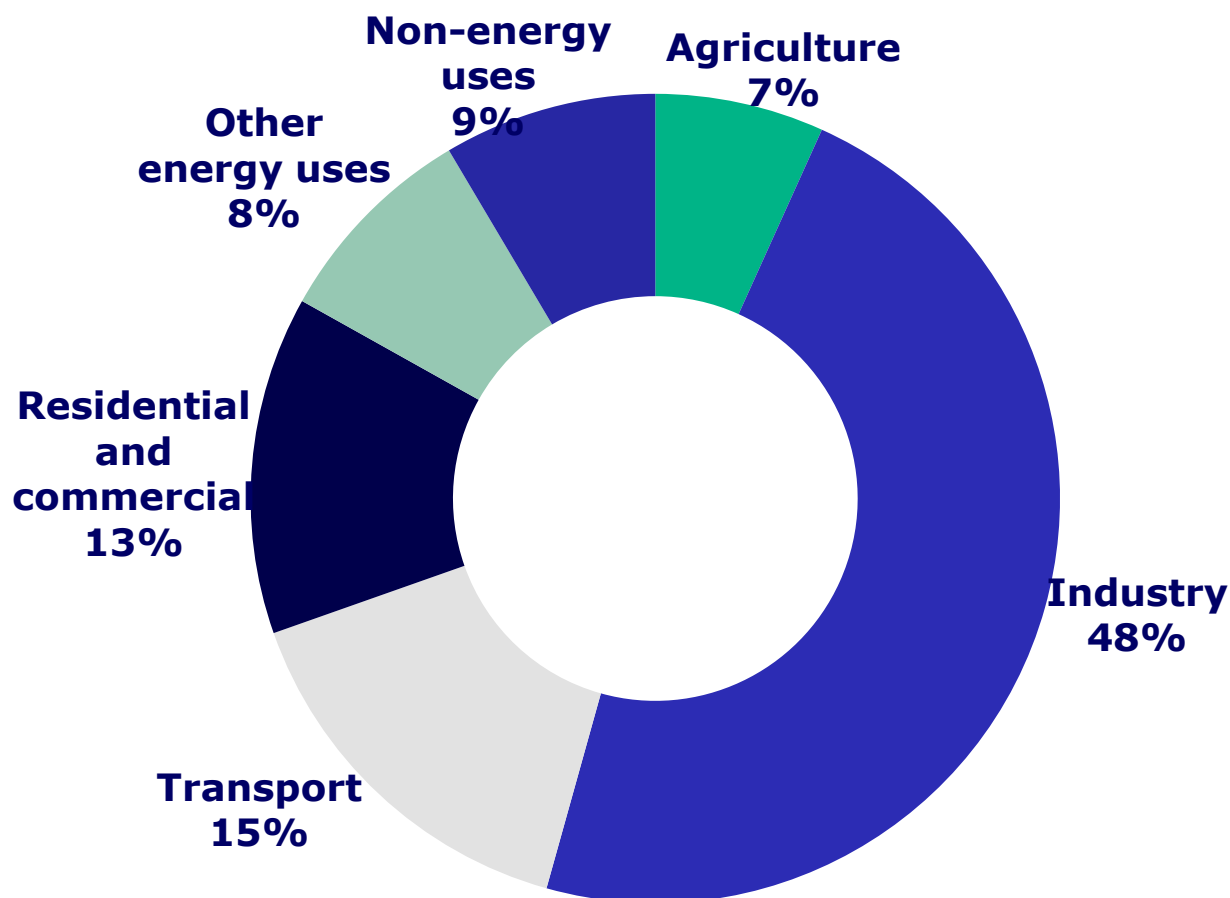
**Detailed
Energy
Audit**



**Medium term
(6-18 months payback)**

**Long term
(18-30 months payback)**

Commercial Energy Consumption Pattern in India



Energy conservation potential from various industries

	% Share of Energy Cost	Conservation Potential (%)
Iron and Steel	15.8	8-10
Fertilisers & Pesticides	18.3	10-15
Textile	10.9	20-25
Cement	34.9	10-15
Chlor-alkali	15.0	10-15
Pulp and Paper	22.8	20-25
Aluminium	34.2	8-10
Ferrous Foundry	10.5	15-20
Petrochemical	12.7	10-15
Ceramics	33.7	15-20
Glass	32.5	15-20
Refineries	1.0	8-10
Ferro-Alloys	36.5	8-10
Sugar	3.4	25-30



Energy Saving Opportunities

- Industrial sector consumes about half of the total energy generation
- Energy can be saved up to 5 – 30 %
 - 5 – 10 % of energy saving by following best operating practices
 - 10 – 30 % of energy saving achieved by using energy efficient systems

Impact through Energy Services of the Centre

- Energy Audits: : 50 + audits & Many large projects on energy
- Training Programs: : connecting with 500 + participants
- Energy Circle Competition :connecting with 400 + participants
- EETech Conference :connecting with 200 +participants
- Energy Projects with Honda Suppliers, MACE & other partners like BEE – WB, UNIDO, EESL, ICAI, APQI etc
- Pool of 20 + Technology providers as Partners

Impact through Energy Services of the Centre

- Web based Training on Energy, Safety, Automation etc: currently Rockwell is Annual Partners: 10 + Web based training connecting with more than 1000 + participants
 - ISO50001 Internal Auditor Program: 4 + programs
 - CII – MACE Training Program on Industrial & Electrical Safety
 - CII – Honda Supplier Club Training Program on Energy Efficient systems
- ✓ ***Direct connect with around 2500 + participants & industry annually through energy interventions***

PARTNERS IN PROGRESS

INTERNATIONAL

- UNIDO
- NACE
- GIZ
- Shakti Foundation
- ICF
- ICAI & APQI

DOMESTIC

- MACE
- IMTMA
- ACMA
- NIAS

Energy Circle 2017



EEETech 2017



FINANCING FOR ENERGY EFFICIENCY AT MSMES PROJECT



Project Background

As a part of the Global Environment Facility (GEF) Programmatic Framework project for Energy Efficiency (EE) in India, a project was launched with the objective of increasing demand for energy efficiency in target micro, small and medium enterprise (MSME) clusters , and to built their capacity to access commercial finance.

Objectives of this project

- ❖ Create Awareness on EE by Conducting awareness workshops
- ❖ Identify EE potential by through Detailed Energy Audits in MSME units IGDPs
- ❖ To provide implementation support to MSME units.
- ❖ The implementation support shall include support for vendor identification, finalization and all technical support during project commissioning, etc.

Details of the sectors and clusters identified

Cluster No	Sector	Cluster locations
1	Textile, Auto, Agro, Consumer Appliances, General Engineering, Plastic, Auto etc.	Ludhiana
		Jalandhar
		Chandigarh
2	Paper, Ceramic, Textile & Engineering	Coimbatore
		Erode
		Virudachalam
		Tiruppur

Key Activities to be taken up in the Cluster

- ❖ Action based sensitization awareness workshops (ASAW) – 3 Nos.
- ❖ Investment Grade Detailed Project Report (IGDPR) – 70 IGDPRs
- ❖ Implementation Completion Report (ICR) – 50 ICRs
- ❖ Case Studies – 3 Nos. / sector
- ❖ Cluster based consolidated reports and detailed presentations

Expected timelines

Major Deliverables	Expected Completion Date
Conducting 3 capacity building workshops	15 November 2017 – 30 January 2018
Investment Grade Detailed Project Reports 70 Nos.	30 July 2018
Implementation completion reports 50 Nos.	31 December 2018
Preparation of 20 success stories	31 March 2019
Preparation of cluster report	31 March 2019
Preparation of final project report	31 March 2019

Selection criteria for MSME

- ❖ MSME unit shall pay a participation fee of Rs. 30000/- under the project
- ❖ MSME unit as per MSME definition under MSMED Act 2006
- ❖ Significant potential for Energy efficiency investment, Energy saving and CO₂ emission reduction
- ❖ Willingness for implementation of measures as suggested in IGDPR
- ❖ Complying the Environment & Social Management Framework prescribed by SIDBI for the project

Date to be collected from MSME units

SL No	Data to be collected from the unit	Remarks
1	Date of Establishment	To ensure 3 years or more continuous operation
2	Annual report	To ensure profitability
3	Membership number from SIDBI / previous association with SIDBI, MSME registration no	To ensure SIDBI existing member or not
4	Electricity bill / Electricity consumption per year / month	To ensure / estimate energy consumption and saving potential

Benefits to MSMEs towards participation in the project

- ❖ Cost effective study compared to high cost of conventional audit in market
 - Holistic approach – Experienced auditors covering all aspects Energy, Environment, RE, Water, Lean and clean
 - Support from End to End similar to 4E
 - will enable MSME to undergo Ratings / new business opportunities
- ❖ Improving the productivity and competitiveness of units
- ❖ Reduction in overall carbon emissions and improving the local environment

Report Acceptance Criteria

Acceptance Criteria	Unit	Per IGDP	Implementation (ICR)
EE Investment	INR Lakhs	30	30
Emission Reduction	tCo2/Year	300	300

- ✓ IGDPs and ICRs shall not be accepted until and unless both the above acceptance criteria are met.
- ✓ SIDBI will support the implementations by providing interest subvention under 4E program to 1/3rd of the total units targeted
- ✓ IGDP should document expected environmental co-benefits including emission reduction, water savings, waste minimization, SO_x, NO_x, Health & Safety Improvements, etc. in terms of quality & quantity



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Thank you !

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