

Energy Efficiency and Technology Up-gradation in Small and Medium Enterprises (BEE-SME Program)



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SME – Introduction & Importance



◇ MSME Sector Contribution to Indian Economy

- 45% of Industrial Production
- 35% share in exports
- >8000 Products

◇ Second largest sector after agriculture

- >26 million units
- Provides employment to >59 millions

◇ Accelerates the growth of Economy

- MSME growth higher than GDP & Industrial growth

◇ Energy Consumption was 50.5 Mtoe in 2012

- Energy saving potential of 15%
- Expected growth rate is > 6%

- ✓ Very small in size (majority are MSME units)
- ✓ Majority of units are proprietorship / family owned concern
- ✓ Very limited professional management
- ✓ Obsolete technology/ production process
- ✓ Low capital investment & labour intensive
- ✓ High energy consumption in many sectors
- ✓ Lack of Knowledge about energy efficient production options / technology

BEE SME Program – XI Plan (2007-2012)



The major activities conducted in the 11th plan were:



Identified Clusters – BEE SME Program



Sr. No.	Cluster Location	Product	Sr. No.	Cluster Location	Product
1	Firozabad	Glass	21	Bhimavaram	Ice Making
2	Belgaum	Foundry	22	Bhubhneswar	Brass
3	Coimbatore	Foundry	23	E & W Godavari	Refractories
4	Rajkot	Foundry	24	Ganjam	Rice Milling
5	Alleppey	Coir	25	Gujarat	Dairy
6	Dewas Ujjain	Oil Milling	26	Howrah	Galvanizing
7	Mangalore	Tiles	27	Jagadhri	Brass & Aluminium
8	Meerut & Bijnor	Khandsari	28	Jodhpur	Limestone
9	Ratnagiri	Food Processing	29	Jorhat	Tea
10	Tirupur	Textiles	30	Kochi	Sea Food Processing
11	Ahmedabad	Chemicals & Dyes	31	Muzaffarnagar	Paper
12	Jamnagar	Brass	32	Orissa	Sponge Iron
13	Morvi	Ceramics	33	Vapi	Chemicals & Dyes
14	Pali	Textiles	34	Varanasi	Brick
15	Surat	Textiles	35	Vellore	Rice Milling
16	Solapur	Textiles			
17	Warangal	Rece Milling			
18	Alwar	Oil Milling			
19	Bangalore	Machine Tools			
20	Batala, Jalandhar & Ludhiana	Foundry			

Achievements - XI Plan (2007-2012)



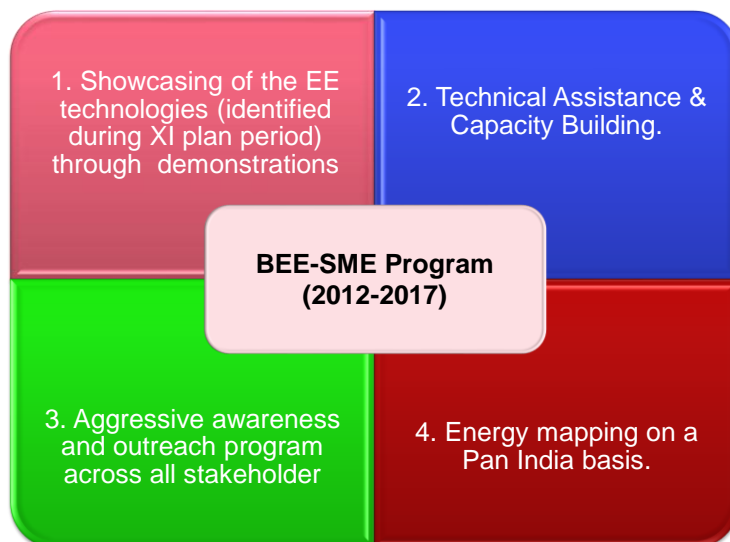
- Situation analysis completed in selected 35 SME clusters.
- 25 SMEs clusters (18 Sector Type) undertaken for further interventions .
- Comprehensive energy audit and technology gap assessment completed in 1250 SME Units belonging to 25 SMEs clusters.
- 375 DPRs on energy efficient technologies prepared and peer-reviewed.
- Cluster specific manuals on energy conservation prepared for 25 clusters and 5 Awareness workshops organized
- Implementation of Small Group Activities focused on improving energy efficiency in 9 units of 3 clusters with the help of ECCJ, Japan.
- Capacity building of Local Service Providers/Technology Providers in 25 SMEs clusters.
- Energy saving potential of 0.66 MTOE in 25 SMEs clusters which is 15% of the total energy consumption in these clusters.
- Saving reported from 650 EE projects implementation was 14300 toe out of which saving of 8309 toe in 13 clusters was verified till 31st December, 2011 .

Major Barriers identified in XI Plan



- **Technical barrier:** The SMEs neither have technical manpower nor the technical expertise and knowledge on energy efficiency.
- **Financial Barrier:** The entrepreneurs in SMEs lack the finances required for change of technologies. Moreover, they are reluctant to undertake risk involved in the changes in technology and therefore not willing to invest because of un-certainty of savings.
- **Manpower Barrier:** There are no technical experts in the SMEs who can guide them to undertake energy efficiency projects.
- **Policy Barrier:** There is absence of macro level as well as micro level energy consumption data of SMEs. Due to lack of data of energy consumption, the SMEs are not aware of wastage of energy in their units.

BEE- SME Program for XII Plan (2012-2017)



BEE- SME Program for XII Plan (2012-2017)



- ❖ Sector specific approach for energy efficiency and technology up gradation through facilitation of implementation of DPRs
 1. Identification of 10 best technologies in 5 energy intensive sectors
 2. Preparation/conversion of technology specific DPRs to unit specific DPRs for demonstration projects of 10 best technologies in 5 energy intensive sectors
 3. Implementation of Demo Projects (100 Demo)
- ❖ Technical assistance and capacity building
 1. Dissemination of information on demonstrated technologies through workshops
 2. Collaboration with technical institutions (National/International) for sharing of best operating practices(BOP) & best available technologies(BAT)
 3. Development of print material & audio visuals for technologies demonstrated & BOPs for operators & supervisors
 4. Capacity building in clusters through SDAs
 5. National level workshop including all stakeholders

BEE- SME Program for XII Plan (2012-2017)



- ❖ Project management through knowledge sharing & coordination
 1. Project Management by BEE PMU
 2. Monitoring and Verification / Impact Assessment of the EE measures implemented through intervention
 3. Coordination and collation of energy savings at National level in SMEs through implementation of Energy efficiency measures by all agencies

- ❖ Energy mapping of the targeted SME Sector on pan India basis
 1. Selection of energy intensive sectors/clusters which have high energy consumption
 2. Development of pan India level sector specific reports and policy plans for development of Sector
 3. Launching of National Policy Document on energy mapping in SMEs

BEE- SME Program for XII Plan (2012-2017)



(₹ in Crores)

S.N.	Activities Proposed	Sub -Activities	Proposed Funds
1.	Sector specific approach to implement EE technologies	<ul style="list-style-type: none"> • Conversion of technology specific DPRs to unit specific DPRs and implementation of 100 Demo projects in five energy intensive sectors. 	15.0
2.	Technical assistance and capacity building	<ul style="list-style-type: none"> • Development and dissemination of BAT & BOPs. • Capacity building in clusters through SDAs . 	8.0
3	Project management	<ul style="list-style-type: none"> • Project Management/Retainer Consultancy 	5.0
4	Monitoring and Measurement (M&V)	<ul style="list-style-type: none"> • M&V of the EE measures implemented through intervention of all agencies working in SMEs . 	2.0
5	Energy mapping pan India basis .	<ul style="list-style-type: none"> • Development of pan India level Sector specific reports and policy plans in selected energy intensive sectors/clusters.. 	10.0



S.no	Targets	
1.	Proposed budget of SME Scheme during the XII plan period	40 Cr
2.	Estimated energy savings in toe	99000 toe



Characteristics



- Higher growth rate
- Tradition driven
- Mostly family owned
- Older technologies
- Labour intensive
- Very small units
- High energy consumption
- Located in unplanned clusters
- Environmental problems

Strengths



- Ability to produce customized and labour intensive products
- Quick decision making
- Flexibility
- Both traditional markets (like brass utensils, tea) and developing markets (castings)

Challenges



- ❑ **Technological**
 - Lack of off the shelf technological solutions
 - Underdeveloped technology/services market
 - Environment protection issues leading to closure of units
- ❑ **Capacity Building**
 - Lack of scientific approach, measured data and hence the awareness of energy performance status
 - Continued dependence on 'experienced person' rather than a scientific designing
 - Low level of knowledge exchange
- ❑ **Economic/financial –**
 - Increasing worldwide competition
 - Scale of operation
 - Access to institutional finance

Weaknesses



- Use of old/obsolete/inefficient technologies.
- Low energy productivity.
- Low technical or managerial expertise.
- Lack of awareness/access of on Energy Efficient or new products/ technology.
- Lack of access to institutional finance.
- Lack of Common Infrastructure.
- High inertia to change.

Identified Clusters – BEE SME Program



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|---|-------------------------------|
| • Ahmadabad (Chemicals) | • Jodhpur (Lime Kilns) |
| • Alwar (Oil Mills) | • Jorhat (Tea) |
| • Bangalore (Machine Tools) | • Kochi (Sea Food processing) |
| • Batala, Jalandhar, Ludhiana (Foundries) | • Morbi (Ceramics) |
| • Bhimavaram (Ice Making) | • Muzaffarnagar (Paper) |
| • Bhubaneswar (Brass) | • Orissa (Sponge Iron) |
| • E&W Godavari (Refractories) | • Pali (Textiles) |
| • Ganjam (Rice Milling) | • Sholapur (Textiles) |
| • Gujarat (Dairy) | • Surat (Textiles) |
| • Howrah (Galvanizing) | • Vapi (Chemicals) |
| • Jagadhari (Brass& Aluminum Utensils) | • Varanasi (Bricks) |
| • Jamnagar (Brass) | • Vellore (Rice Milling) |
| • Tirupur (Textile) | • Warangal (Rice Milling) |
| • Mangalore (Tiles) | • Allepe (Coir) |
| | • Firozabad (Glass) |
| | • All India Brick Cluster |