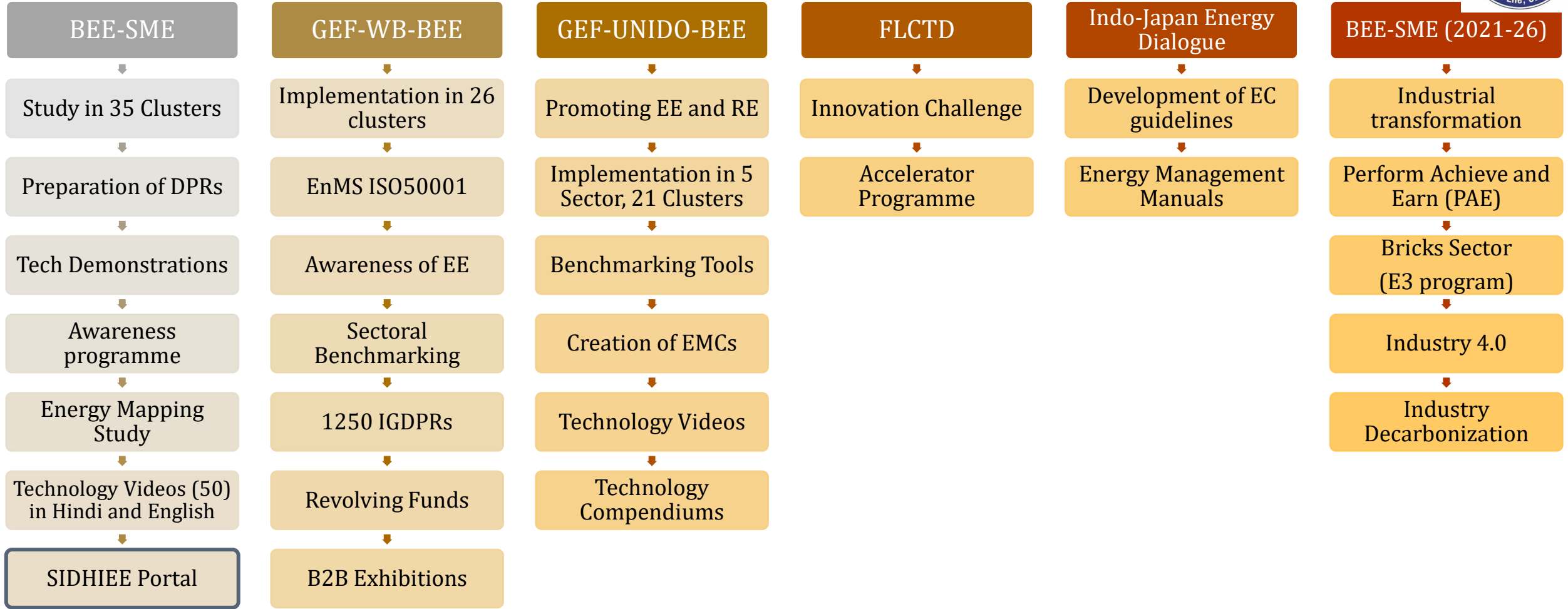




BEE-SME Programme



BEE- SME Program Journey





BEE- SME Programme – Achievements

“National Programme on Energy Efficiency and Technology Upgradation in SMEs”

- Situation study at **36** Clusters; **12** Sector
- Demo projects implemented at **21** units in **4** sectors
- ~400 DPRs were developed
- Capacity building programs for SMEs
- **50** EE Technology Demonstration Videos [Hindi and English]
- Energy Conservation Guidelines for **25** MSME Sector
- Knowledge portal (SIDHIEE)- Repository of learnings
- MoU Signed with O/o DC, MSME on Energy Security.
- Conducted 2 National Conclaves/Workshops for enhancing EE in SMEs
- Energy Mapping of 9 SME Sectors
- More than 120 EE technology included in CLCSS Scheme

Energy and Resource Mapping Activity



- *Conduct detail study in 5 cluster*
- *Detail energy audits at 10 units in each cluster (Based on selection criteria)*
- *Benchmark and KPI studies for each sector*
- *Study the current practices and technological status in other countries*
- *Examine the status of the sector across India and estimate,*
 - *Energy Demand, Technology and resource map*
 - *Energy saving potentials*
- *Techno-Economic Analysis, Technology and Policy Recommendations*
- *Sectoral technology and policy roadmap*
- *Conduct outreach programme*
 - *Inception meets, Post audit workshop, outreach other similar cluster,*
 - *National Workshop*

**8 Energy
intensive Sectors**

**40 Clusters
Additional 45 for
knowledge
sharing activities**

**400+ chosen
for detail energy
audits**

Focussed Clusters (Energy and Resource Mapping)



Sector	Cluster 1	Cluster 2	Cluster 3	Cluster 4	Cluster 5
Foundry	Shimoga	Rajkot	Batala	Howrah	Agra
Forging	Ludhiana	Pune	Bengaluru	Chennai	Delhi
SRRM	Raipur	Bhavnagar	Jalna	VKI Area/ Jaipur	Mandi Gobindgarh - Ludhiana
Paper	Muzaffarnagar, Saharanpur	Vapi	Kashipur	Erode- Coimbatore	Morbi
Dairy	Assam	Gujarat	Punjab	Maharashtra	Haryana
Chemicals	Ahmedabad	Karnal	Jamshedpur	Vapi	Thane
Glass and Refractory	Chirkunda	Ambala	East and West Godawari	Jaipur	Firozabad
Pharma	Margao	Ahmedabad	Ambala	Kolhar Industrial Area, Bidar	Thrissur
Bricks	Bengaluru	Begusarai	Indore	Nagpur	Tripura



GEF-WorldBank-BEE

(GEF-WB-BEE) - Financing Energy Efficiency in MSMEs

Achievements

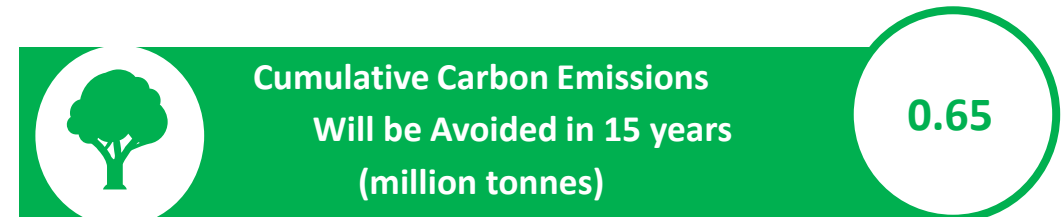
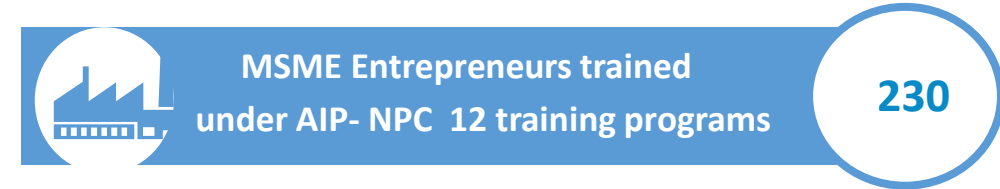
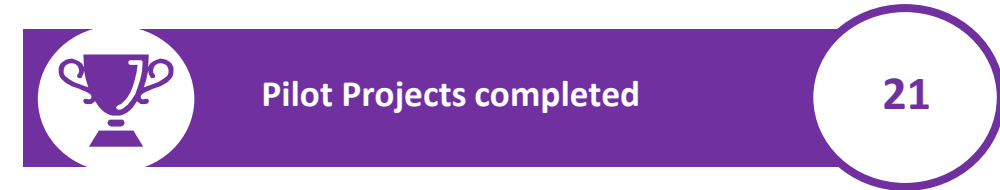
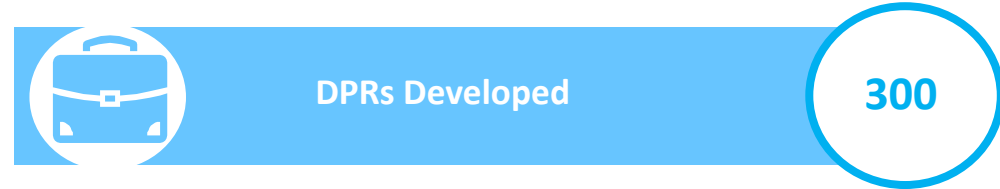
Number of IG DPRs prepared			1257
Aggregate value of direct EEIs from the project			3191 Million INR
Cumulative and estimated lifetime Carbon ERs through direct investments			2.55 Million tonne of CO2
Number of participants from MSME units reached through outreach/ marketing			6299
FI personal participating in training programme			1120
No. of units implementing EE projects in project clusters			1067
Intermediate Indicators			
Implementation of ISO 50001	48 Units	MSMEs Outreached	5226 Nos
Technology Demonstration Videos	11	Enterprises Participated	9000
Energy Conservation Awards	590 Units	Energy Auditors Trained	750+
B2B Vendor Interfacing	14 Events	FI personnel trained	1120
Shopfloor employee training	133 Nos	Revolving Fund benefited	224 Units



GEF-UNIDO-BEE

Project Title	Promoting Energy Efficiency and Renewable Energy in MSME Clusters in India
Implementing Agency	Bureau of Energy Efficiency (BEE), United Nations Industrial Development Organization (UNIDO)
Partners	Ministry of Micro Small and Medium Enterprises (UNIDO) Ministry of New and Renewable Energy (MNRE)
Period of Operation	2015 – Till Date
Activities in Clusters	<p>Brass (Jamnagar); Ceramics (Khurja, Thangadh and Morbi); Dairy (Gujarat, Sikkim and Kerala); Foundry (Belgaum, Coimbatore and Indore); and Hand tools (Jalandhar and Nagaur)</p> <p><i>Expanded its project activities in 12 more clusters; namely Dairy (Tamil Nadu, Orissa, Madhya Pradesh, Andhra Pradesh & Telangana, Kerala, Haryana, Maharashtra, Gujarat & Punjab), Foundry (Ahmedabad & Howrah), Ceramic (Virudhachlam & Himmatnagar) Mixed Cluster (Indore, Sikkim, Ujjain and Pithampur)</i></p>

Achievements of GEF-UNIDO Project






Facility for Low Carbon Technology Development

Low Carbon Innovation - FLC X +

https://www.low-carbon-innovation.org


Innovation Challenge

FLCTD will conduct annual innovation challenges to shortlist promising low carbon technologies in the following 3 thematic areas:




Industrial IoT

[APPLY NOW](#)




Industrial Resource Efficiency

[APPLY NOW](#)




Electrical Energy Storage

[APPLY NOW](#)




Waste Heat Recovery

This challenge is closed now!



Space Conditioning

This challenge is closed now!



Pumps & Pumping Systems

This challenge is closed now!

Type here to search

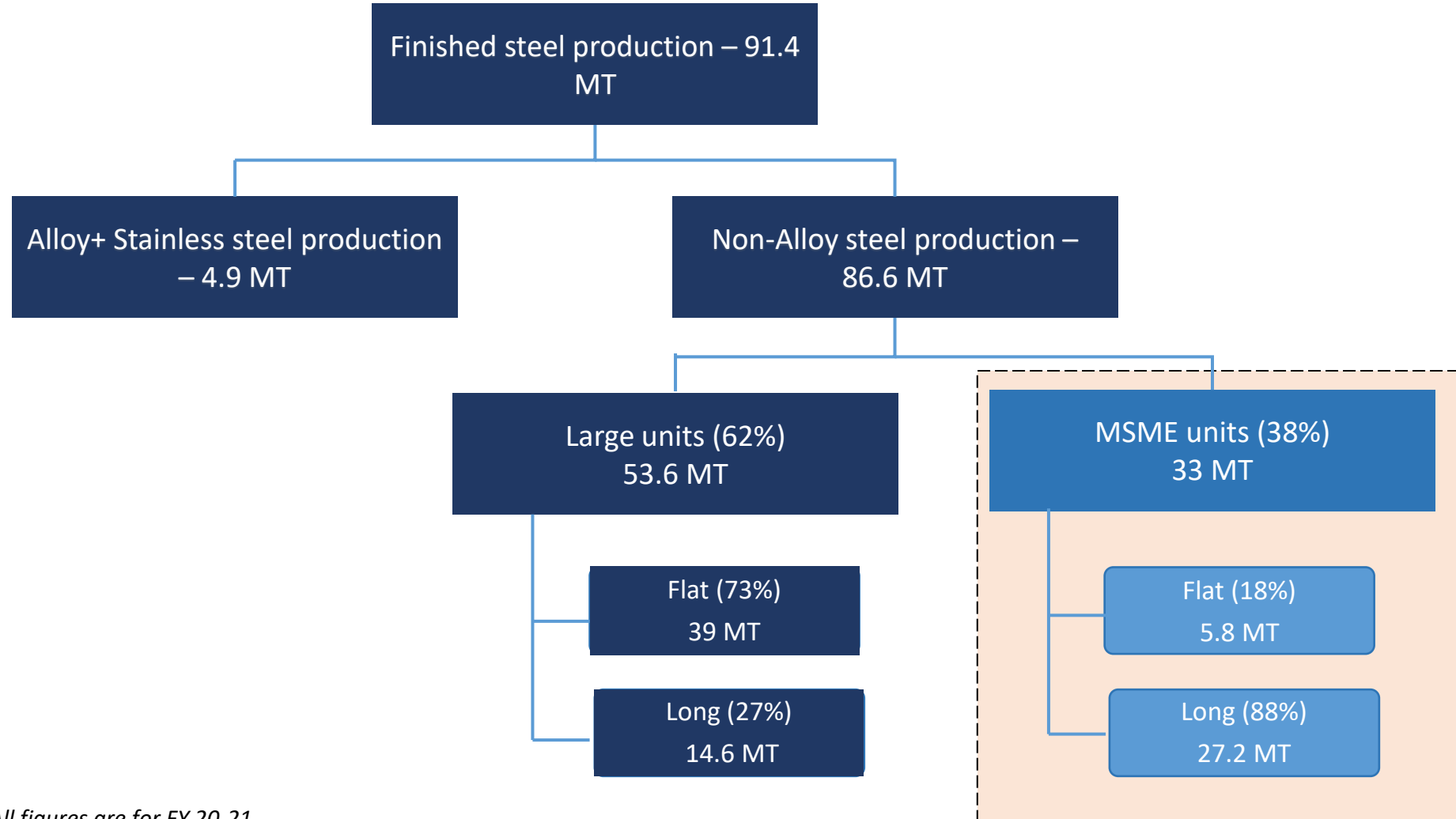
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US 11/2/2020

❖ Innovation Challenge

- Annual Innovation Challenge rounds - 4
- Innovation Challenge conducted - 12
- Winners – 60

Vertical	2018	2019	2020	2021	Total
WHR	3	4	2	-	09
Space Conditioning	6	5	7	-	18
Pumps	4	5	4	-	12
I-IOT	-	-	-	7	07
I-RE	-	-	-	5	05
EES	-	-	-	8	08
Total	13	14	13	20	60

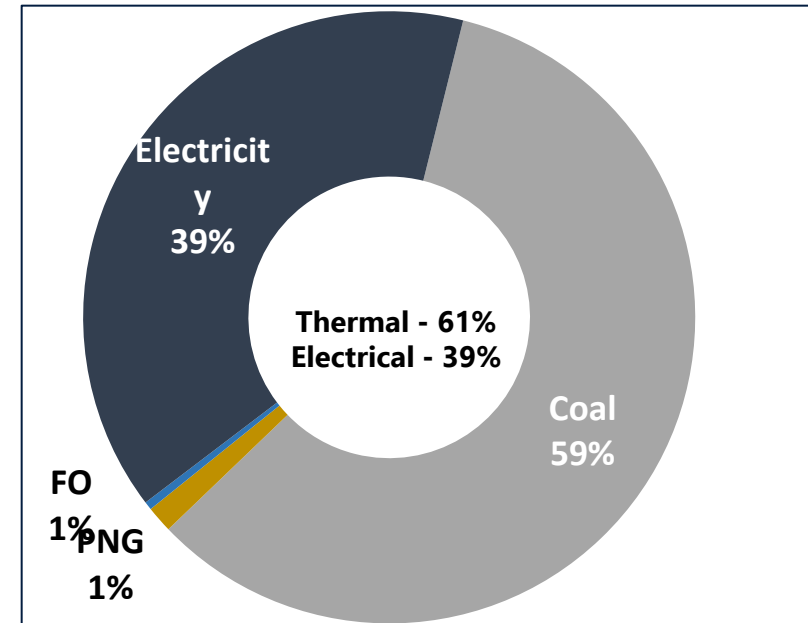
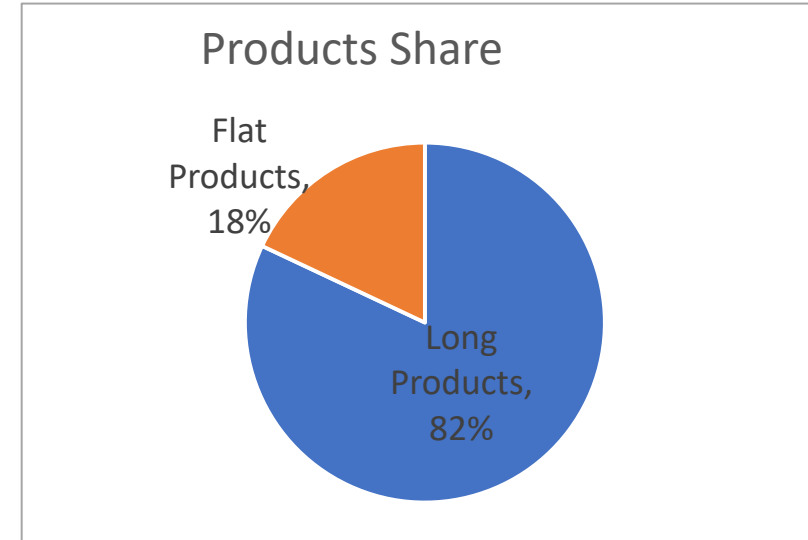
India level scenario



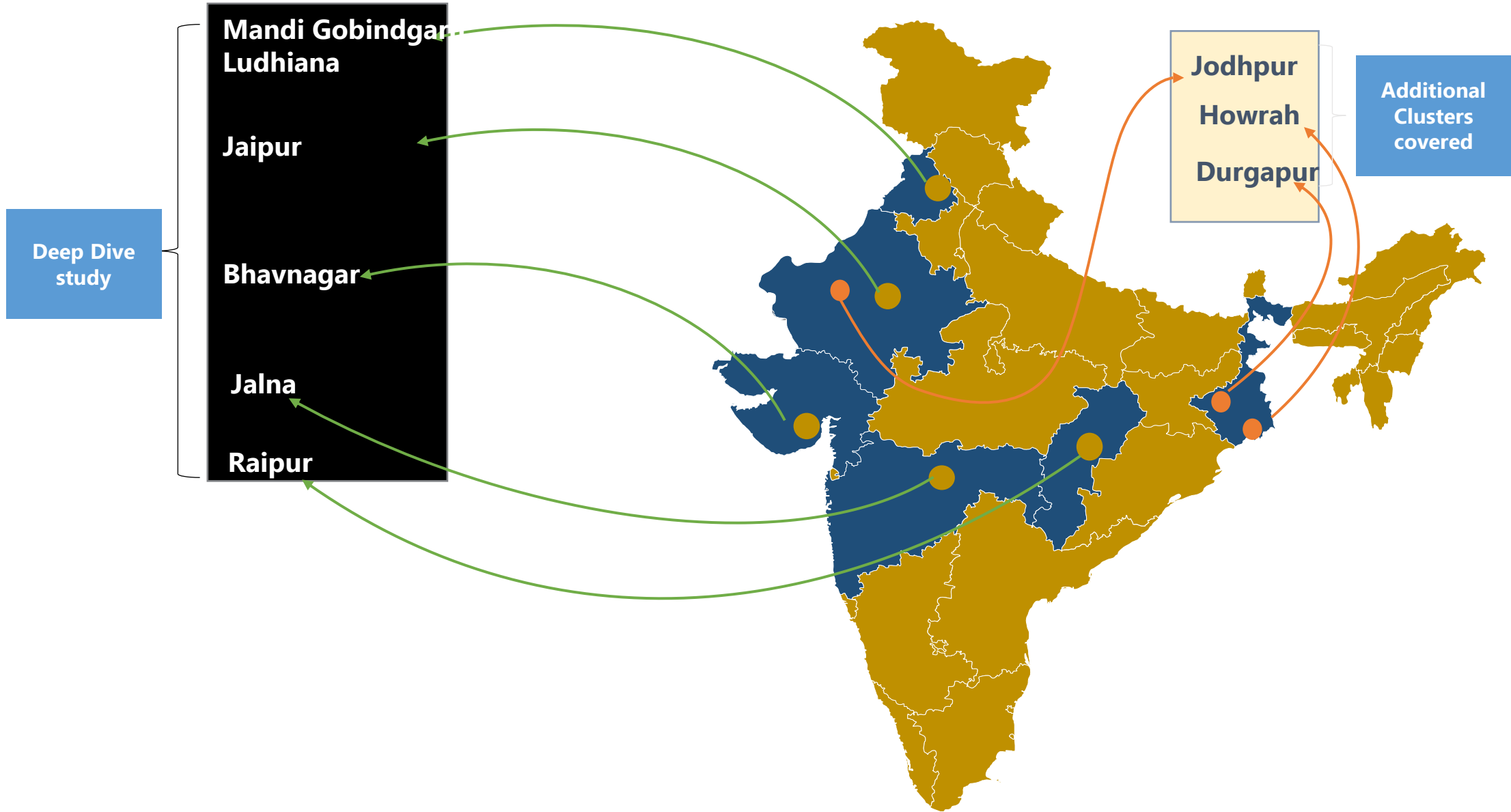
**All figures are for FY 20-21*

Steel Rerolling Sector – Production and Energy Consumption detail

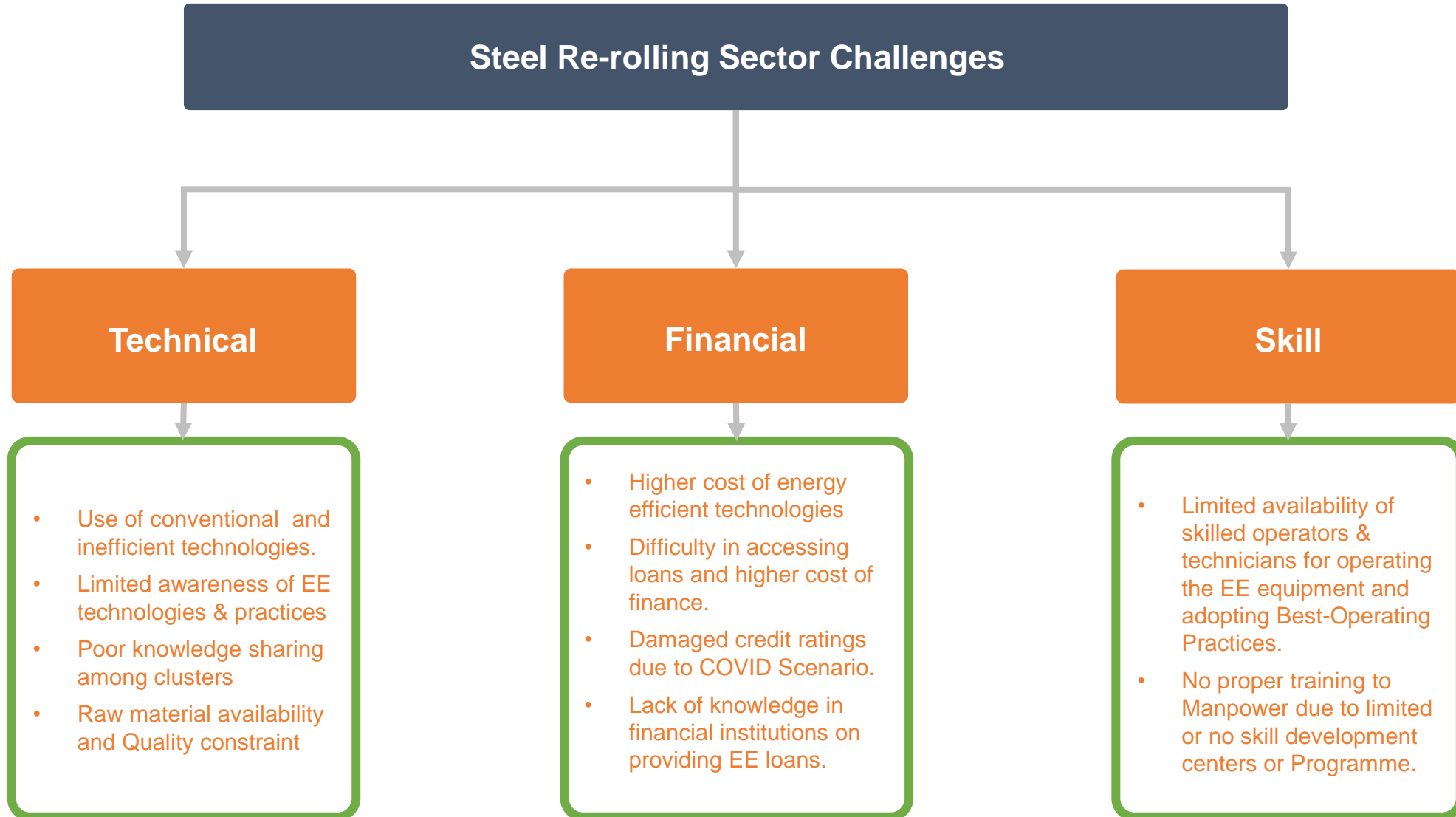
Steel Sector level Details	
Production detail	
Total Production	33 MTPA
Products	Long – TMT bar, Beam, Rod, Angle, Tube, Pipes
	Flat – Sheets
Production Share by Product types	
Long Products	27.2 MTPA
Flat Products	5.8 MTPA
Energy Consumption detail	
Total Energy Consumption	2.074 Million TOE
Thermal Energy Consumption	1.261 Million TOE
Coal	2.04 Million tonne
PNG	30.79 Million SCM
FO	10.6 Million litre
Electrical Energy Consumption	0.814 Million TOE
Electricity consumption	9,467 Million KWh
Emission detail	
Total GHG Emission	11.55 Million tCO ₂



MSME Clusters Covered under the project



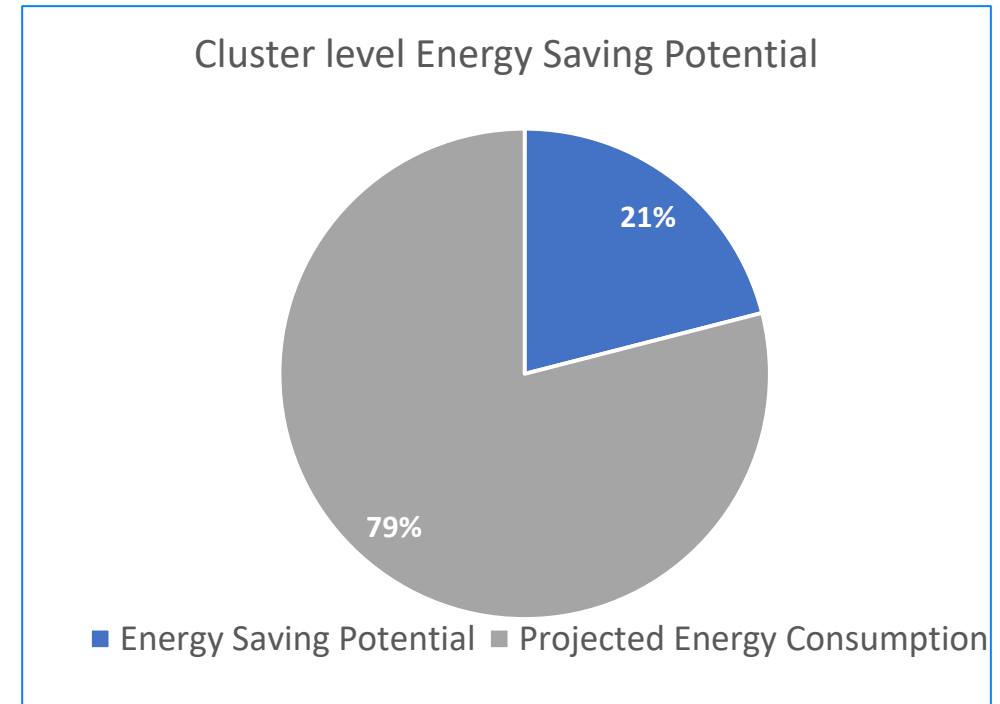
Challenges in the Steel Re-rolling Sector



Cluster level Saving Potential



Cluster level energy saving		
Total Energy Consumption	Million toe	0.241
Total Energy Saving Potential	Million toe	0.051
Total Electricity Saving Potential	Million kWh	185
Total Coal Saving Potential	Million Tonne	0.06
Total GHG Reduction Potential	Million tCO ₂	0.26
Total Investment required	Million rupees	1,350



Cluster – Energy Efficiency Recommendations



Section	Energy Conservation Opportunities	Investment (lakh)	Saving Potential	Payback (Years)
Melting section/Induction Furnace	1. Replacement of SCR based induction furnace with energy efficient IGBT based induction furnace	100-150	Electricity – 8-10% (Induction furnace)	1 - 1.5
	2. Installation of Sintering panel to preheat the ramming mass	25	Electrical = 0.5 - 1% (Induction Furnace)	1.5 - 2
	3. Installation of Scrap processing unit to reduce melting cycle time and energy consumption in the induction furnace	75	Electricity – 5% (Induction furnace)	<1
	4. Installation of VFD on CCM (Continuous Casting Machine) pump to optimize the pressure and flow	5	Electricity – 20-25% (Motor)	<1
	5. Improvement in the efficiency of Induction Furnace by using proper grade and quality ramming mass	10	Electricity – 2% (Induction Furnace)	<1
	6. Implementation of continuous casting and direct rolling to eliminate the requirement of reheating furnace	250	Thermal – 100 %	<1
Reheating Furnace	7. Installation of Oxygen and CO sensor to optimize the excess air of furnace	3 - 6	Thermal - 10-15%	<1
	8. Installation of automation and temperature control system in the reheating furnace	2.5	Thermal – 4%	<1
	9. Overhauling of the furnace with proper insulation lining	1	Thermal – 5-7%	2-4 months
	10. Installation/ Overhauling of the recuperator to reduce the flue gas heat loss	5-10	Thermal – 10 -15%	<1
	11. Fuel shifting from coal to PNG	50	Thermal – 20%	2.5 – 3
	12. Installation of regenerative burners in the PNG fired reheating furnace	100	Thermal – 25%	2.5 – 3

Cluster – Energy Efficiency Recommendations



Section	Energy Conservation Opportunities	Investment (lakh)	Saving Potential	Payback (Years)
Rolling mill Division	13. Installation of energy efficient roller motor for each rolling strand	350	Electricity - 15%	10
Electrical System	14. Installation of Energy Monitoring System (EMS) to optimize the power consumption in different section of the Plant	2	Electricity - 3%	<1
Auxiliaries System	15. Replacement of the existing compressor with energy efficient (low specific power consumption) compressor	5	Electricity - 30% (Compressor)	1 – 2
	16. Installation of VFD in the compressor to eliminate the no load power consumption	0.5 - 2	Electricity – 7-10% (Compressor)	<1
	17. Replacement of the multiple cooling water pumps with single energy efficient pump with VFD	1-3	Electricity – 5-10% (pumps)	<2
Renewable Energy	18. Installation of Solar PV Panels	Depends upon the capacity	-	4 - 6

Energy and Resource Mapping of MSMEs in India

Steel Re-Rolling Sector Report



Thank you