



ENERGY MAPPING OF GLASS AND REFRACTORY MSME CLUSTERS

Key activities performed during the project



Energy audit in 50 MSME units



Energy consumption benchmarks

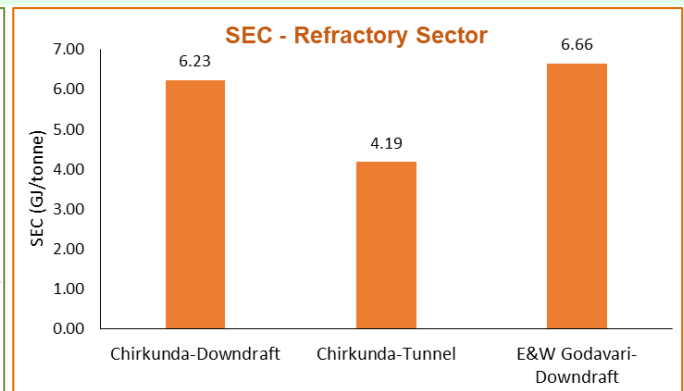
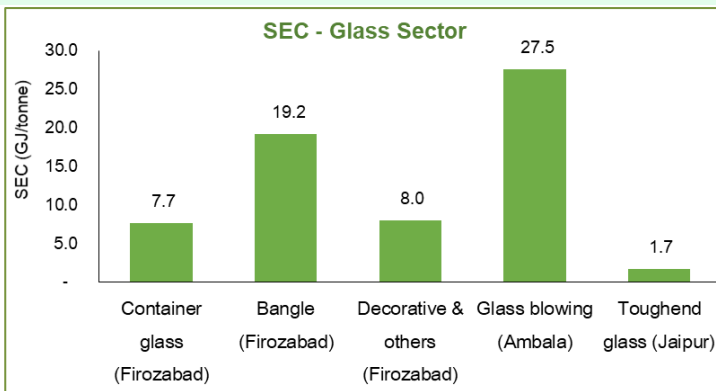


Sectoral EE technology roadmap



Implementation strategy and policy interventions

Cluster and sectoral production and SEC findings



Parameters	Firozabad	Jaipur	Ambala	Chirkunda	E&W Godavari
Production (tonne/year)	1061,920	31,098	12,047	220,043	62,530
SEC benchmarks (kgoe/tonne) [GJ/tonne]	249 [10.4]	38 [1.6]	605 [25.3]	135 [5.7]	159 [6.7]

Energy efficient technologies

Automation of combustion in furnace/ kiln

Enhance insulation of furnaces/kilns

Waste heat recovery system

Switchover from solid to gaseous fuels

State of art technologies

Pot arching (glass) & switchover from downdraft kiln to tunnel kiln (Refractory)

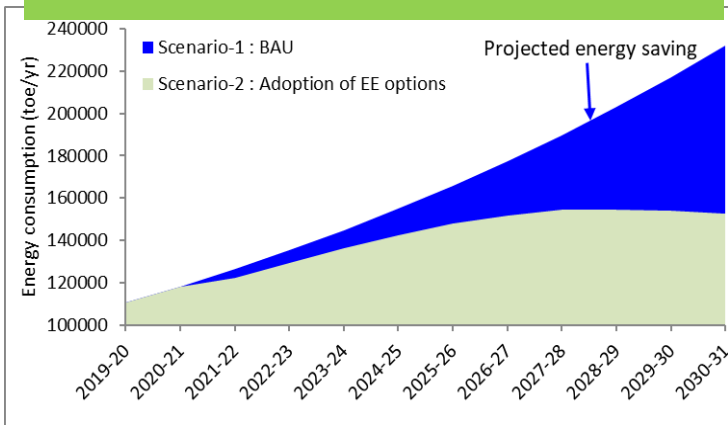
Electrification of thermal systems (furnaces/ kilns/ lehrs)

Adopt value added & low carbon products

Install rooftop photovoltaic system

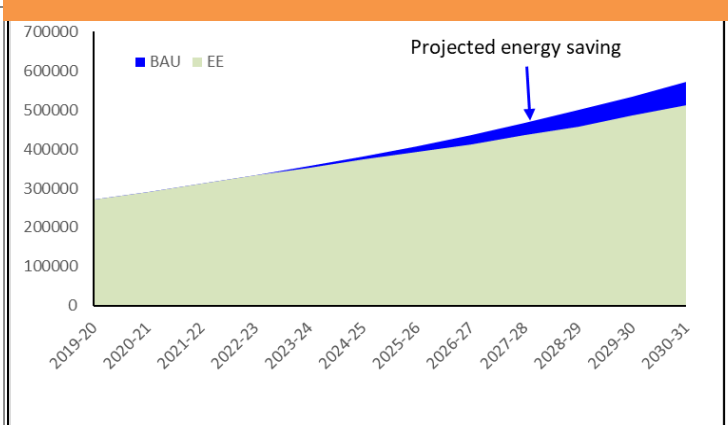
Sectoral energy consumption and saving potential

Energy consumption of glass sector: 276,777 toe



Energy saving in glass sector

Energy consumption of refractory sector: 105,446 toe



Energy saving in refractory sector

Recommendations and way forward



Establish cluster level Energy Management Cell (EMC)

Facilitate adoption of energy and resource efficiency measures in a self-sustaining model; Help create linkages with equipment/technology OEMs; Enable the setting of minimum efficiency and quality levels for equipment, systems and spare parts.



Create technology upgradation fund

Provide MSME refractory units with access to finance for adopting energy efficient technologies; sharpen skillsets of workforce; set up product development & promotion centres.



Establish common facility centre (CFC)

Provide common processing facilities (baking of bangles and sintering of refractories); establish testing facilities of and raw material banking system.



Develop new industrial zones/parks

Set up new industrial parks for shifting to energy efficient technologies

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