Exploiting Energy Efficiency Potentials in SME-the Case of Foundry and Steel re-rolling Sectors in India

Accelerating energy efficiency in SMEs
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Institute for Industrial Productivity

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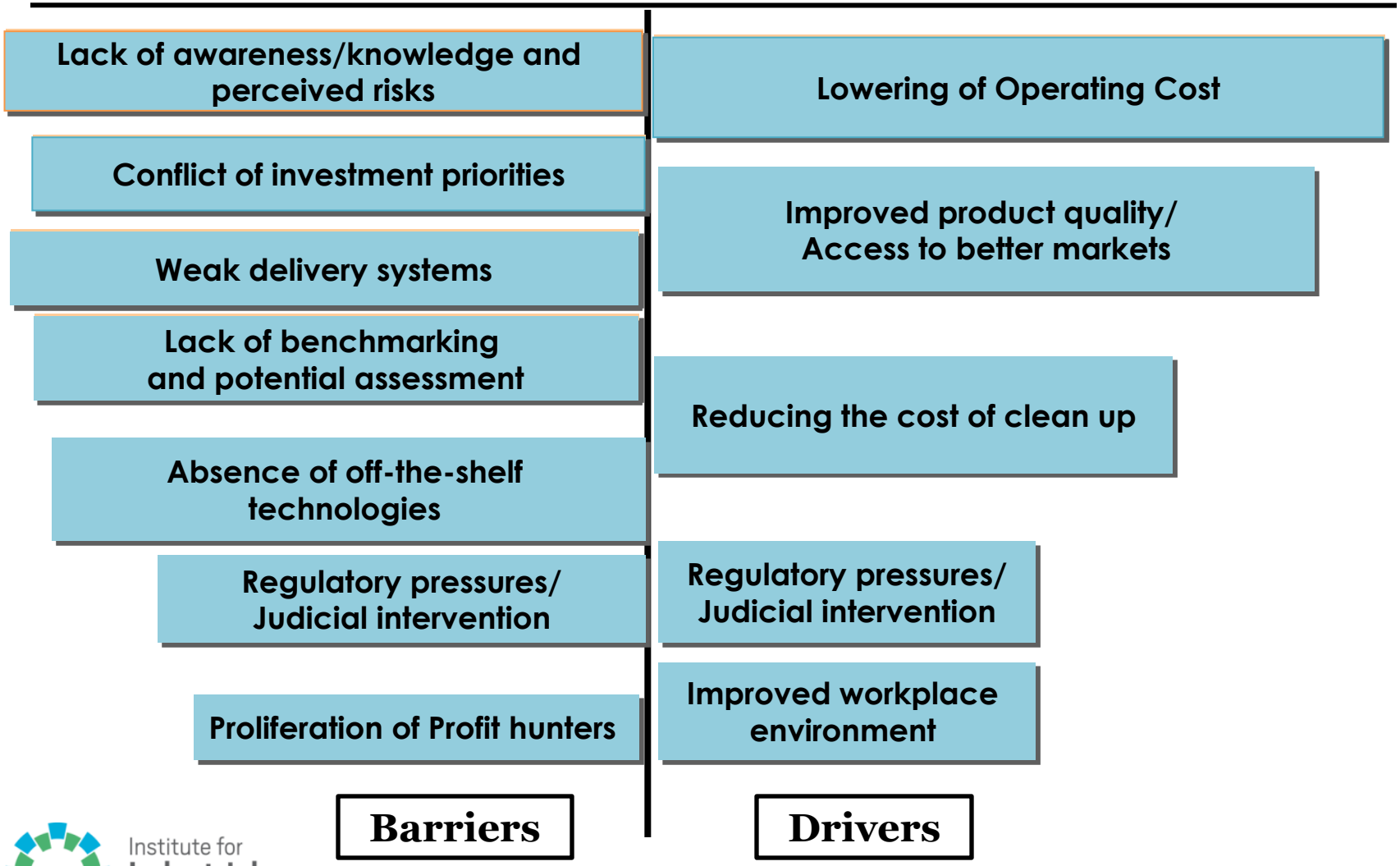
Barriers and Motivation in Promoting Energy Efficiency



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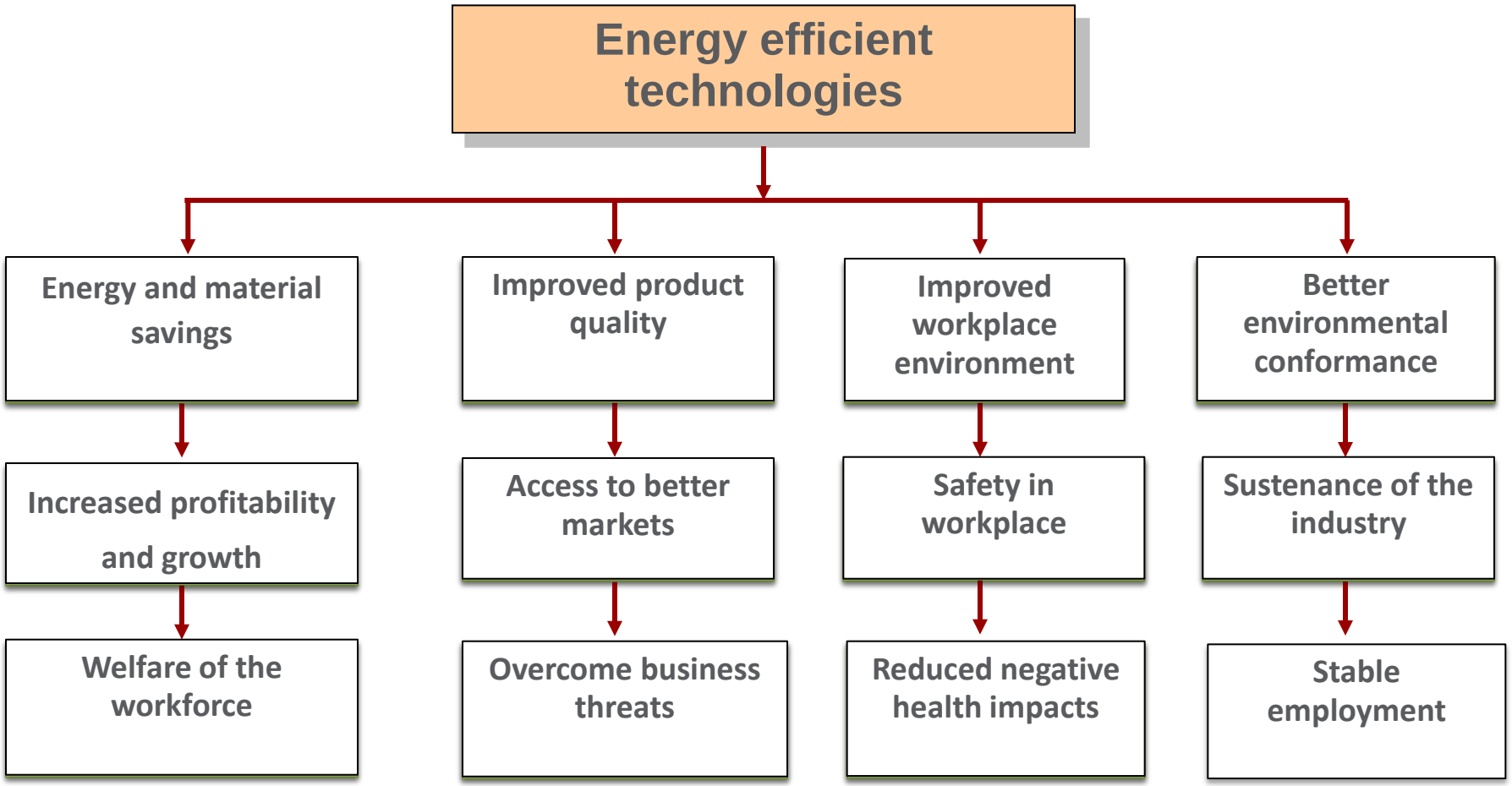
Energy Efficiency - Direct & Co-benefits



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Sector overview

Steel Re-Rolling Sector

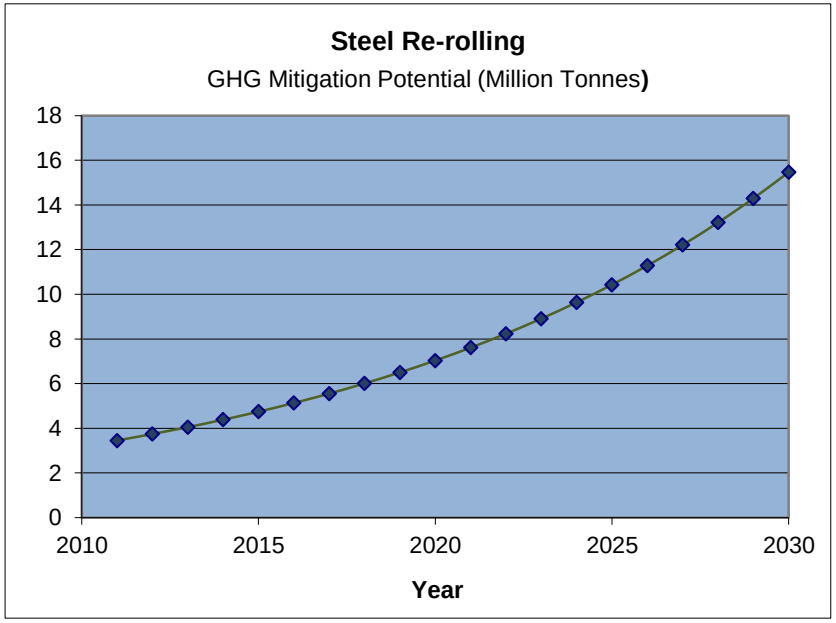
- Approximately 2600 units of which 1167 are registered
- Main fuel source: Pulverised coal
- Outmoded design of reheating furnaces
- Mostly located in clusters
- Significant scope for energy efficiency improvement
- Significant scope for reduction in scale/oxidation losses

Foundry Sector

- Around 4500 units
- Main Fuel source: Coke
- Located in clusters
- Existing furnace design - Conventional Cupola
- High energy and material savings potential
- Environmental Compliance is marginal

CO2 Mitigation Potential Calculation in Steel re-rolling Mills

- Capacity of the unit: 4 tpd
- Average daily production : 40t
- Specific coal consumption (old): 110kg/t of product
- Specific coal consumption (new): 80kg/t of product
- Reduction of oxidation losses: 3%
- CO2 saving/t of product (on coal savings): 0.060t
- CO2 saving/t of product (on material saving): 0.081t
- Total CO2 savings per tonne of product: 0.141t



80% rolling mills are small (2 to 10 tph)

20% are medium to large (11 to 30 tph)

Present production capacity: 24.5 MMT

Growth rate 8.5% per annum

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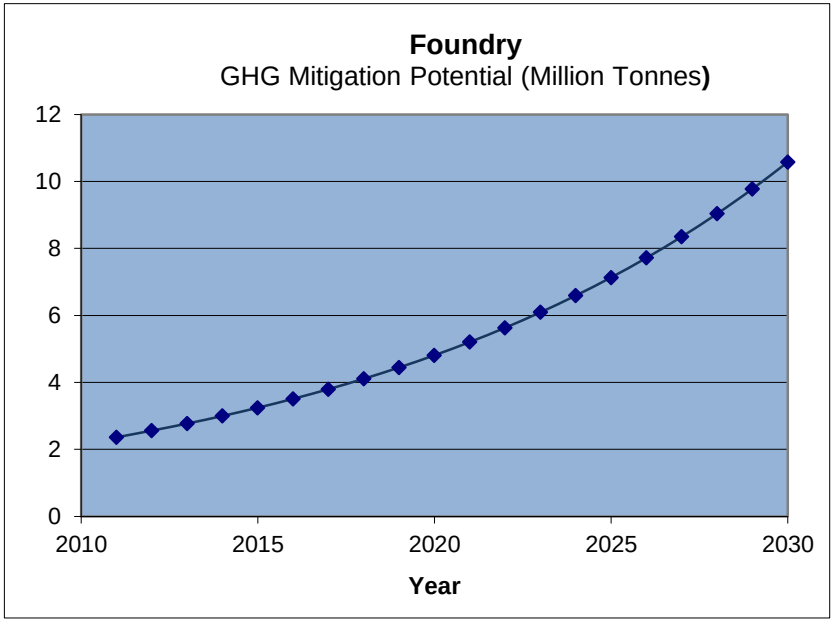
CO2 Mitigation Potential Calculation in Cast Iron Foundry

- Annual production: 4000t
- Specific coke consumption (old): 136kg/t
- Specific coke consumption (new): 80kg/ t
- Reduction of melting losses : 5%
- Coal savings per t of product: 56 kg
- CO2 savings/t of product (coal savings): 0.101t
- CO2 savings/t of product (material Savings): 0.135t
- Total CO2 savings on account of improved furnace: 0.236t/t



Present production capacity: 9.5 MMT

Assumed to be 100% from cupola furnace

Changeover from Conventional to Divided Blast

Skyline of a typical SME Cluster in India