

EE Motor Standards in India



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Zurich

Introduction



BEE- Bureau of Energy Efficiency

A statutory body under Ministry of Power,
Government of India

**Basic Objective: Implementation of Energy
Conservation Act 2001 in India**

ICA-International Copper Association

A not -for- profit global organization





**Basic Objective: Promotion of beneficial
uses of copper**

Market Scenario

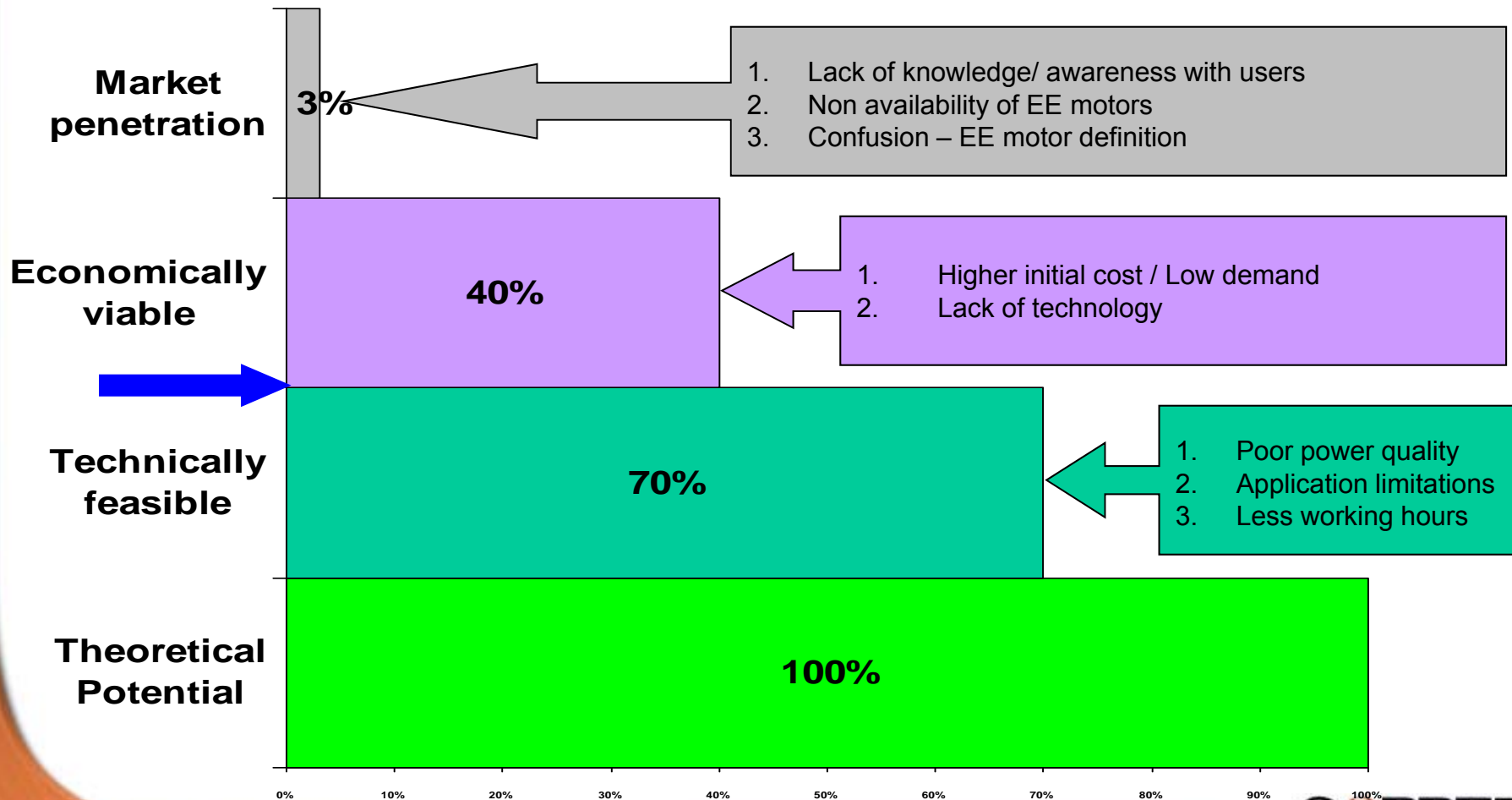
Energy Saving Potential



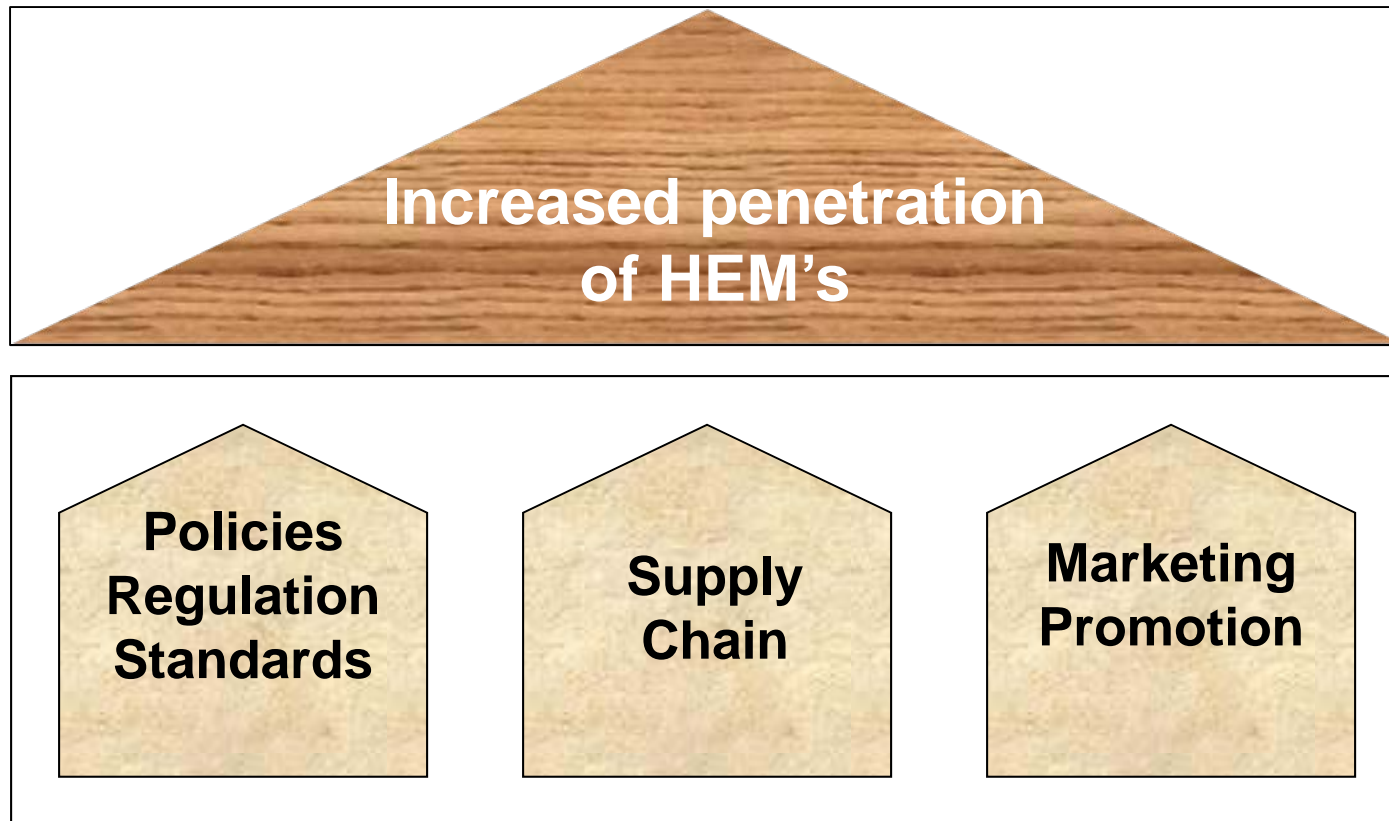
Estimated energy savings potential of motors
14 MtoE till 2010

Sector		Total Conservation potential (%)	Energy Handled by Motors (%)
Industrial Sector		Up to 25	70-75%
Agriculture Sector		Up to 25	20-25%
Domestic Sector		Up to 20	2-3%
Commercial Sector		Up to 30	4-5%

Steps to increase HEM penetration



Market transformation





Standards Scenario

Indian Standards Scenario



IS 8789 : Performance of Standard motors

- Covers 37 kW (2P,4P,6P,8P)
- Efficiency levels lower than eff2
- Small manufacturers comply
- Large manufacturers provide higher efficiency

IS 12615 (2004) : Performance of EE motors

- Covers 160 kW (4 P), 132kW (6 P) and 110kW (8 P)
- Two efficiency levels defined : eff1 & eff2
- Large manufacturers voluntarily provide > eff2
- Test Method followed – 60034-2

Revised draft IS 12615 : 2010 under circulation

Global MEPS scenario



Efficiency Levels	Efficiency Classes	Testing Standard	Performance Standard
	IEC 60034-30	IEC 60034-2-1	Mandatory MEPS
	Global 2008	incl. stray load losses 2007	Policy Goal
Premium Efficiency	IE3	Low Uncertainty	USA 2011
			Canada 2011
High Efficiency	IE2	Medium Uncertainty	Europe* 2015 (>7.5 kW), 2017
			USA
			Canada
			Mexico
			Australia
			New Zealand
			Korea
			Brazil
			China 2011
			Switzerland 2011
Standard Efficiency	IE1	Medium Uncertainty	Europe 2011
			China
			Brazil
			Costa Rica
			Israel
			Taiwan
	Switzerland		

bold means in effect

*) E3 or E2+VSD

Source: SAFE

Draft IS 12615 : 2010 highlights



- Scope : 0.37kW to 375 kW in 2, 4 and 6 poles.
- Efficiency classes in line with 60034-30 (IE1, IE2 and IE3)
- Testing method as per 60034-2-1
- Build-up of testing capacity major challenge
- Other performance parameters specified :
 - starting torque
 - starting current
 - maximum current at full load
 - minimum speed at full load

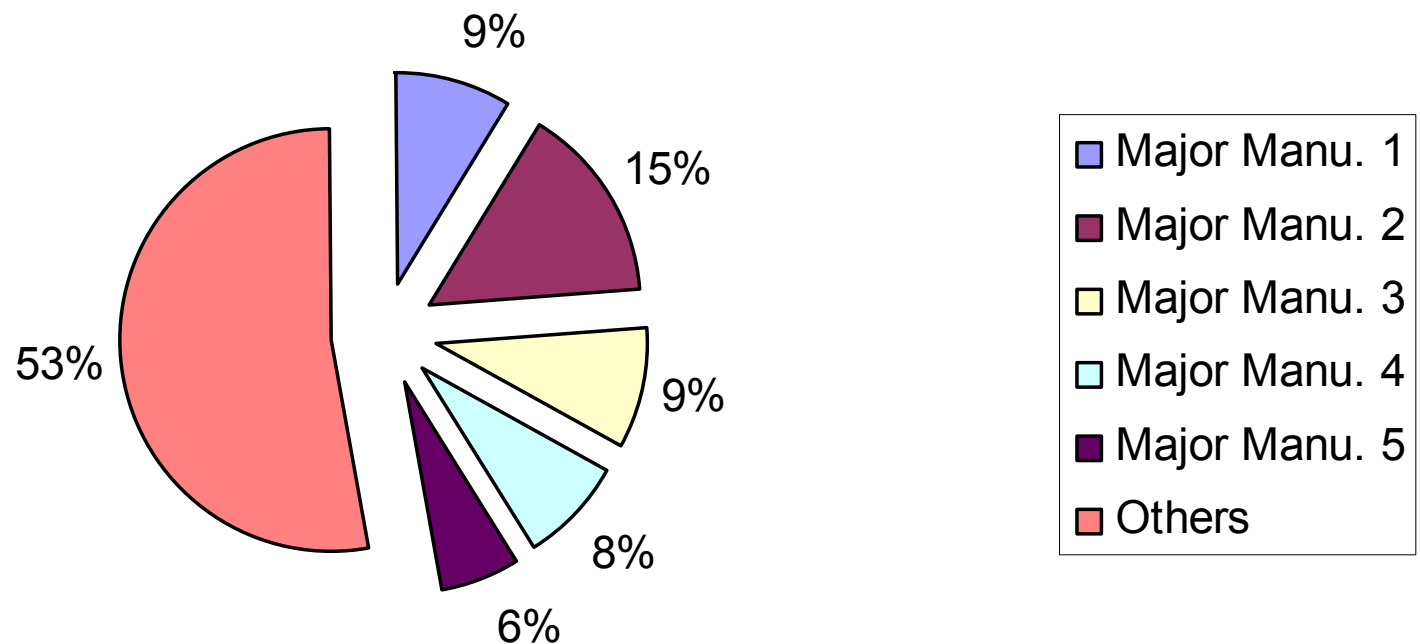


Way Forward

SME's market share is substantial



Number of Standard motors in 2009
Total approx. 2'2 mil LT Motors



Facilitate Economic Viability



- Capacity Building of small and medium scale manufacturers
 - Design support
 - Technology support
 - Market access
- Establishment of adequate test facilities
 - Test facility as per harmonized methods
 - Extend test facilities to SME 's
- Financing mechanisms
 - For manufacturers and supply chain
 - For end users

Increase Market Penetration



- Regulation

- Draw a realistic but firm time line to withdraw IE1 and IE2 efficiency levels progressively in next 3 to 5 years.

- Market Promotion

- Awareness creation among end users
- Conviction among decision makers
- Capacity building to adopt IE2, IE3 motors

- Enablers for adoption of IE2, IE3 motors

- Incentives and penalties
- Persuade OEM s to use IE2/IE3 motors through a systems approach

Conclusions



- HEM penetration is low, although there is awareness
- Voluntary standards for energy efficient motors exist
- Up-gradation and harmonization with IEC 60034 provides the way forward

In case of queries, please contact



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Thank you ! !