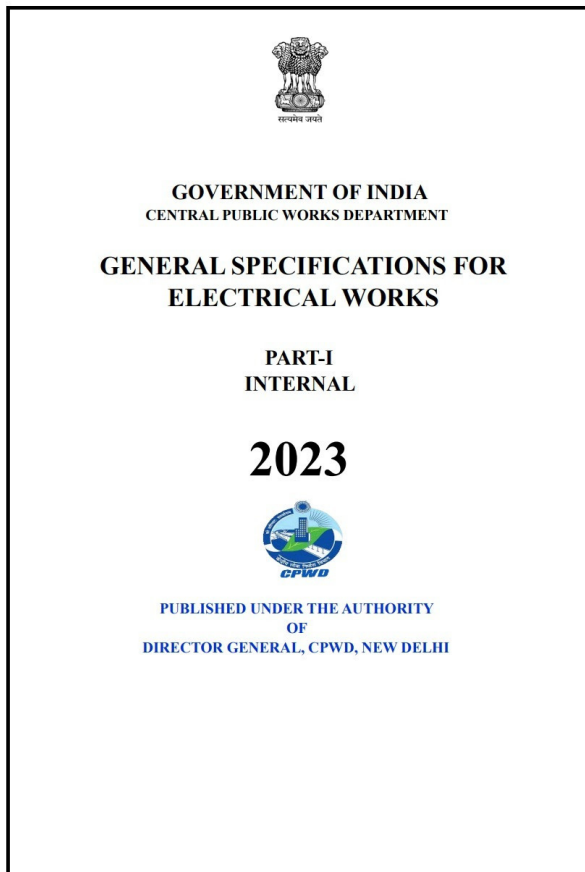


August 2023

**Cover Story****Copper only wires for internal wiring in all government buildings:  
Revised CPWD specifications for electrical works**

The revised specifications, released on 27th July 2023, for the use of copper wires, apply to all buildings governed by the Central Public Works Departments (CPWD):

- Federal Govt. Offices and Residential Buildings
- Public Sector Enterprises
- The infrastructure of various Ministries and Autonomous Bodies

The specification, which was last revised in 2013, had both copper and aluminium conductors for cables above 16 sq. mm. However, the 2023 revision focuses on staying current with technology, embracing green building principles, and enhancing safety in CPWD-constructed and maintained buildings.

ICA India contributed to this transformative change. Their active participation in committee meetings and unwavering commitment to safety and sustainability added up to making copper the preferred conductor for internal building wiring.

**Key Updates in the Revised Specifications**

Here are the key improvements brought about by the revised CPWD specifications:

**1. Wiring**

All flexible copper wires used shall have a Class 2 copper conductor satisfying the resistance requirements of NEC 2023

**2. Point Wiring**

All flexible copper wires used shall have a Class 2 copper conductor satisfying the resistance requirements of NEC 2023

**3. Cables**

Copper conductor cable will only be used for submain/ circuit/ point wiring.

**4. Flexible Cable**

The conductor of flexible cables shall be of copper. The cross-sectional area of the conductor for flexible cable shall be as per design.

**By adopting the use of Copper Cables to make buildings safer and sustainable, Govt. buildings are setting an ideal example.**

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## In Focus

**A collaborative study by ICA India & AEEE studies reveals the importance of restructuring incentives for E-mobility, quotes Mr Hemanth Kumar, Director of E-Mobility, ICA India, at the IESA's Stakeholder Consultation held on 2nd August 2023 at the India International Centre, New Delhi.**



Mr Hemanth Kumar, Director of E-mobility at the International Copper Association India, shared his insights at the #IEMC stakeholder consultation regarding 'What's after FAME-II? - Road Ahead,' organized by the India Energy Storage Alliance (IESA). During his speech, Mr. Kumar discussed the studies conducted by ICA India on the consumer perspective of 2 and 3-wheeler vehicles. Based on these insights, he emphasized the importance of restructuring incentives and focusing on the end consumer. Mr Kumar also highlighted the crucial need to include an incentivization scheme for a 3-wheeler retrofitting solution.

Access ICA India's White Papers on 2-wheeler and 3-wheeler market transformation in India:

[Download Whitepaper \(2-Wheeler\)](#)

[Download Whitepaper \(3-Wheeler\)](#)

ICA India's Managing Director, Mr Mayur Karmarkar, shares his insightful views on 'Energy-efficient motors to power India's net zero roadmap' with the Indian Express.

ADVERTORIAL

## Energy-efficient motors to power India's net-zero roadmap

By Mayur Karmarkar

India has committed to achieve net-zero emissions by 2070, underscoring the urgency of climate action. However, India's energy consumption is projected to grow approximately 1.5 times faster than the global average in the next three decades.<sup>1</sup> Electric motors and motor-driven systems account for approximately 70% of the electricity consumed by industries at a global level. Given that the industry contributes to about 40% of India's electricity demand, motors consume around 28% of the total electricity, surpassing lighting at 24%.

In FY22, the Indian electric motors market was estimated to be around INR 10,000 Crores, with a compound annual growth rate (CAGR) of 7.5% in value terms and 5.4% in kilowatt (kW) terms. The domestic motor manufacturers are represented by members of the Indian Electrical & Electronics Manufacturers' Association (IEEMA), All India Electric Motor Manufacturers Association (AIEMMA), and Southern India Engineering Manufacturing Association (SIEMA).

It is crucial to recognise the increasing need for energy efficiency due to various reasons such as scarcity of energy and climate change concerns. Many countries have acknowledged the potential of energy-efficient motors and issued directives to phase out lower-efficiency motors for the adoption of higher-efficiency ones as per the Minimum Energy Performance Standards (MEPS). **While for the in efficient installed base to be replaced with higher efficiency motors, a voluntary program such as National Motor Replacement Program, where ICA is a knowledge partner to Energy Efficiency Services Limited (EESL) could be helpful to accelerate the adoption of higher efficiency motors at lower than market price by the industries.**

Sector expert, Mr. Anil Naik, Associate Vice President, Bharat Bijlee Ltd. highlights that 13 economies worldwide have adopted IE3 as the minimum efficiency standard for industrial motors. However, India has been following the IE2 standard as its MEPS since January 2018. According to the latest statistics from the Indian Electrical and Electronics Manufacturers' Association (IEEMA) in March 2023, 32% of motors produced in India meet IE3 and higher standards, and this percentage is

**69%** of the energy consumption in THE INDUSTRIAL SECTOR

**28%** OF TOTAL ELECTRICITY IN THE COUNTRY.

**13+** COUNTRIES HAVE MADE IE3 AS MINIMUM ENERGY PERFORMANCE STANDARD (MEPS)

WHILE INDIA NOTIFIED IE2 AS MEPS IN 2018

**21.1 TWh** OF ENERGY WILL HELP INDIA SAVE UPGRADING TO IE3 AS MEPS

**INR 126 BILLION** IN NEXT 5 YEARS WHICH IS EQUIVALENT TO ENERGY CONSUMPTION OF MYANMAR ANNUALLY

IT WILL HELP REDUCE **19** MILLION TONNES OF CARBON EMISSIONS IN THE COMING 5 YEARS BY SWITCHING TO IE3 & ABOVE EFFICIENCY MOTORS

BASED ON ANNUAL CO2 EMISSIONS BY TAIWAN

expected to reach 40% next year based on the current trend. He further opines that upgrading to IE3 motors as MEPS is crucial to save INR 400 Crore in imports and boost the exports in the country.

Minimum energy performance standards (MEPS) serve as a crucial mechanism for regulating the energy performance of appliances and equipment. These standards are widely recognized and offer a cost-effective approach for governments to mitigate the adverse environmental effects associated with the utilization of various appliances. At present, India's MEPS include IE2 and onwards energy-efficient motors. Since the mandatory implementation of MEPS at the IE2 level in 2018, the market share of energy-efficient motors has risen from 22% in FY17 to 97% in FY22.

Following the implementation of motor MEPS in 2018, the Bureau of Indian Standards (BIS) has issued licenses to 120 manufacturers for producing energy-efficient motors with BIS certification (ISI mark). Out of these, 75 licenses have been granted for the manufacturing of premium efficiency (IE3) motors, and 20 units have obtained licenses for producing super-premium (IE4) efficiency motors. These 75 licensees for IE3 motors alone cater to more than 95% of the market demand.

The adoption of IE4 motors still presents a challenge for motor manufacturers due to weak demand and higher prices. Furthermore, the use of Variable Frequency Drives (VFDs) in combination with IE4 motors to enhance overall energy savings results in even higher costs. If IE3 becomes the new MEPS, focus on IE4 motors is highly likely to increase. With increased competition and volume, the cost of IE4 motors is

expected to decrease.

Considering that IE3 motors have achieved a substantial market share of around 30% in India, with numerous licenses obtained for manufacturing these motors, it is now necessary to upgrade the current mandatory MEPS from IE2 to IE3 in India by FY24.

Without timely upgrades to higher MEPS, there is a risk to the nation's climate action commitments. Implementing higher energy performance standards will contribute to India's industrial decarbonisation efforts in combating climate change. Switching to IE3 and above motors is estimated to save 21.1 terawatt hours (TWh) of energy and INR 126 billion over the next five years. It will also align with India's commitment to achieving net-zero emissions by 2070 and reduce carbon emissions by 19 million tonnes over the next five years.

Moreover, there is also the risk of becoming a dumping ground for the import of lower-efficiency motors in the absence of higher MEPS. As several countries have already adopted IE3 as MEPS and are exporting IE2 motors to countries like India, upgrading to IE3 as MEPS would significantly curb the import of lower efficiency motors.

Higher energy efficiency motors will not only contribute to India's climate goals but also support sustainable growth and development. The collective effort of manufacturers and policymakers is crucial in promoting and adopting higher energy efficiency motors, paving the way for a greener and more sustainable future.

*(The author is Managing Director, International Copper Association, India)*

1 <https://www.iea.org/reports/world-energy-outlook-2022>

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