

How to ensure high voltage electrical safety

High voltage electrical infrastructure is the backbone of India's growing industrial and urban development. From power transmission grids to manufacturing plants, the importance of safe and efficient handling of high voltage systems cannot be overstated. Unfortunately, these very systems—if not managed properly—pose a significant risk to human life, equipment, and national productivity.

Recognising this pressing concern, mojo4industry, under its Safe Bharat 2025 campaign, recently hosted a LIVE digital dialogue on "High Voltage Electrical Safety: Working with Power Systems Safely". The expert-led session brought together three industry stalwarts: PP Wahi, Former Director of CBIP; Deepak Tikle, Executive Director of V-Marc India Limited; and Dr. Rajesh Arora, Senior Manager (Technical) at Delhi Transco Ltd.

From real-world case studies and technological interventions to regulatory mandates and safety protocols, the session delivered deep insights into building a zero-accident culture within high voltage environments. Read the key takeaways from this power-packed session:

Frontline defence

Kicking off the discussion, PP Wahi, Former Director at the Central Board of Irrigation and Power (CBIP), drew from decades of hands-on experience in large-scale power infrastructure projects. "Whether it's an

11 kV line or a 1200 kV system, as the voltage level increases, the risk multiplies," he said. "Safety, therefore, must increase proportionally."

Wahi explained that the cornerstone of electrical safety lies in structured, periodic maintenance. He categorised maintenance into four levels: daily visual checks, monthly inspections, quarterly system evaluations, and annual preventive maintenance audits.

"Safety is another name for proper maintenance," he stressed, recalling incidents during the Delhi Metro construction where minor issues in tower erection or improper cable jointing caused major setbacks. He pointed out that many such accidents stemmed from poor worksite coordination, lack of basic checklists, and inadequate oversight by supervisors.

"Safety can't be treated as an afterthought—it must be embedded from the design stage itself," Wahi said.

Invisible crisis

Deepak Tikle, Executive Director, V-Marc India Limited, delivered a startling reality check: over 15,000 people die every year in India due to electrical accidents—more than 40 deaths per day.

"What makes this more tragic is that these deaths are often preventable," Tikle said. "They don't always hap-

pen due to electric shock. A significant number result from fire outbreaks, short circuits, insulation failure, and smoke inhalation during incidents."

He explained that most safety breaches happen due to poor-quality cables, improper jointing techniques, and thermal stress on aged installations. Tikle then introduced Electron Beam (E-beam) Cables—a future-ready solution developed by V-Marc.

"E-beam processed cables can withstand temperatures up to 150°C, deliver 15–20% higher current capacity, and have a lifespan of over 60 years," he stated. These cables are halogen-free, fire-retardant, and mechanically robust—making them ideal for high-risk environments such as refineries, thermal power stations, and steel plants.

In a hands-on demonstration, Tikle showed proper cable stripping, jointing, and termination techniques that ensure effective insulation and long-term system stability. "Wrong terminations are like silent killers," he warned. "Even the best cables fail if they are not installed correctly."

He concluded his presentation by encouraging industries to adopt proper system design, appropriate product specifications, and regular insulation resistance testing to build a resilient electrical infrastructure.

Regulations & reality

Representing the public sector viewpoint, Dr. Rajesh Arora, Senior Manager (Technical) at Delhi Transco Ltd., shed light on the regula-

tory ecosystem governing electrical safety in India.

"India has comprehensive safety codes, but the challenge lies in implementation," he said. "Even if organisations just follow six essential clauses from the electricity code, they could prevent 60% of electrical incidents."

Dr. Arora walked the audience through critical risks unique to high voltage systems—step potential, touch voltage, mesh voltage, and ground potential rise. He explained how improper earthing and bonding of metallic parts lead to dangerous voltage gradients during faults.

"Many sites treat earthing as a formality, but it's the most crucial component of high voltage safety," he said. "We need a mindset shift from compliance to commitment."

He then introduced his Seven Golden Rules of Electrical Safety, a protocol used internally by Delhi Transco:

- 1. Hazard identification** – evaluating equipment, weather conditions, and voltage ratings
 - 2. Risk assessment** – documenting every danger and its probability
 - 3. Permit-to-work** – ensuring administrative control before intervention
 - 4. Lockout-tagout (LOTO)** – isolating energy sources completely
 - 5. Verification of isolation** – using testing tools to confirm absence of voltage
 - 6. PPE compliance** – flame-resistant suits, dielectric gloves, and face shields
 - 7. Safe restoration** – resuming power only after double-checking all protocols.
- "Follow these golden rules like religion," he urged. "They've saved lives."

3Ds of safety

One key theme that emerged from the session was the urgent need to integrate safety principles into every phase of an electrical project—from planning and design to operation and maintenance.

"Documentation is not paperwork—it's legal protection," PP Wahi said. "In case of an accident, what's not recorded is assumed to be not done."

Dr. Arora echoed this sentiment, highlighting that many companies lack detailed single-line diagrams (SLDs), earth resistance logs, or maintenance histories. "This leads to blind spots," he said. "Audits must

be real, not ritualistic."

Meanwhile, Deepak Tikle pointed to the need for alignment between design load and actual load. "We often find a 50 mm² cable being used for 300 amps," he revealed. "That's a disaster waiting to happen."

Experts advocated for digital tools like load monitoring systems, insulation resistance testers, thermal imaging cameras, and live dashboard alerts to proactively track cable health and detect anomalies before failure occurs.

A direction

In their concluding remarks, all three panelists urged companies, regulators, and training bodies to work in synergy toward a zero-harm future. They called for better training modules, integration of safety in engineering curricula, more stringent enforcement, and wider awareness.

"A zero-accident workplace isn't idealistic—it's achievable," said Tikle. "But only if everyone—from the CEO to the lineman—owns the responsibility."

The experts emphasized that the cost of safety is always less than the cost of negligence, not just in human lives but also in business continuity, equipment loss, and reputational damage.

Conclusion

The session offered a clarion call to the Indian power and industrial ecosystem: invest in safety, not after a mishap, but before one occurs. High voltage electrical safety must be embedded into design standards, maintenance culture, training protocols, and audit systems.



Watch the video here: <https://bit.ly/HV-electrical-safety>



Dr. Rajesh Arora



Deepak Tikle

PP Wahi

ABB SETS NEW RECORD WITH 99.13% EFFICIENT MOTOR

ABB has raised the bar in industrial motor efficiency by setting a new world record with a large synchronous electric motor that achieved an unprecedented 99.13% energy efficiency. This breakthrough, part of ABB's Top Industrial Efficiency (TIE) initiative, marks a significant step forward in energy-saving technologies for heavy industry. ABB's TIE motors and generators are engineered to surpass current efficiency benchmarks, helping customers reduce electricity usage, operating costs, and total cost of ownership (TCO) without compromising performance or adding complexity.

Designed for a steel plant in India, the motor surpasses ABB's previous record of 99.05%, set in 2017. This achievement highlights the difficulty of approaching the theoretical efficiency ceiling of 100%, where every incremental gain demands advanced engineering and precision manufacturing.

According to ABB, opting for a TIE-optimized motor, rather than the standard design with 98.64% efficiency level, will enable the customer to save around 61 GWh of energy and \$5.9 million in electricity costs over a 25-year lifespan—equivalent to four days of peak output from the world's largest offshore wind



farm. It will also support avoiding 45,000 tons of CO₂ emissions, comparable to removing 10,000 cars from the road for a year. The scope for savings and avoided emissions is even greater in other countries where electricity is more expensive.

The motor will drive an air separation unit (ASU) that will liquify atmospheric

air so that the oxygen and nitrogen can be separated out to provide pure gases for the steelmaking process.

"ABB is on a mission to help industries outrun – leaner and cleaner – and this project shows how our products go beyond standards with our Top Industrial Efficiency (TIE) initiative

which delivers large motors and generators with the highest possible energy efficiency," said Brandon Spencer, President of ABB Motion. "This initiative helps our customers boost profitability since electricity costs are, by far, the largest component in the total cost of ownership (TCO) of this type of motor, at the same time they are also cutting their carbon emissions."

ABB's TIE initiative addresses a major gap in energy efficiency standards for large motors (3 MW+), which, despite being a small part of the global motor base, consume about 25% of all motion-related energy.

"Setting the new world record on efficiency reflects ABB's ongoing commitment to further optimizing the motor's electrical and mechanical construction, drawing on extensive application knowledge and over a century of experience in manufacturing electric motors. This achievement is particularly significant given that the average efficiency for this type of synchronous motor typically ranges between 98.2 and 98.5%," ABB said issuing a statement.



Read the news here: <https://bit.ly/abb-motor>

POM Power launches smart hybrid inverters

POM Systems and Services, widely recognized as POM Power, has unveiled its latest lineup of lithium battery-based hybrid inverters at RenewX 2025 in Chennai, marking a significant step forward in the company's expansion within the energy storage and hybrid inverter sectors.

The new series includes 3kW, 5kW, and 10kW hybrid inverters, each featuring a built-in lithium battery. Designed with aesthetics and ease of installation in mind, the models are tailored for residential and commercial use. "These inverters are smart, sleek, and user-friendly—ideal for homes and offices," said I.B. Rao, Managing Director of POM Power, during the launch event.

Rao attributed the company's strong brand recognition to its consistent focus on quality and reliability. "From day one, we've built products that are durable and low-maintenance. That's why customers trust us," he said. With over 30 years of experience in power electronics, POM Power brings deep industry expertise to both product development and cus-

tomers service. The company also boasts a strong presence in UPS systems and broader energy storage solutions, further strengthening its market position.

As India accelerates its adoption of advanced battery technologies, POM Power is aligning closely with this national trend. "Our hybrid inverters and battery systems comply with global standards and are certified by organizations like TUV and meet IEC specifications," Rao noted, adding that rigorous lab testing ensures their reliability and performance.

Looking to the future, Rao emphasized POM Power's ongoing commitment to innovation and customer-centric design: "We build solutions that reflect what our customers and the industry truly need."



I.B. Rao



Watch the video here: <https://bit.ly/pom-renewx>

BKT 2030 target: ₹23,000 cr revenue

Balkrishna Industries Ltd. (BKT), a leading player in the Off-Highway Tires (OHT) segment, has announced an ambitious five-year strategic plan aimed at achieving ₹23,000 crore (approx. USD 2.6 billion) in total revenue by 2030. The plan, unveiled at a Board of Directors meeting on Friday, includes investments of ₹3,500 crore (USD 400 million), primarily funded through internal accruals.

The growth strategy is anchored around three key pillars: strengthening leadership in the OHT sector, expanding the Carbon Black business, and entering new tire categories in the Indian market.

Global push

BKT plans to consolidate its leadership in the global agricultural tire segment while scaling up its presence in mining, industrial, construction, and rubber tracks segments. The company's rubber tracks, officially commercialized recently, will see an expansion in production capacity. The new facility is expected to be operational by the second half of 2026.

The mining tire range will also be expanded, leveraging BKT's proprietary All-Steel Radial technology for sizes up to 57 inches, complementing the existing Bias range.

Geographically, the company is focusing on growth in the Americas, India, and select international markets, while maintaining a stable base in Europe.



Rajiv Poddar

Carbon Black expansion

In the Carbon Black business, BKT has established itself as a key supplier for domestic and global tire manufacturers. It now aims to broaden its presence in the specialty carbon black segment, targeting high-performance, non-tire applications. This segment is expected to be a

major driver of growth in the coming years. To support this, the company will expand its carbon black production capacity from 200,000 to 360,000 metric tonnes per year. This expansion, which includes the addition of advanced carbon black production, is scheduled for completion by early 2026.

Tire Segments

Marking a significant diversification, BKT is set to enter the Truck & Bus Radial (TBR) and Passenger Car Radial (PCR) tire markets in India. These new product lines will cater to the growing domestic demand and are projected to contribute around 20% of total sales by 2030.

TBR tire production is slated to begin with pilot operations in the fourth quarter of FY25–26, followed by a gradual scale-up. PCR tires will follow, with pilot production starting in Q3 of FY26–27.

Financial performance

Despite global economic challenges, BKT reported a robust performance in FY 2024–25, with revenues reaching ₹10,615 crore — a 13% increase year-on-year.

"With this development plan, we are setting a clear and ambitious vision for BKT's future—built on solid foundations, modularity, and organic growth," said Rajiv Poddar, Joint Managing Director, BKT. "We are entering new product categories with the same focus and consistency that have driven us in the Off-Highway space, backed by the trust we've earned worldwide."



Read the news here: <https://bit.ly/bkt-m4i>

Ajax Engineering revenue crosses ₹2,000 cr mark

Ajax Engineering Limited, a leading Indian manufacturer of concreting equipment, reported a robust financial performance for the fiscal year ended March 31, 2025, with its revenue from operations crossing the ₹2,000 crore milestone for the first time.

According to the company's audited results, revenue from operations for FY25 stood at ₹2,074 crore, marking a 19% year-on-year (YoY) growth. The company's EBITDA (Earnings Before Interest, Taxes, Depreciation, and Amortization) rose to ₹318 crore, reflecting a 15.5% increase YoY, while profit after tax (PAT) reached ₹260 crore, also up by 15.5%.

Strong finish in Q4 FY25

Ajax Engineering capped off the fiscal year with a strong performance in the fourth quarter. The company reported Q4 revenue of ₹756 crore, a 15% increase over the same period last year. EBITDA for the quarter came in at ₹111 crore, up 1.5% YoY, and PAT stood at ₹91 crore, registering a 3% growth YoY.

The company attributed the performance to strong demand across infrastructure segments, ongoing product innovation, and operational efficiencies.

Shubhabrata Saha, Managing Director & CEO, Ajax Engineering Limited said, "FY25 has been a year of resilience and strategic progress. Despite external challenges, including the regulatory shift from CEV-4 to CEV-5 emission norms

and slower infrastructure execution, we delivered robust growth, crossed the ₹2,000 crore revenue milestone, and maintained profitability. Our leadership in the Self-Loading Concrete Mixer (SLCM) segment remains strong, with a 75% market share, while our non-SLCM and Spares businesses continue to gain momentum."

He adds, "Our strategic investments, such as a dedicated B2B channel for non-SLCM sales and leadership enhancement initiatives, are laying the foundation for the next phase of growth. We're also excited about the upcoming launch of our Adinarayanahoshalli plant in H2 FY26, which will add further capacity and product flexibility."

Tuhin Basu, Chief Financial Officer, Ajax Engineering Limited added, "We have delivered a healthy performance in Q4 and FY25 with revenue growth across several key business areas – our SLCM and non-SLCM segments grew at 18% YoY; the Spare Parts and Service revenue rose 33% YoY and revenue from exports increased 29% YoY. Our EBITDA has grown by 15% YoY." He adds, "Despite margin pressures this year due to capability building, we expect profitability to normalize as our investments start delivering results."



Read the news here: <https://bit.ly/ajax-m4i>