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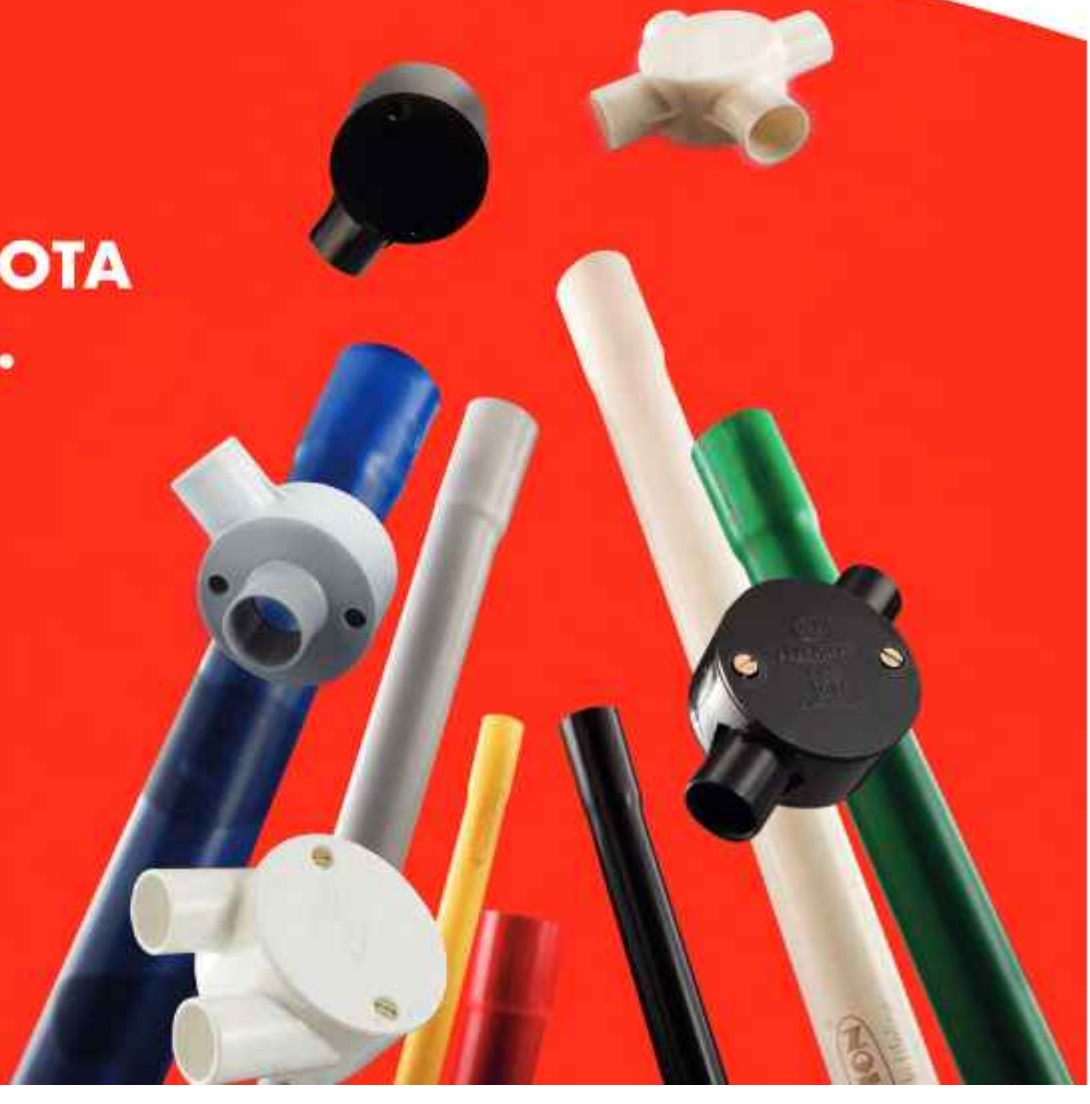

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Witnessing ECAM's Centenary!

To Our Esteemed Members,

The ELECTRICAL CONTRACTORS' ASSOCIATION OF MAHARASHTRA, (ECAM) since inception year 1925 has carved a niche for itself, in the annals of Electrical Contracting fraternity, by virtue of which, it has rightfully established its claim to be the foremost, perpetually reputed and the only one of its kind of PIONEERING ASSOCIATION in the whole of India. With the heralding of the new ERA, E.C.A.M. triumphantly marches into its CENTENARY YEAR in January,2024.

As the association grew up and several regions came into existence like PUNE on 14th

October 1984, AHMEDNAGAR on 4th July 1998, NASHIK on 29th April 1989, JALGAON (Formerly known as Khandesh) on 17th April 2011, WESTERN MAHARASHTRA on 23rd December 2012, DHULE NANDURBAR on 19th September 2015, Thane on 18th January 2019 and kokan region on 14 th December 2019.

In 1950, ECAM introduced its own magazine "INDIAN ELECTRICALS CONTRACTOR AND TRADER" ie. IECT. With this print medium, all members were educated and were updated with new things on a regular basis. Today also after 74 years ICET is been published. Keeping ICET reference ECAM – Pune & Nashik region started their tabloid for their region which is very popular among them.

As the time faded away, ECAM is representing, BEUREU OF INDIAN STANDARDS, MAHARASTRA GOVT. ENERGY DEPARTMENT, COMMITTEE FOR MALPRACTICE OF STATE GOVT., MAHARASTRA CHAMBERS OF COMMERCE AND AGRICULTURE, INDIAN MERCHANT CHAMBERS OF COMMERCE AND AGRICULTURE, etc which fall under Maharashtra state government and semi-government. Around 50 years ago, while making the "NATIONAL ELECTRIC CODE" ECAM's past president Mr. D.N.Purandare had a lion's share.

Started in 1925, ECAM is Maharashtra's oldest association that will be celebrating its CENTENARY year on 11 th January 2024. On this CENTENARY event, we be unveiling our SOVENIR and ECAM 2024 DAIRY. During these fantastic golden years journey from inception to 100 years facing all odds and even I would like to thank all our esteemed Board of Directors, Chairman, Secretary, and members of ECAM who were our driving force.

We are conducting our 98 th Annual General Meeting on 16 th December 2023, at BSE. So I'm inviting everyone to come and be part of AGM.

Since we will be celebrating our centenary year celebration on 11 th January 2023 followed by a grand ECAMEX-24 Expo, it will be a great honor for me to invite all our esteemed Director, Chairman, Secretary, and members to join me and contribute your valuable presence in this GRAND celebration and make this event SUCCESSFUL AND MEMORABLE, keeping a milestone for our coming GENERATION OF ELECTRICAL FRATERNITY.

Waman Bhure

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नमस्कार मित्रांनो,

इकॅम मुख्य कार्यालयाची ९८ वी वार्षिक सर्वसाधारण सभा, शनिवार, दिनांक १६ डिसेंबर २०२३ रोजी इंटरनॅशनल कन्व्हेंशन सेंटर, १ ला मजला, दलाल स्ट्रीट, बॉंबे स्टॉक एक्सचेंज टॉवर्स, फोर्ट, मुंबई-४०० ००१ येथे दुपारी २.०० वाजता आयोजित करण्यात आली आहे. इकॅमच्या सर्व सभासदांना आवाहन करण्यात येत आहे की त्यांनी सदर वार्षिक सर्वसाधारण सभेस मोठया प्रमाणावर उपस्थिती दर्शवावी.

आपल्या संघटनेच्या शताब्दी महोत्सवास दोन महिने उरले आहेत. आपण ECAMEX 24 प्रदर्शन फेब्रुवारीमध्ये NEC, गोरेगाव मुंबई येथे आयोजित करणार आहोत. सदर प्रदर्शन यशस्वी करण्यास आपल्या सर्वांचा सहभाग गरजेचा आहे. त्याचप्रमाणे शताब्दी महोत्सवानिमित्त स्मरणिका, दैनंदिनी तसेच दिनदर्शिका काढण्यात येत आहे. आपणास मी आवाहन करीत आहे की ECAMEX 24 प्रदर्शन तसेच स्मरणिका, दैनंदिनी तसेच दिनदर्शिका हे प्रकल्प यशस्वी करण्यासाठी आपण यामध्ये प्रदर्शनासाठी स्टॉल बुकींगसाठी तसेच स्मरणिका, दैनंदिनी तसेच दिनदर्शिकेत जाहिरात देण्यासाठी जास्तीत जास्त प्रयत्न करावेत.

आपल्या शताब्दी महोत्सवाच्या निमित्ताने काढण्यात येत असलेल्या स्मरणिकेसाठी आपल्या संघटनेबाबत स्थापनेपासुनची माहिती, आपल्या व्यवसायासंदर्भात तसेच विद्युत क्षेत्रातील विविध घडामोडींबाबत लेख छापणार आहोत. मी आपणास आवाहन करतो की ज्या सभासदांना आपले लेख किंवा विद्युत उपक्रमांसंबंधी काही माहिती तसेच विद्युत क्षेत्रातील तज्ञ व्यक्तींचे लेख अथवा माहिती छापण्यास द्यायचे असतील तर त्यांनी ती इकॅम मुख्य कार्यालयाकडे लवकरात लवकर पाठवावी.

संघटनेच्या सभासद संख्येवरूनच संघटनेची व्याप्ती जनमानसात पोहोचते. महोत्सवी वर्षात इकॅमची सभासद संख्या वाढवण्यासाठी इकॅमकडून प्रयत्न चालले आहेत. संघटनेची सभासद संख्या वाढली तरच संघटना संपुर्ण महाराष्ट्रात पोहोचेल व संघटनेचा पाया तळागाळात अधिक भक्कम होईल अशी माझी खात्री आहे.

आपल्या सभासद संख्येत वाढ व्हावी यासाठी आपले बहुमूल्य सहकार्य आम्हाला अपेक्षित आहे. आपणास आवाहन करतो की आपण आपल्या आजुबाजुला असलेल्या नविन विद्युत ठेकेदारांशी संपर्क साधून त्यांना इकॅम संघटनेविषयी सविस्तर माहिती देऊन सदर ठेकेदारांना इकॅमचे सभासद बनवून घेण्यासाठी प्रयत्न करावेत व सभासद वाढीसाठी प्रयत्न करावा.

आपणास नम्र विनंती आहे की आपणास जर आय.ई.सी.टी. मासिक मिळत नसेल तर आपण त्वरीत इकॅम मुख्य कार्यालयाशी ईमेलद्वारे संपर्क साधून त्वरीत कळवावे व जर आपला बदललेला पत्ता असेल तर तो ही कळवावा. हा पत्ता त्वरीत आय.ई.सी.टी. मासिकाशी संपर्क साधून त्यांना पाठविला जाईल.

तसेच आपल्या सभासदांच्या माहितीमध्ये ही त्याची नोंद केली जाईल. ज्या सभासदांनी आपली सन २०२३-२०२४ ची वार्षिक वर्गणी भरली नसेल तर ती त्यांनी लवकरात लवकर भरावी.

आपल्याला आपला व्यवसाय करताना काही अडचणी येत असतात. त्या अडचणी आपण इकॅम मुख्यालयाला लेखी कळवाव्यात. इकॅमच्या सभासदांना येणाऱ्या अडचणी सोडवण्यासाठी आम्ही प्रयत्न करू.

आपल्या सभासदांना येणाऱ्या अडचणींचे निराकरण करण्यासाठी सभासदांच्या बाजूने आम्ही कायम कटीबध्द राहु असे आम्ही आपणास आश्वासन देतो.

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India to cross 4-GW rooftop solar capacity addition

Experts said that this can be attributed to factors including increased consumer consumer awareness, advancements in technology, strong thrust on sustainability, favorable economics and proactive subsidy initiatives implemented by both central and state governments.

Apart from this, policy support from the government, competitive tariffs offered by roof top solar compared to grid tariffs and growing awareness among consumers are supporting the growth.

Prime Minister Narendra Modi in October reviewed progress of announcements made in his Republic Day speech from the Red Fort. He had also mentioned ensuring solar power for households and the meeting reviewed the preparations to execute the scheme.

A recent report by the Council on Energy, Environment and Water said that over 25 crore households across India have the potential to deploy 637 GW of solar energy capacity on rooftops. It added that deploying just one third of this total solar technical potential could support the entire electricity demand of India's residential sector.

Even though India's rooftop solar capacity addition has been on a slow track in recent years, with policy support from the government, competitive tariffs in place, and growing awareness among consumers, the sector is starting to see some growth.

If we go by what the industry experts say, India is expected to cross 4 GW rooftop solar capacity addition this year and 3.5 GW to 4 GW capacity addition in the next two years with increased demand from C&I consumers driven by sustainability targets and MNREs simplified guidelines for residential consumers.

In the first seven months of FY24, India added about 2.2 GW of solar rooftop capacity while 2.3 GW was installed in FY23, which was a significant increase from the 1.9 GW installed in Fy21.

In October this year, Prime Minister Narendra Modi reviewed the progress of announcements made in his Independence Day speech from the Red Fort. In his speech he had also mentioned ensuring solar power for households and the meeting reviewed preparations to execute the scheme.

A recent report had also said that over 25 crore households across India have the potential to deploy 637 GW of solar energy capacity on rooftops and that deploying just one-third of this total solar technical potential could support the entire electricity demand of India's residential sector.

If we go by these figures, this sector could prove to be a gamechanger for India's energy transition goals!

Satish Sinnarkar Editor, IECT

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Electrical Contractors' Association of Maharashtra
Head Office : Stock Exchange Tower, 1st Basement, Dalai Street, Fort, Mumbai 400 023
Tel.: 022 22723667, 022 22723668
E-mail : ecamindia@gmail.com
Website : www.ecam.org.in

Editorial Office

311, 3rd Floor, Shree Krishna Commercial Centre, 6, Udyog Nagar, S. V. Road, Goregaon (West), Mumbai - 400 062. Mobile : 9821039722 I
Email : info.cmasters@gmail.com

Editor - **Satish Sinnarkar** - 9821039722
Asst. Editor - **Prasanna** - 8861357898
Marketing Head - **Aashish Rejeshirke** - 9821375185
Marketing Executive - **Kaushal Ball** - 9270663417
Subhash Jadhav - 9920523871
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Government of India launches Revamped Distribution Sector Scheme (RDSS) to reduce the Aggregate Technical & Commercial (AT&C) losses to pan-India levels

RDSS sanctions 20.46 crores pre-paid smart consumers meters, 54 Lakh smart DT meters and 1.98 Lakh smart feeder meters

Government of India launched the Revamped Distribution Sector Scheme (RDSS) with an outlay of Rs. 3,03,758 crore and estimated GBS from Central Government of Rs. 97,631 crore for the duration of 5 years i.e. from (FY 2021-22 to FY 2025-26). The Scheme aims to reduce the Aggregate Technical & Commercial (AT&C) losses to pan-India levels of 12-15% and Average Cost of Supply (ACS)-Average Revenue Realised (ARR) gap to zero by 2024-25.

The Scheme has two major components: Part 'A' – Financial support for Prepaid Smart Metering & System Metering and upgradation of the Distribution Infrastructure and Part 'B' – Training & Capacity Building and other Enabling & Supporting Activities. Financial assistance to DISCOMs is provided for upgradation of the Distribution Infrastructure and for Prepaid Smart Consumer Metering & System Metering based on meeting pre-qualifying criteria and achieving basic minimum benchmark in reforms.

Schemes of Integrated Power Development Scheme (IPDS), Deen Dayal Upadhyaya Gram Jyoti Yojana (DDUGJY) along with Prime Minister's Development Package (PMDP)-2015 for the erstwhile State of Jammu & Kashmir are being subsumed in this scheme to be implemented as per their extant guidelines and under their existing terms & conditions. No new projects will be sanctioned under these schemes but projects already sanctioned will be eligible to receive funds up to 31st March 2022 under RDSS. However, projects sanctioned for Ayodhya, Uttar Pradesh under IPDS and projects sanctioned under PMDP 2015 will get funds till 31st March 2023.

So far, Sixteen (16) meetings of the Monitoring Committee of RDSS have been convened, wherein, Action Plans and DPRs of 46 Discoms (28 States/UTs) have been approved where ~20.46 crores pre-paid smart consumers meters, ~54 Lakh smart DT meters and ~1.98 Lakh smart feeder meters have been sanctioned. This information was given by Shri R.K Singh Union Minister for Power and MNRE in a written reply in Lok Sabha today.

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Next 5 years crucial to start decarbonisation biz

Decarbonisation is a crucial priority for Japan, and it is one that all countries should prioritize. As Ryo Minami stated, carbon utility is a significant change that will impact all countries, and it is necessary to tackle climate change in all parts of the world. With Japan's expertise in green technology and innovation, it can lead the way in developing sustainable solutions for the region and beyond.

The India Energy Week 2023 brought international and national experts from the energy sector together - putting the green energy conversation at centrestage. Speaking of renewables transition, Japan's Ryo Minami said that next five years are crucial for Japan to start decarbonisation business.

"Business including energy business must be activated. So next five years is very important period for us to start decarbonisation business," he said.

Decarbonisation has become one of Japan's top priorities as it aims to tackle climate change. According to Ryo Minami, from the Agency For Natural Resources & Energy, the next five years will be crucial to start decarbonisation business. This is because carbon utility is a big change that will affect all countries.

Japan has always been at the forefront of technology and innovation. As it focuses on decarbonisation, it can bring good green technology to Asian countries, which are rapidly developing and require sustainable solutions. Japan's expertise can be instrumental in developing sustainable and eco-friendly solutions for the region.

The urgency to tackle climate change is paramount, and it is necessary for all countries to come together to find effective solutions. Japan's focus on decarbonisation is a step in the right direction, and other countries should follow suit.

"Japan has good connection with India and other Asian countries, so we can make good change with such countries," he added.

With the next five years being crucial, it is essential that governments and businesses take concrete actions to reduce carbon emissions and promote sustainable practices.

Vishal Kapoor, CEO, Energy Efficiency Services, Francesco La Camera, Director-General at International Renewable Energy Agency (IRENA) discussed India's move towards diversifying its energy mix.

The whole world has been facing an energy crisis due to the Russia-Ukraine war. Some developing countries like Bangladesh which is a net importer of energy felt that they were priced out of the market when the prices rose significantly. Tawfiq-e-Elahi Chowdhury, Energy Adviser to Bangladesh Prime Minister (PM) for power, energy and mineral resources affairs, discussed how Bangladesh dealt with the energy crisis at India Energy Week.

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PM Modi champions green growth

Prime Minister Narendra Modi virtually addressed a post-Budget webinar on green growth hosted by the Ministry of Power. In his speech, Modi emphasised the need to swiftly implement budget policies highlighting some key announcements made on schemes such as the PM Kusum and GOBARdhan.

"This budget is an opportunity for the security of India's future. We need to work collectively and swiftly to implement budget policies," Modi said. Seeking investments in the green energy sector, the prime minister added that India's potential in renewable energy is no less than a gold mine.

Climate action and sustainability were key topics of discussion throughout the year leading up to the Budget and received a big push in Finance Minister Nirmala Sitharaman's presentation of it on February 1. As pointed out by a Ministry of Power official in today's webinar, it was also one of the "saptrishis" announced by the FM.

Starting his remarks, Modi outlined three pillars of India's transition towards clean energy and green growth: increasing renewable energy production, reducing the use of fossil fuels and moving forward with a gas-based economy.

The prime minister lauded his government's Budget saying it would "establish India as a leading player in the global green energy market."

He pointed out that the Budgets of yesteryears and Budget 2023 have all followed a common pattern — a push towards new age reform while keeping current problems in mind. Past budgets have witnessed major announcement for solar manufacturing incentives, rooftop solar schemes and battery storage initiatives, Modi said.

This year's Budget had something for everyone, the prime minister said. The green credit programme was launched to boost industries, while farmers benefited from the PM-PRANAM scheme. Villages were kept in mind through the GOBARdhan Scheme while a goal of scrapping 3 lakh old government vehicles was promised to help the cities of India with a Rs 3,000 crore outlay in the Budget.

"The provisions that have been made in this year's budget regarding Green Growth are in a way the foundation stone for the bright future of our future generations. Since 2014, India has been the fastest in renewable capacity addition," Modi said.

Presenting the Budget for 2023-2024, FM Sitharaman had set outside an outlay of Rs 19,700 crore for the National Green Hydrogen Mission.

The prime minister also noted that India was on track to achieve its 500 GW non-fossil fuel target by 2023 and that it had already achieved its goals of reaching an installed power capacity with 40 percent renewable energy nine years ahead of target. He also referred to India achieving 10 percent ethanol blending target five months ahead of schedule.

Tweeting about the webinar, the prime minister said, "At 10 AM, I would be addressing a webinar that focuses on aspects relating to green growth in this year's Budget. Urging all those passionate about the energy sector and boosting sustainable development to join the webinar."

In his speech, Modi urged investors to come out and invest in India's green future singling out the nation's waste to energy program and agri-waste as opportunities.

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Natural Hydrogen could change the world, if we understood it

In 2011, Montreal-based Hydroma Inc. unplugged a water well near Bourakébougou cemented up in 1987 after the air rising from it caused an explosion. The exhalations t out to be 98% hydrogen, which was then burned to provide electricity to the village

A village in the arid savannah of west Africa seems an unlikely place to mark the birth of an energy revolution. If promoters of the next big thing in clean power are right, however, we may all remember the name of Bourakébougou in years to come. That's because the site 55 kilometers (34 miles) northwest of Mali's capital Bamako was the first place on earth powered by natural hydrogen

That series of events seems to defy conventional geochemistry. Hydrogen is one of the most reactive elements — one reason it combines so readily with carbon to make fossil fuels. As a result, pure hydrogen is often assumed to be vanishingly rare in nature. Its role is so overlooked that gas chromatography — the process that chemists use to work out the composition of gaseous mixtures — typically uses hydrogen as a carrier material, making it impossible to detect in samples from underground wells. A growing wave of discoveries is now challenging that conventional wisdom, just as hydrogen manufactured from water and renewable energy looks set to disrupt fossil fuel's role in a host of industrial sectors. Aside from Bourakébougou, wildcatters have found seeps of natural H2 in Oman, New Caledonia, Canada, Russia, Australia, Japan, Germany and New Zealand.

kilogram — prices at which it might start to compete with natural gas. One 2020 study estimated that total global outflows of natural hydrogen might come to 23 million metric tons a year or more. A switch into natural hydrogen might represent the perfect way for the existing petroleum industry to decarbonize — shifting skills in geology and tapping underground fluids to a green fuel of the future.

There are just two problems with this promising vision. The first is that we understand next to nothing about natural H2. Crude oil extraction dates back to antiquity, and geologists hypothesized it came from decayed organic matter in the 18th century. Drillers worked out that it got trapped in folded underground rock formations long before John D. Rockefeller turned crude into big business. That scientific

depressions in the ground, known as "fairy circles," but it's not well understood exactly why these form. Until such questions are solved and underground reservoirs are mapped out, it's going to be challenging for hydrogen startups to take on the giants of the energy industry. Hyterra's Kansas and Nebraska prospects might be an attractive option as feedstock for the fertilizer consumed so readily in the Great Plains — but any plant set up to exploit the resource will want to know whether the wells will keep producing for 20 years or two months. That's still not clear. The other issue is related. That estimate of 23 million tons a year sounds like a lot — but in energy terms, it's paltry. The EU alone hopes to be consuming 20 million tons a year of manufactured green hydrogen by 2030, and even that is barely enough to slake the world's fossil-fuel appetites. In energy terms, 23 million tons of hydrogen represents about 2.76 exajoules — similar to the amount of natural gas we consume every week It's early days for natural hydrogen, so don't be too dispirited. No one has really been looking for this stuff until now, and predictions about the availability of mineral resources are almost always underestimates. (In 1919, the US Geological Survey predicted that country would start running out of oil in two to five years.)

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Home Automation Past Present Future

-Ajit N. Kulkarni

Erstwhile of home automation

As we know prior before beginning of home automation in residence there were manual control for operation of various systems and devices such as -

- Lighting on or off or dimming control
- Temperature Control by adjusting thermostat for heating or cooling
- Lighting scene selection by localized control
- Physical locks or access cards or digital locks
- CCTV cameras or door cameras or gate level cameras localized manually.
- Appliances like ovens, washing machines and refrigerators operation manually
- Lack of interconnected, communication and coordination between devices.
- Nonappearance of remote access
- Absence of automated energy management causing energy wastage.
- Daily routine tasks to be done manually
- Lack of personalization and more time involved

History of Home automation

Home automation is long process happened from past and has a history is of several decades. As technological advancements occurred improvement happened in it. The idea of automating household took place in early 20th century by bringing in concept by inventors and visionaries like Nikola Tesla and Albert Butz. The post World War II era saw the introduction of basic home automation technologies like dishwashers and washing machines with standalone limited connectivity. The more momentum happened in 1980s and 1990s when

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X10 communication protocol for home automation was introduced. It allowed devices

to communicate over existing electrical wiring. This was main breakthrough. Next phase was in 1990s and early 2000s in which more sophisticated home automation systems were introduced. Companies started offering integrated solutions with centralized control panels to control various devises of lighting, thermostat, security. Following phase came wireless technologies. In this Zigbee and Z-Wave were used in early 2000s which was main growth. These technologies allowed for more flexible and reliable communication between devices. And then came smart home revolution which is presently in run. In these all are interconnected devices and more systems. In this use of smartphones and the rise of the Internet of Things (IoT) played a crucial role in the smart home revolution. Smartphones, voice control, AI, Machine learning algorithms allowed users to control their smart home devices remotely through dedicated mobile applications.

Home Automation

Home automation is also known as smart home technology. This refers to the use of technology to control, program and automate various household devises, tasks and functions. The primary goal of home automation is to enhance the efficiency, convenience, security, more convenient, comfortable and energy conservation within a home. This is achieved by integrating and connecting different devices and systems, allowing them to communicate independently, interconnectedly and be controlled remotely. In these various aspects of home such as lighting, temperature, security, entertainment and appliances are controlled. It can be done by using smart devices, hub and connected app. In this access and control of home can be done remotely via the Internet.

Components of home automation include-

- Sensors and Detectors- Devices that can sense changes in the environment. E.g. lighting lux levels, motion detectors, occupancy sensors, fan control, door/window sensors, temperature sensors etc.
- Actuators and Controllers- Devices that can perform actions based on input from sensors or user commands. E.g. smart thermostats, smart locks, and motorized window blinds etc.
- Communication Protocols- Protocols that enable devices to communicate with each other. E.g. Wi-

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Fi, Zigbee, Z-Wave, Bluetooth etc.

- Hub and Controllers- Devices that manage and control smart devices in the home through single interface.
- Smart Devices- Appliances including smart lights, thermostats, speakers, cameras, entrance, parking.
- Central management- Entire system will be centrally managed and not multiple heads.
- Mobile Apps and Voice Assistants- Interfaces to control and monitor devices using smartphones or voice commands.
- Automation Routines and Scenes- Preset or customize configurations that automate multiple devices to perform specific actions simultaneously. E.g. In morning, pleasant music comes on, adjusting morning ambience lights, adjusting thermostat, opening the blinds etc.
- Devices used are- Any device compatible to interface given and which have built in intelligence such as smart lights, smart fans, smart thermostats, smart locks, cameras, music system, solar power, washing machines, refrigerators etc. can be part of it and can be connected.

These are some of the many possibilities of home automation. System can be customized as per need, preferences and budget. Home automation can make home energy efficient, comfortable and safer.

Future Trends

The future of home automation will be with more advanced AI integration. It is said that it will enhance the intelligence, adaptability, sustainability, energy efficient and personalization of home systems. Likely potential areas of advancement will be-

- Advanced automation- Due to AI, system can understand the background of user activities. E.g. the system might learn daily routines of occupant and automatically adjust settings based

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on user preferences or external factors, such as day light, weather conditions, vehicle charging after usage etc.

- Predictive analysis- System algorithms can analyze historical data, user behavior and make predictions about future needs. E.g. The system might anticipate when to adjust the thermostat based on weather forecasts or when to turn on lights based on past patterns or light scene selection.
- Energy Efficiency- Machine learning can optimize energy consumption by learning user habits and adjusting devices accordingly. This can lead to more efficient AC, heating, cooling, lighting, fresh air, exhaust, refrigerator, oven and other energy consuming processes.
- Enhanced Security- Security systems can utilize advanced pattern recognition and abnormal moments to enhance home security. The system can learn to differentiate between normal and suspicious activities giving alerts or taking preventive actions when required.
- Personalized Experiences- System can customize on the basis of individual preferences. This could include personalized lighting and temperature settings, as well as recommendations for music or TV shows.
- Integration with wearables and IoT Devices- AI can facilitate seamless integration with wearables and other IoT devices. This will create more interconnected ecosystem. E.g. system could adjust settings based on information from a user's fitness tracker or health monitor. Control the system from wearable devices.
- Maintenance alerts- When to carry out maintenance and giving alerts will be easily possible.
- Energy saving- System can keep watch on power tariff, usage and billing. Accordingly, can inform in advance how to reduce energy or use renewable energy fitted like solar.
- Self-decision- System can enable devices to make autonomous decisions within predefined parameters. E.g. Adjustment with real time occupancy and temperature conditions without direct user input.
- Emotion Recognition- As per mood environment in home can be changed.
- Robotic usage- For cleaning purpose small robots are now available but better improved versions will be available for doing routine few home work.
- Virtual reality- It will be used for education, game etc. to get real feel.

As technology continues to advance, these AI-driven capabilities have the potential to make smart homes more intuitive, responsive, energy efficient and user friendly. In short progress will be happening enhancing the overall quality of life for homeowners.

To,
Editor,
Indian Electrical Contractor & Trader
Mumbai.

Dear Mr. Satish Sinnarkar,

A year before when you asked me to write articles in magazine, I find myself as many opportunities to communicate with all electrical contractors and traders. Hence, I have selected topic 'artificial intelligence in electrical field' which is near going to happen in future of electrical field. And I thought our contractors, engineers should be ready for future developments. Accordingly, I have tried to share my insights and tried to engage with readers. During interactions I could get few likes, comments and suggestions. My deepest gratitude to all readers.

I am truly thankful to you for the chance given to contribute in your reputable publication. Looking ahead, as suggested by you I am working on book in line with articles written on.

Wishing you once again thank you to you and your entire team of IECT & ECAM.

With sincere thanks,

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Primary and Secondary Injection Testing of Instrument Transformers

Instrument transformers are the important equipment of the power system. They are used to serve two main purposes i.e. measurement and protection. The instrument transformers which is used to reduce high currents flowing in power lines to the lower values for measurement and protection are called current transformer. The instrument transformers which is used to reduce the high voltages of power lines to the low voltages for measurement and protection are called potential transformer.

Tests conducted on Current Transformers:

There are two types of tests conducted on current transformers– Primary Injection Tests and Secondary Injection Tests. Primary injection tests mainly include ratio test by current injection method, excitation current test, phase angle error and polarity test. Secondary injection tests include ratio tests by voltage method, winding resistance tests, knee point voltage and secondary burden tests.

Primary Injection Test:

The primary injection test is frequently used to test the ratio of Current Transformers. It is recommended method by IEC 61869 1&2 to identify the current ratio of CT. It is simply injecting rated current through the P1 and P2 terminals of the CT being tested and measuring the generated current at the secondary terminals. The ratio between primary and secondary current is called the CT ratio.

For testing the ratio of the potential transformer, voltage is applied to the PT primary terminal and generated voltage at the secondary is measured. The ratio between primary and secondary voltages is called the PT ratio.

The Primary Injection Test is important to ensure that all the equipment and protection schemes are healthy and working as per the design. CT polarity is checked by Stability Test which can only be carried out with Primary Injection Test.

Secondary Injection Test:

A secondary injection test is conducted either by

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voltage method or by current method for checking the health of the CT secondary cores, protection relays, meters & protection scheme wiring etc. In the secondary injection test, voltage less than knee point voltage is applied to the CT secondary terminals and voltage generated at the primary side is measured. The ratio between the secondary applied voltage and the primary measured voltage is called the CT ratio.

In secondary current injection, the lowest current like 1 A is injected in protection scheme wiring for checking the wiring scheme and protection relay operation.

When to conduct primary and secondary injection tests?

Primary and secondary injection tests are important tests which are conducted during pre-commissioning testing of CTs and PTs and also during the periodic maintenance schedule of CTs and PTs.

If CT or PT undergoes any fault during its operation then we should conduct the primary and secondary injection tests to check the CT ratio and confirm the wiring healthiness.

Secondary winding resistance test:

CT secondary winding resistance test plays an important role in verifying the true condition, state and healthiness of the protection scheme. CT secondary winding resistance test also verifies the continuity of secondary core winding. The winding resistance of the CT secondary core can change based on the load, ageing of equipment and external climate conditions. It is advised to test the winding resistance of CT secondary winding periodically.

A low-value DC is passed through the CT secondary winding and the voltage drop is measured to calculate the winding resistance. As the winding resistance is a DC test, it is possible that the CT may get magnetized hence it is required to demagnetize the CT after completion of the winding resistance test

Burden Test

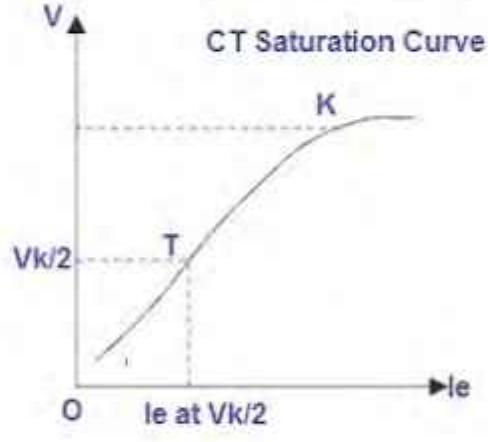
The burden of the current transformer is nothing but the total impedance or the total load on the secondary terminals of the CT. The total burden is the combination of the impedance of the relay coil, energy meter coil, inter-connection contact resistance, wire resistance and switches used in the secondary circuit. If a current transformer is not properly sized based on the secondary loop burden, it may result in a decrease in CT secondary current. Burden testing is important to verify that CT is supplying current to a circuit that does not exceed its burden rating.

With the burden test, we can ensure that,

- CT is not energized with shorting devices installed (if used for metering or protection)
- CT is not left open circuited, when not in use
- CT is connected with a single ground point
- All connections are tightened

Knee Point Voltage Test:

Knee Point Voltage of a Current Transformer is defined as the voltage at which a 10 % increase in voltage across CT secondary terminals, results in a 50 % increase in secondary current. Above knee point voltage, the



output current does not follow the input current linearly. The following fig shows the CT saturation curve plotted as voltage v/s current and it shows the knee point voltage indicated by the letter K.

Test Procedure for Knee point Voltage Calculation of CT:

Apply 5-10 % voltage of the knee point voltage to the secondary of the CT by auto-transformer. Note down the secondary current. Increase the voltage gradually to 20, 30, 40, 50, 60, 70, 80, 90 % of the rated knee point of the CT and note down the secondary current. Plot a graph of applied voltage v/s measured current

Polarity Test:

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The direction in which the secondary winding is wound on the core decides the polarity of the CT. Primary terminals of CT are marked with the P1 and P2 whereas secondary terminals are marked as S1 and S2. P1 is in line line-facing direction and P2 is in load facing direction. To check the polarity of any CT we need to inject the current through the primary winding from P1 to P2 and the secondary current will flow in the CT secondary winding. The direction of this current should be S1 to S2.

Insulation Resistance Test:

Every electrical equipment works on high voltage hence it should have proper and healthy insulation. In CTs, there is oil and paper insulation and it is required to check the strength i.e., insulation resistance periodically. While performing CT insulation resistance, three types of tests are performed-

1. Primary to Secondary: To check the insulation between primary and secondary windings
2. Primary to Ground: To check the insulation between primary and ground
3. Secondary to Ground: To check the insulation between secondary and ground

The insulation resistance should remain constant during the lifetime of the equipment. A major fall in the IR value can lead to insulation failure and heavy power loss. The value of insulation resistance should be at least 1 Mega ohm per KV of the device under test. However, the trend of insulation resistance results should be monitored to understand the true health of the DUT.

Conclusion:

In this manner, CT PT health assessment and diagnosis are done through primary and secondary injection tests. The physical parameters like ambient temperature, humidity etc. also affect the testing results. A good primary and secondary injection tester can conduct all the above tests on instrument transformers. Other features like single-phase relay testing, software interface etc. can add more advantages. SCOPE has joined hands with Dynamics to offer primary and secondary injection test kits which can conduct all the above-mentioned CT tests and single-phase relay tests. For more information on products related to CT testing please write to us at marketing@scopetnm.com

The International Solar Alliance (ISA)

The International Solar Alliance (ISA) is an action-oriented, member-driven, collaborative platform for increased deployment of solar energy technologies as a means for bringing energy access, ensuring energy security, and driving energy transition in its member countries.

The ISA strives to develop and deploy cost-effective and transformational energy solutions powered by the sun to help member countries develop low-carbon growth trajectories, with particular focus on delivering impact in countries categorized as Least Developed Countries (LDCs) and the Small Island Developing States (SIDS). Being a global platform, ISA's partnerships with multilateral development banks (MDBs), development financial institutions (DFIs), private and public sector orgnaisations, civil society and other international institutions is key to delivering the change its seeks to see in the world going ahead.

The ISA is guided by its 'Towards 1000' strategy which aims to mobilise USD 1,000 billion of investments in solar energy solutions by 2030, while delivering energy access to 1,000 million people using clean energy solutions and resulting in installation of 1,000 GW of solar energy capacity. This would help mitigate global solar emissions to the tune of 1,000 million tonnes of CO2 every year. For meeting these goals, the ISA takes a programmatic approach. Currently, the ISA has 9 comprehensive programmes, each focusing on a distinct application that could help scale deployment of solar energy solutions. Activities under the programmes focuses on 3 priority areas – Analytics & Advocacy, Capacity Building, and Programmatic Support, that help create a favourable environment for solar energy investments to take root in the country.

The ISA was conceived as a joint effort by India and France to mobilize efforts against climate change through deployment of solar energy solutions. It was conceptualized on the sidelines of the 21st Conference of Parties (COP21) to the United Nations Framework Convention on Climate Change (UNFCCC) held in Paris in 2015. With the amendment of its Framework Agreement in 2020, all member states of the United Nations are now eligible to join the ISA. At present, 116 countries are signatories to the ISA Framework Agreement, of which 94 countries have submitted the necessary instruments of ratification to become full members of the ISA.

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No. SEC-7 /CBIP/ Siemens/2023-24
Dated 17th November 2023

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2. Regulatory Commissions; Industry Associations and Key Pvt Sector organizations
3. Technical and Academic Institutions and HR Department of various organizations

Sub: Request for Nominations for Hands-on Training on "Transformer Protection" on 20th – 22nd December 2023 at Siemens Power Academy, Goa – reg.

Dear Sir,

Greetings from CBIP!!!

We are happy to inform that the Central Board of Irrigation & Power (CBIP), jointly with Siemens is organizing Hands on training with practical demonstrations on the subject **"Transformer Protection"** on 20th – 22rd December 2023 at Siemens Power Academy, Goa.

The above introductory training is being organized with a view to sharpening the technical skills of Engineers in the country. The following topics are going to be deliberated during this training program:

- Transformer protection basic concepts.
- Principle of Transformer Differential Application.
- Parameter explanation of IEDs
- Configuration of explanation of IEDs
- Additional Protections Inrush Restraint/ Over Excitation/Restricted & Sensitive earth Fault
- Importance of Multi measurement location differential applications
- Application And Exercises on Transformer Differential Protection
- Case Study
- Process data analysis (Fault Log and Fault Records Over IED S/W)
- Overview about Digital Technologies in Transformer Differential

In order to avail of this unique opportunity & to take maximum advantage of the introductory training, we request you to kindly consider deputing professionals from your organization to attend the above training. We are enclosing herewith a copy of the information bulletin of the program giving details about topics, registration fees, etc. for kind information, please.

It is further informed that we are able to accommodate a maximum of 24 participants in one batch in the training centre at Goa. The nominations will be confirmed on a first-come-first-serve basis.

We shall be grateful for your support & early positive response.

Thanking you,

Yours sincerely

Sanjeev Singh

Director - Energy

DA: as above

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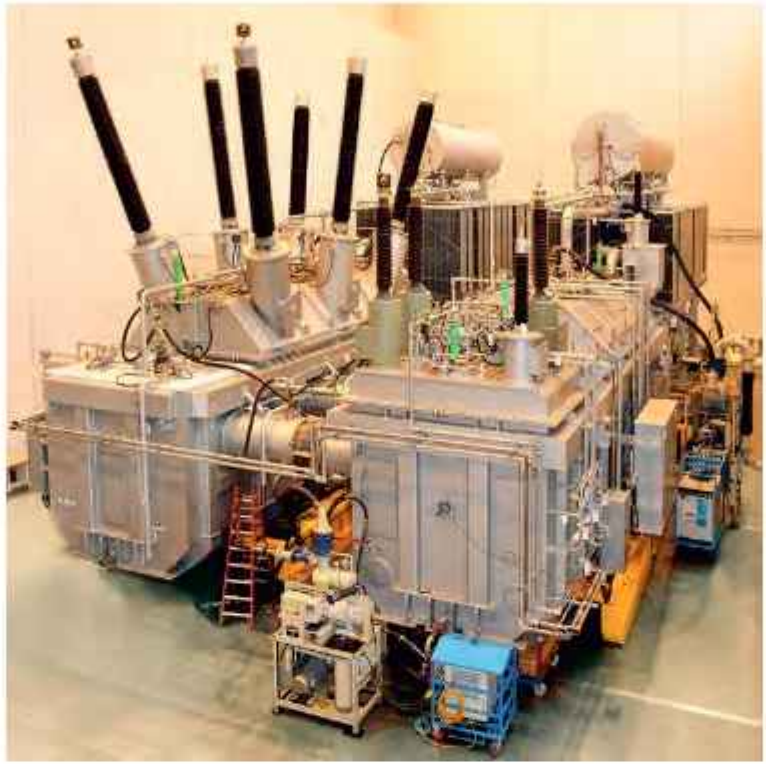
Phase Shifting Transformers



A phase shifting transformer (PST) is a specialised type of transformer, typically used to control the flow of active power on three-phase electric transmission networks. It does so by regulating the voltage phase angle difference between two nodes of the system. The principle relies on a phase shifted voltage source injection into the line by a series connected transformer, which is fed by a shunt transformer. The configuration of the shunt and series transformer unit induces the phase shift.

It is a simple, robust and reliable technology. Preventive and curative control strategies are implemented for power flow controllability. In the preventive mode, the permanent phase shift allows redistributing the power flows and relieves network stresses in the event of line outage. In the curative mode, the phase shift is small (sometimes down to zero) in normal operation, but it is automatically controlled to reduce the power flow on the overloaded lines and to avoid a tripping out. The active redirection of power flows allows exploiting lines closer to their thermal limits.

Technology Types

PSTs can be classified based on the following characteristics:

- **Direct PSTs** are based on one 3-phase core. The phase shift is obtained by connecting the windings in an appropriate manner.
- **Indirect PSTs** are based on a construction with two separate transformers: one variable tap exciter to regulate the amplitude of the quadrature voltage and one series transformer to inject the quadrature voltage in the right phase.
- **Asymmetrical PSTs** create an output voltage with an altered phase angle and amplitude compared to the input voltage.
- **Symmetrical PSTs** create an output voltage with an altered phase angle compared to the input voltage, but with the same amplitude.

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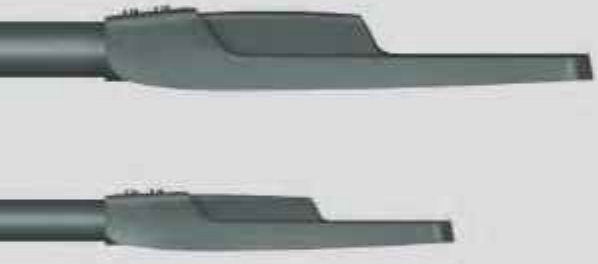

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Components & enablers

The components are comparable to traditional transformers:

- Laminated core
- Windings
- Insulating materials
- Transformer oil
- Tap changer
- Bushings

Advantages & field of application

The liberalisation of the European electricity market and the ever-increasing penetration of variable renewable generation have increased the need for this mature technology. Hence, the number of PSTs in the transmission grid is expected to rise. PSTs enable the grid operator to control unexpected loop flows, thus allowing the existing system to be used more efficiently. PSTs are used for congestion relief.

The PST system provides a means to control power flow between two grids. PSTs do not increase the capacity of the lines themselves, but if some lines are overloaded while capacity is still available on others parallel to them, optimising the power flows with PSTs can increase the overall grid capacity.\

Provided that there is free capacity on parallel paths that can be used, these slow devices are better suited for power flow control in the event of no continuous congestion and low congestion volatility.

PSTs are often the most economic and reliable approach to power flow management and system design, enabling TSOs to get more out of their existing assets. Existing transmission lines can be loaded up to the thermal limit without being overloaded. The investment in new lines can be postponed or even avoided.

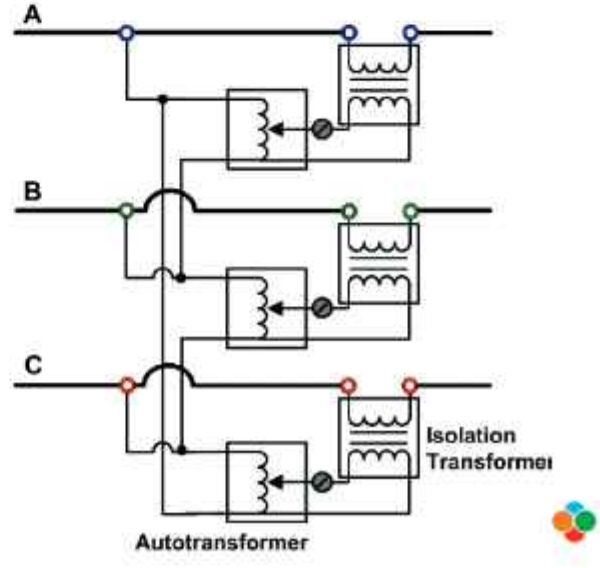
A strong need for coordination emerges among the TSOs operating PSTs which are placed at the extremities of congested cross-border -tie-lines.

The following are key applications of the PST technology:

Preventive/curative power flow control in transmission lines PSTs are used in electrical power systems to control the active power flow between two points by regulating the corresponding voltage phase angle difference. The phase angle shift is obtained by opportunely placing the PST transformer in a shunt mode in respect to line terminals so that, by combining the voltages, the output voltage phase is shifted by an angle difference respect to the one as input in the PST. PSTs can thus be used to take advantage of an existing capacity margin on the network or to make an interconnection more secure.

Handle market flows in a physical meshed grid As a consequence of the power flow controllability, PSTs can also be used to match contract obligations from trading activities at wide regional level with laws of physics. They provide for crucial tools to address non-anticipated flows and lower the need for countertrading or redispatch.

Other innovative applications Innovative PST applications are enabled by adding series reactive elements aiming for substation uprating, substation reserve sharing, network decoupling, line power flow control using assisted PSTs (APSTs) and HV transmission lines de-icing. All these applications rely on the connection of conventional PSTs and reactive elements to meet unusual objectives for PSTs.



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YOU THINK IT, WE DO IT

International Solar Alliance's Global Solar Facility set to receive a capital contribution of $35 million dollars

Government of India is considering a $25 million investment as capital contribution to the Global Solar Facility

ISA to provide $10 million to the GSF

Amidst a $12.5 trillion global renewable energy investment gap, the GSF steps up to bridge the divide, focusing on stimulating investments in off-grid solar in underserved regions

Posted On: 31 OCT 2023 8:10PM by PIB Delhi

The International Solar Alliance (ISA) today announced that the Global Solar Facility (GSF), a payment guarantee fund formed by ISA to stimulate investments into solar power projects, is set to receive a capital contribution of $35 million dollars.

The Global Solar Facility (GSF) is designed to catalyze solar investments in underserved segments and geographies across Africa, unlocking commercial capital in the process. Last year, the ISA Assembly approved the Global Solar Facility, which is expected to attract private capital to flow into off-grid solar projects, rooftop solar projects, and productive use solar projects. This financing vehicle, bolstered by payment guarantees, insurance, and investment funds, aims to mitigate project risks, provide technical assistance to address regulatory gaps, reduce currency risks, and resolve contractual and financial uncertainties in the solar energy sector.

The Government of India is considering a $25 million investment as capital contribution in the GSF in addition to $10 million coming from the ISA. Bloomberg Philanthropies and CIFF have also committed their support to the GSF.

Union Minister for Power and New & Renewable Energy, Government of India, and President, International Solar Alliance Assembly, Shri R K Singh said that the target for the GSF is to raise 100 million USD and that the aim going forward would be to globalize the GSF. "Global Solar Facility aims to leverage investments to accelerate transition to solar energy. The target for the GSF is to raise 100 million USD. Africa has immense potential in deploying solar energy capacities, yet due to risks in investments, the region has not been able to leverage its potential. The GSF aims to address this challenge and provide security to investments. India is a good example of development due to private sector investments. It has no sovereign risks and has a strong legal and security framework with a dispute mechanism and security of payments,

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which has enabled India to attract investments. In the years to come, we will look at globalizing the GSF. I invite all the Member Countries and organizations to partner with us in making this Facility a catalyst for the transformative change that we all are working towards."

Director General of the International Solar Alliance, Dr Ajay Mathur said: "The GSF has been working towards crowdsourcing investments from various international donors. We are delighted to have the support of Government of India, CIFF and Bloomberg Philanthropies. This will enhance the confidence of investors to invest in decentralized solar application in Africa and enhance the certainty in receiving returns on their investments and could lead to a sea change in global investment patterns."

The ISA highlighted that the GSF is expressly designed to provide investors with the confidence to take up projects in Africa and to enabling $10 billion in investments, which will facilitate clean energy access in 35–40 million African households by 2030 and benefit around 200 million people in the region.

Commenting about why the GSF was needed, Dr Mathur said: "The world requires an investment of $12.5 trillion in renewable energy and $23 billion in off-grid solar by 2030. The ISA through its Global Solar Facility is stepping up as current global solar investment falls woefully short, constituting only 10% of the required amount for achieving net-zero emissions. Additionally, there is profound disparity in investments — with developing countries, home to over 50% of the global population, receiving just 15% of 2022's renewable energy investments. Sub-Saharan Africa's per capita renewable energy investment has plummeted by 44% from 2015 to 2021. In stark contrast, investments in North America are 41 times higher, and in Europe, they are 57 times greater. The GSF will further our vision of addressing the urgent need for universal energy access and a clean energy transition."

Ms. Kate Hampton, Chief Executive Officer of CIFF said, "We are thrilled to announce CIFF's commitment to seed funding the International Solar Alliance's Global Solar Facility, which will unlock critical low-cost institutional and private sector investment for solar in ISA member countries. Here and in all our work, CIFF is resolute in its commitment to championing clean, affordable energy, to driving the global energy transition, and to securing a livable planet for children and young people around the world."

Antha Williams, who leads environment programs at Bloomberg Philanthropies, said, "African countries are positioned to be global leaders in solar power but lack the capital necessary to unlock their untapped potential. Bloomberg Philanthropies looks forward to continuing its partnership with the International Solar Alliance through the Global Solar Facility to help facilitate the widespread deployment of solar energy projects across the continent not only to help solidify the continent as a global leader on clean energy but also address the twin challenges of energy poverty and the climate crisis."

The ISA highlighted the need for diversifying investments in solar energy in Africa for mitigating climate change and a balanced energy transition. Despite its vast solar potential, Africa possesses only 1.3% of the world's installed solar capacity (11.4 GW out of 849 GW in 2021). With nearly 600 million people in Africa lacking access to electricity, there exists a compelling case for distributed solar power projects. Following the approval and launch of GSF at COP27, the ISA Secretariat has been conducting discussions with potential investors including member countries, development finance institutions, pension funds, and potential investment managers from across the world. The ISA has signed Memorandum of Understanding (MOUs) with Multi-Lateral Investment Guarantee Fund (MIGA), Africa 50, West African Development Bank (BOAD) for facilitating investments through the GSF in Africa.

After Africa, the GSF aims to expand to regions such as Asia, Latin America and the Middle East, where the Regional Facilities will be tailored to meet specific requirements. In the future, GSF plans to invest in innovative technologies to enhance solar energy efficiency, support startups for faster solar energy implementation, and explore emerging solar energy sectors.

More information about ISA at https://isolaralliance.org/

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Chavni.....A mesmerizing journey

Light Artist :
Abhijit S Salunke

Studio :
Beuno Lighting Design
beunodesign60@gmail.com

The Site

Chavni , A slice of paradise is a boutique mountain retreat, located in the sahyadris, between the bustling port city of Mumbai and Pune on other side. This resort is an oasis in a world where everything moves at a breakneck speed. Here, you can discover century's old traditions and life as it was long years ago.

Once you're here, all you've got to do is slow down, give in to the moment, and unwind in its mesmerising location.

Sitting on a mountain top and then slowly descending in the forest valley, surrounded by heritage forts, mystical eclectic architecture of the bygone era, wild landscape, intriguing sculptors and last but not the least the mythical stories of the place !

Light Artist Philosophy

The concept for the lighting design is based on a sustainable, adaptive and an experiential lighting strategy by creating a **Light Story** .

Before going into any Lighting Design one should understand the thought process behind a sites creation by its designer, the ethos it conveys, the place it is based in, regarding its cultural context, its history, the seasonal changes, ecosystem & the people who will visit it.

Once you have awareness of the site and become a part of it, then as a Light Story artist one creates his own intriguing night universe, creating characters from the landscape, architecture and sculptors for an immersive experience for the guest, to take back memories unexplored before !

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What is Chavni

The ancient routes followed by the conquerors, rulers, often passed through forests, mountains, valleys and open fields, crossed rivers and villages. People, their belongings, food was carried on by carts and caravans (sartha), common people used horses and asses, rich people used carriages and chariots.

These caravans had all the necessary ingredients for living, along with armory for soldiers .These use to stop at designated places before reaching their destinations and everyone would carry on with his assigned duties at these temporary abodes .Such a setting was called Chavni , a moving architecture .

Chavni the resort

At Chavni resort, based on this basic idea a visual setting was created in a equally rustic place blessed with imposing mountains and forts to live up to its heritage tag.

This is a resort built in stone, clay and natural materials like wood, bamboo, cloth with the architecture reminiscent of the Maratha kingdom era .It is layered with sculptors, antiques depicting the way of life in that period and stories about it .

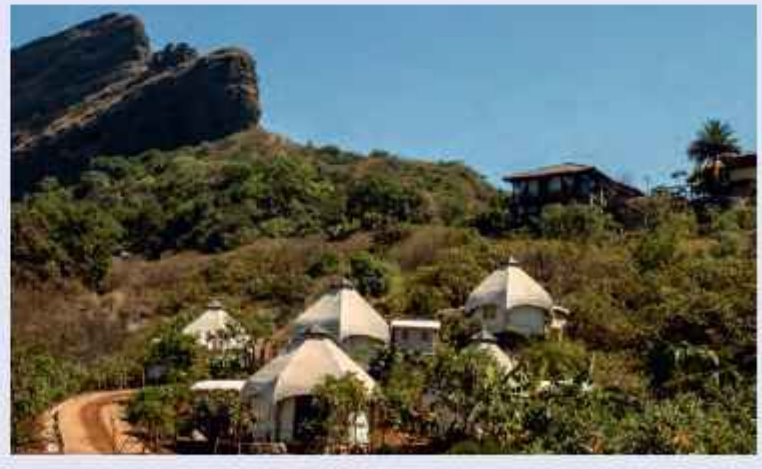
The resort is on two levels with the reception and restaurant on top giving an imposing view of the valley and acts as a surprise element when guest arrive.

The select cottages, recreational areas are below in the forested valley leaving one exhilarated once inside !

The Natural Light

When the sun arrives in summer the delicate warm rays lit the entire grassland golden bright and then winds flows, caressing the grass merrily.

At the same the shadow of the precipitous Visapur fort cliff starts shifting slowly downwards. The entire view is a drama set in a large amphitheater below.



At dusk the skies are lit sometime in a subtle shade of red and then moonlight incites dark passions like a cold flame setting over Lohgad fort, a giant geographic feature of the Sahyadris .

Finally as the night falls, artificial light takes over, crafting its own play of light and shadow to create an enchanting atmosphere.

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Brief

Beuno Lighting Design was asked to take responsibility for new architectural and interior lighting that would help to tell the story of the heritage resort by creating an imaginary night Cosmos for guest to submerse in but keeping intact its earthy, heritage character and a meditative way of living for guest.

We embarked on a path of Sensitivity, Sensibility and Sustainability to create an alluring night universe.

The architectural lighting at the resort is the result of careful application of select LED lighting from linear, spot, buried luminaries control systems for outdoors and customize wall scones and rustic chandeliers for interiors. In terms of its integration into the architecture the luminaries disappear, so as to not interfere with the visual enjoyment of the space during day when the natural light is present and when the daylight fades into darkness giving way to the creation of a theatrical atmosphere .

Light Design

Lighting Design is about relationship between people and space .The resort is experienced visually by our sense of **Vision** , this then creates **Sensation** when one sees things around , as per the intensity of the subject it creates **Stimulation,** this then finally leads to creating a **Perception** of the space and this perception creates **Emotions** based on our Navarasa's which energises the people .

First, we created a layer of subtle **Utility** lighting which facilitates pathway and provides a feeling of connectivity.

Secondly, we designed a layer of **Expanse** lighting to create a sense of space through scale, form, depth, texture and colour of the architecture and landscape.

Next, we designed a layer of **Dramagraphy** lighting with characters created from the landscape elements like flora, structure , sculptor, pathway and water bodies to connect the overall space into Light Story.

Finally, it's the **Sceneography** lighting where these elements of space are dynamic w.r.t time but subtle in their interaction and the space becomes alive as part of Light Story .

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Light Story

We mapped the resort into different areas, analyzed its weightage in the visual field e.g Entrance, Reception, Restaurant, Pathway, Tents, Waterbodies, Lawn , Forest .

We then created a **Theme** of what it should convey ,look & feel to the guest.

Based on this Theme a **Story Structure** was created as how visual elements to enact from entrance to the pool that is till the end. Then based on this script of Story Structure we created a **Visual Structure** taking into consideration the elements in the space from forest, structures, sculptors, water bodies etc.

Then we **Directed** the Visual Structure as per the Light Scenes set as per the time period to enact the visual story where each person will have his own interpretation based on the emotional journey he goes through.

Process

The resort had three basic elements ,first the native hard rock structure taking one back to the prehistoric era , second the utility structure like the different tents in fabric which lent a soft appeal to the overall space and finally the rustic wild landscape which gives the thrill pills once inside it .

Through a strategic light choreography of rhythm, we create a lighting design that is more than just a utilitarian solution but one that uses architectural qualities, typologies and environments to produce new, experiential spaces with light.

Though our Light Story, apart from the existing spaces, we have created an second space – the space of secrets which in daylight no one could imagine to explore but at night it intrigues the viewer to traverse it.

The light variations in colour temperature from warm to neutral white achieve a pictorial effect and gives feel of depth and scale and the accents punctuate the walls , pathways creating a visual guideline to embark on .

An important design element used is the reflected light through the surfaces like rocks and transmitted light from the elements like plant foliage.

One of the biggest challenges with this project came with its age. In the seventeenth century there was no artificial lighting but the historical story in the present day was to be told through the help of artificial lighting. This was solved by playing with light, shadows , filtered warmer tones and carefully hiding the different light sources from the visitors. Traditional light sources from the time such as the oil lamp have also been recreated and also customized movement shades symbolizing the flame, an very integral part of illumination in that era .

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Emotions

Light has to tell something, there's a purpose, meaning to what light does and it should not be to just pump light in a space or decorate it with light.

There's a meaning to its existence with the surface and this meaning is conveyed in the form of **Mood**.

These can be Joy, Curiosity, Cozy, Haunting , Mysterious, Silence .

About

Abhijit Salunke is an **Lighting**, **Collage** artist & **Resort experience curator** at **Beuno Lighting Design** and **Antrik Studio** based in Pune, working for close to 2 decades in Indoor and Outdoor spaces for creating immersive experiential spaces

Lighting Designer

As an award winning lighting designer has designed lighting layout for spaces in India and abroad with close to two decades of experience in Residential, Retail, Corporate, Hospitality, Façade, Landscape, Light & Sound Show and Monumental lighting, with **Interactive Lighting** his forte.

He strives to create an ***inspiring experience*** for the occupants and loves to take the audience on an enchanting voyage as what matters ultimately is the ***emotional journey*** one takes in the space.

Abhijit Salunke
Principal Lighting Designer, Collage artist
Beuno Lighting Design, Antrik Studio Pune
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Historical Developments of Electrical Machines

This article presents a brief historical development of electrical machines. The electrical machines, such as DC machines, AC static machines, AC rotating machines, play a vital role in all day-to-day's life activities. It is one of the important courses to be studied by UG electrical/ electrical and electronics engineering students. It is good and interesting for the students to know about the evolution of these electrical machines before they study their construction, principle of operation, characteristics and their various applications. Hence, the significant evolution of electrical machines is presented in this article...

Over the years, the electrical machines are very popularly used for many applications. The AC static electrical machines, namely transformers, are used to step up and step down voltage level in power systems. Also, transformers are used to provide electrical isolation in electronics applications. Motors are used in domestic applications such as water pumps, grinders, mixers, washing machines and many more. Also, motors find applications in commercial/industrial applications such as automation and control industries, which include paper mills, centrifuge [1] etc. The generators are used to supply electrical power. The major revolution in the electrical machines took place during 19th century. Many articles on history of electrical machines have been reported in the literature [2-6]. However, this short report is presented in a way that would help budding electrical engineers to understand the major & significant historical evolution of various electrical machines in a quicker way – and also this article would make the students develop interest on electrical machines course after reading it.

History of Generators

In Early 1830s, three scientists namely Oersted, Gauss and Faraday worked on the Principle of Electromagnetic Induction independently. But, Michel Faraday is the one who exploited the use of electromagnetic induction principle in 1831 – and based on the electromagnetic principle, he developed his first prototype model of generator and named that "Faraday Disk Generator". The representation of Faraday's disk generator is shown in figure 1. The prototype model consisted of a permanent magnet, which forms north and south pole, copper disc with handle and a galvanometer. Faraday rotated the copper disc with the help of a handle in presence of magnetic field, which was created by the permanent magnet. As the disc was rotated, he observed deflection in the galvanometer. Through this experimental set up, he showed that whenever the conductor cuts the magnetic field, emf is induced in the conductor and the current flows through the closed circuit that is observed as deflection in the galvanometer.

Later, German scientist Werner Von Siemens improved the design of DC generators developed by Faraday and called them Dynamos – and possibly he might have got higher voltage than that in the case of Faraday disk generator. In olden days, we could see dynamos in the bicycles to electrify lamps in the cycle. Then in the year 1867, better generator was introduced by a French scientist named Zénobe-Théophile Gramme, which produced substantially higher voltages than previous attempts. In the year 1872, Von Siemens developed a more efficient design for generators. Till this point of time, generators developed were not used for practical applications.

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Generator...

Edison's Power Generating Station in Pearly Street-US...

Stanley's first transformer

In the late 1870s, Thomas Alva Edison devised his highly successful electric lighting system with DC generators. In 1882, Edison installed DC generators at the Pearl Street station in New York city, it was one of the earliest commercial power generating plants. The DC generator and DC power generating station developed by Edison are shown in Figure 2 and Figure 3 respectively. Edison was the first man to showcase the practical use of DC generators. In that period, both DC and AC generators were available. The only difference between DC and AC generator is that the DC generator has split ring or commutator and the AC generator has slip ring. Edison wanted to use generator for dual practical purposes, one is to electrify the Pearl Street and another one to run the motor. As only DC motors were available at that time, Edison made use of DC generators to provide DC electrical power to the DC motors. People lived in Pearl Street might have been happy to enjoy the luxury of electricity from the power station developed by Edison. But the people who were living in other areas also had to get electricity. But the problem with DC generator was that the DC power generated using DC generators could not be transmitted over longer distances, as it led to severe power loss. Hence, it was not possible to provide electricity for the people living in the places which were far away from the Edison's power station. In that period, transformers were developed. The brief history of transformers is dealt in the next section.

History of Transformers

In 1830s, Joseph Henry and Michael Faraday worked with electromagnets and discovered the property of mutual induction independently on separate continents. In 1885 and 1886, William Stanley built more practical single phase transformers. Stanley's first transformer was used in the electrification of Great Barrington, Massachusetts. Figure 4 shows the Stanley's first transformer. In 1889, the first three phase transformer was developed by the Russia-born engineer Mikhail Dolivo-Dobrovolsky in Germany. The world's largest transformer (of that time) with the capacity of 220kV, 120MVA was installed in the year 1942 at the Vartan Substation Stockholm.

History of Motors

During the evolution of generators and transformers, the motors were also developed parallelly during that period. By 1820, Oersted and Andre Marie Ampere discovered that electric current produces magnetic field. In 1821, Faraday succeeded in demonstrating the findings of Oersted and Ampere. Faraday demonstrated that the current carrying conductor produces the magnetic field. The setup he used for this demonstration is shown in Figure 6. It consists of the vessel filled with mercury and a conducting rod freely rotating on the surface of mercury. The magnet is placed on the surface of the mercury. The electric current is passed through the conducting rod with the help of battery. Faraday found that as soon as the electric current was passed through the conducting rod, the rod rotated on the surface of the mercury. Through this experiment, he illustrated that the current carrying conductor produced magnetic field and it interacted with another magnetic field created by permanent magnet, which was placed on the surface of the mercury. The two magnetic fields interacted with each other leading to the rotation of the conducting rod which was nothing but the motoring effect and it formed the basic working principle of motor.

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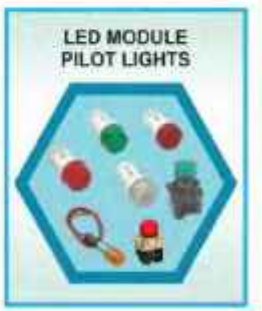

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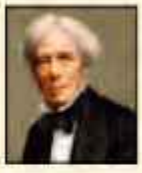
Pictures of Scientists and their significant inventions on Electrical Machines

Hans Christian Oersted
August 14, 1777 to March 9, 1851
Denmark
Inventions: Principle of electromagnetic induction

Carl Friedrich Gauss
April 30, 1777 to February 23, 1855
Germany
Inventions: Principle of electromagnetic induction



Michael Faraday
September 22, 1791 to August 25, 1867
United Kingdom
Inventions:
- Principle of electromagnetic induction
- Faraday's Disk Generator
- Prototype DC motor

Werner Von Siemens
Dec. 13, 1816 to Dec. 6, 1892
Germany
Inventions: Dynamos

Zénobe-Théophile Gramme
April 4, 1826 to Jan. 20 1901
Born in Belgium and died in France
Inventions: Practical DC generator

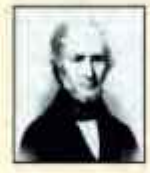
Thomas Alva Edison
February 11, 1847 to Oct. 18, 1931
USA
Inventions: Commercial power generating plant and many other devices

Joseph Henry
December 17, 1797 to May 13, 1878
USA
Inventions:
- Principle of Electromagnetic Induction
- Motor with back and forth motion

William Stanley Jr.
November 28, 1858 to May 14, 1916
USA
Inventions: Practical single phase transformer

Mikhail Dolivo-Dobrovolsky
January 2, 1862 to November 15, 1919
Germany
Inventions:
- Practical three phase transformer
- Practical three phase induction motor
- Practical DC generator

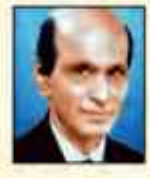
Andre Marie Ampere
January 20, 1775 to June 10, 1836
France
Inventions: Principle of electromagnetic induction



William Sturgeon
May 22, 1783 to December 4, 1850
United Kingdom
Inventions: Commutator and first rotary electric DC motor

Galileo Ferraris
October 31, 1847 to February 7, 1897
Italy
Inventions: Single phase induction motor

Nikola Tesla
July 10, 1856 to January 7, 1943
USA
Inventions: Two phase induction motor



Gopalaswamy Doraiswamy Naidu
March 23, 1893 to January 4, 1974
Coimbatore, India
Inventions: First Electric Motor in India

In 1831, Joseph Henry had improved on Faraday's experimental motor and developed another motor that made back and forth motion at 75 cycles per minute. The motion was oscillatory in nature and not rotating in nature. William Sturgeon had invented the commutator in the year 1836 – and first rotary electric DC Motor had been developed by him. The commutator made the motion of the motor unidirectional in nature. Ferraris and Tesla invented

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commutator-less alternating current induction motors independently. In 1885, Ferraris demonstrated a working model of his single phase induction motor. In 1887, Tesla invented two-phase induction motor. At that time, there was a war between Tesla and Edison for the use of DC and AC power. This war is known as "War of Currents" around the year 1880s. In 1890, Mikhail Dolivo Dobrovolsky introduced the first three-phase induction motor. It became the prototype model, which was then used in Europe and the U.S. He also invented the first three-phase generator and transformer and combined them into the first complete AC three-phase system in 1891. This paved the way for the use of AC power (AC generator) leading to a complete AC three-phase system across the globe. In addition to that, it is worthwhile to mention that G. D. Naidu (Gopalaswamy Doraiswamy Naidu), an Indian inventor and engineer who is referred to as the "Edison of India" manufactured first electric motor in India. The Table shows the pictures of scientists and their inventions on electrical machines.

Conclusion

This small article has presented the history of electrical machines in a very comprehensive manner to the best possible extent. From the history, it can be observed that Faraday has made remarkable contributions on the development of electrical machines namely generators, transformers and motors. The basic governing laws, prototype models of various electrical machines were given by Faraday and hence, Faraday is called the father of electrical machines. Even it is not wrong to call Faraday as father of Electrical Engineering. In the same way, it is also observed that the practical three phase transformers, three phase inductor motors and generators were developed by Mikhail Dolivo Dobrovolsky. Fourteen scientists have significantly contributed on the development of electrical machines at their nascent stage. This short report would bring interest among the students on electrical machines – and this foundational knowledge might kindle young minds for contributing towards new innovations in the field of Electrical Machines.

Dr. A. Venkadesan obtained his B.Tech in Electrical and Electronics Engineering and M.Tech in Electrical Drives and Control (with two gold medals in 2009) from Pondicherry Engineering College under Pondicherry University, Puducherry, India. He received Ph.D. in the area of AI Techniques applied to Power Electronics and Drives from the same college in 2014. He is currently working as an Associate Professor and Head of the Department of Electrical and Electronics Engineering, National Institute of Technology Puducherry, Karaikal. He has 22 publications in reputed international journals and 30 publications in national/international conferences/magazines/book chapters. His areas of interest include Electrical Drives & Control, Green Energy Electrical Drives, Artificial Intelligent Techniques and Renewable Energy Systems.

Dr. G. Koperundevi received her B.Tech in Electrical and Electronics Engineering and M.Tech in Electrical Drives and Control from the Pondicherry Engineering College under Pondicherry University, Puducherry, India. She received her Ph.D in the area of High Voltage Engineering in the year 2011. Currently, she is working as an Associate Professor in the Department of Electrical and Electronics Engineering, National Institute of Technology Puducherry, Karaikal. She has 7 publications in reputed international journals and national/international conferences. Her areas of interest include High Voltage Engineering, Power Electronics and Electric Vehicles.

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2024 Expo comprises 1200 businesses from 40 countries, 55,000 attendees, 350 startups, and 50 conference sessions.

Featuring Experiential Zones, Country Pavilions, Global Product Launches, Networking Opportunities, Curated Marketing Support, Business Matchmaking, City Leaders Conclave, and Industry Awards.

SJVN receives LoI from UPCL for 200 MW solar project

SJVN Limited has received a letter of intent (LoI) for purchase of 200 MW solar power from Uttarakhand Power Corporaton Limited (UPCL).

UPCL will purchase 200 MW power at a tariff of Rs 2.57 per unit from SJVN's 1,000 MW Bikaner solar project. The solar project is being developed through SJVN Green Energy Limited (SGEL), a wholly owned subsidiary of the company in Rajasthan under central public sector undertaling scheme, with viability gap funding support from the Government of India. The power generated from the project will be used by government entities, either directly or through discoms. The allocation of the solar power from the project will be as per power purchase agreement to be signed between SGEL and UPCL in near future.

Powergrid Meerut Simbhavali Transmission commissions Meerut GIS substation

Powergrid Meerut Simbhavali Transmission Limited has commissioned the Meerut gas insulated switchgear (GIS) substation project in Uttar Pradesh.

The company had secured this contract through tariff-based competitive bidding with a mandate to set up a 765/400/220 kV Meerut GIS substation along with associated transmission lines, 400/220/132 kV Simbhaoli GIS alongwith associated transmission lines.

DRI carries out searches at Havells India office

According to Havells India, the searches were conducted by the DRI which acts as the lead agency to check smuggling and cases of commercial fraud.

The company, in a BSE filing, stated that in terms of Regulation 30 and other applicable provisions of the SEBI (Listing Obligations and Disclosure Requirements) Regulations, 2015, read with corresponding circulars and notifications issued thereunder, it is hereby informed that the DRI has conducted a search at the corporate office of the Company -- Havells India Ltd in Noida, which concluded this morning on November 4 at around 2.20 am.

It said that the searches were initiated or under Section 105 of the Customs Act, 1962.

The company also said that its impact on financial, operation or other activities on the company cannot be quantified at this point in time. Sharing the details of the violations and contraventions committed or alleged to be committed, it said that this pertained to misclassification in import of heating elements.

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Lucknow, Mumbai, Nagpur, Patna, Punjab, Pune, Raipur, Ranchi, Srinagar, Surat.

NHPC Board approves JV for pumped storage hydro and renewable energy projects in Andhra Pradesh

In a significant development, the Board of Directors of NHPC Limited has approved a joint venture (JV) agreement for the establishment of a joint venture (JV) company between NHPC and the Andhra Pradesh Power Generation Corporation Limited (APGENCO).

The partnership aims to bring forth the realisation of ambitious projects encompassing pumped storage hydro power and renewable energy in Andhra Pradesh.

Radiance Renewables raises USD90 million for 150 MW solar project

Radiance Renewables has secured an approximately USD90 million green loan for 150 MW AC commercial and industrial solar project.

The project is located in Maharashtra. For this, the company has already signed a power supply agreement with a global data center player to deliver solar power to consumer's data center's in the state for a period of 25 years. The project will be completed in two stages, the first of which will be 50 MW AC and is close to completion. For both project phases, financial closure has already been reached through final agreements. Axis Bank and Standard Chartered Bank worked together for the USD90 million green credit project finance arrangement. Furthermore, Catalyst Trusteeship Services Limited served as the facility agent and security trustee for the transaction.

Waaree Energies partners with NTPC to supply 135 MW solar PV modules

Waaree Energies Limited has partnered with NTPC Limited to provide over 135 MW of solar photovoltaic (PV) modules.

The solar PV modules will be employed in a solar power project situated in Anta, within the Baran district of Rajasthan. The completion of this order is anticipated within a four-month timeframe.

NTPC Wins Prestigious ATD Best Award

D. K. Patel, Director (HR) is receiving the ATD best award...

NTPC has been bestowed with the prestigious ATD BEST Award. This international award was received by D. K. Patel, Director (HR) at a ceremony held at San Diego, CA, USA. The ATD BEST Award instituted by Association for Talent Development, USA (previously referred as American Society for Training) is considered as one of the most coveted and the highest level of award in the field of Learning and Development.

It recognizes organizations that practise talent development as a strategic business tool and demonstrate enterprise-wide success as a result of employee talent development. NTPC secured an overall 13th rank, thereby figuring amongst the top international level awardees consequent to a rigorous evaluation and assessment processes. It ranked best amongst Indian PSUs and is the only PSU to have won this award six times. This is so far the best performance by NTPC in an international award in the domain of HR.

The award is a testament to NTPCs outstanding Learning and Development practices and its relentless pursuit of excellence through innovative approach, adopting technology, setting benchmarks and fostering a culture of continuous learning by investing and providing opportunities to its employees tailored to business imperatives and employee's needs.

NTPC has been in the forefront in adopting and institutionalising progressive and best HR practices, which have also been recognised by various awards and accolades.

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PST Market size to touch multimillion USD by 2030

(A phase-shifting transformer)

A phase-shifting transformer is a device for controlling the power flow through specific lines in a complex power transmission network. The basic function of a phase-shifting transformer is to change the effective phase displacement between the input voltage and the output voltage of a transmission line, thus controlling the amount of active power that can flow in the line.

Phase Shifting Transformers (PSTs) are crucial components in the ongoing strive for improved AC network efficiency. Increasing amounts of transmitted energy push the networks to the limit, increasing the risk of network instability.

PSTs allow controlling the power flow in the transmission grid independently of the generation. By avoiding system overloads and instabilities protect transmission lines and HV equipment from thermal overload, improve transmission system stability and control the power flow between different networks, for parallel long distance overhead lines or for parallel cables.

In 2021, the market was growing at a steady rate and with the rising adoption of strategies by key players including Siemens, ABB, Tamini, Baoding Tianwei Baobian Electric and a few others, the market is expected to rise over the projected horizon.

Due to the COVID-19 pandemic, the global Phase Shifting Transformers market size was estimated to be worth USD 96 million in 2021 and is forecast to a readjusted size of USD 150.9 million by 2028 with a CAGR of 6.6% during the forecast period 2022-2028.

PSTs are highly specialized pieces of equipment that require leading- edge design and manufacturing skills combined with stringent quality control. They are highly complex power transformers, with more windings and tap changers than traditional power transformers and a large number of connections between the three-phases.

Market boosters

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- Middle East and Africa (Saudi Arabia, UAE, Egypt, Nigeria and South Africa)

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NTPC NEARLY DOUBLES ITS COAL PRODUCTION FROM ITS CAPTIVE MINES IN Q1

NTPC Limited has nearly doubled coal production from its captive mines during the first quarter of the financial year 2023 – 2024, compared with the production during Q1 of previous year. The company achieved an impressive coal production of 8.48 million metric tonnes (MMT) during Q1 of FY24, compared to 4.27 MMT in Q1 of FY23.

In addition, coal despatch has more than doubled during Q1 of 2023 – 2024, relative to the first quarter of 2022 – 2023. A total of 8.82 MMT of coal has been despatched in Q1 of FY24, marking a significant 112% increase over the previous year for the same period.

To achieve sustained growth in coal production, NTPC has implemented a range of strategies and technologies. These include the adoption of rigorous safety measures, improved mine planning, equipment automation, workforce training, and the implementation of continuous monitoring and analysis systems. These initiatives have played a vital role in optimizing operations, enhancing productivity, and ensuring safety of the workforce.

The growth in coal production and despatch is a testament to NTPC's dedication to operational excellence and its contribution to meeting India's energy demands. The company has stated that it will continue to explore innovative technologies and sustainable practices to further enhance its performance and support the nation's energy goals.

KPI Green Energy and Advait Infratech signs MoU to develop 500 MW solar park in Uttarakhand

KPI Green Energy Limited and Advait Infratech Limited have signed a memorandum of understanding (MoU) with the Uttarakhand government for the development of 500 MW solar park on captive power producer (CPP) basis.

This is in line with state government's renewable policy to empower the state with green and sustainable energy. The Uttarakhand government intent to provide further assistance to the parties for commencement of the project during the period of this MoU. In a separate development, the company has received an order for executing wind-solar hybrid power project for 2.10 MW capacity comprising of 2.10 MW wind and 1 MW solar capacity from CTX Life Sciences Private Limited by Sun Drops Energia Private Limited, a wholly owned subsidiary of the company under CPP segment.

India considers USD25 million investment for GSF of ISA

The International Solar Alliance (ISA) declared a capital infusion of USD35 million dollar for the Global Solar Facility (GSF), a fund designed to provide payment guarantees and encourage investments in solar power projects.

The funding mechanism, reinforced by payment guarantees, insurance coverage, and investment funds, seeks to alleviate project risks. It aims to offer technical support to rectify regulatory gaps, minimise currency risks, and resolve contractual and financial uncertainties within the solar energy sector. In addition to the $10 million from the ISA, the Indian government is considering contributing $25 million as a capital commitment to the GSF. CIFF and Bloomberg Philanthropies have also pledged to fund the GSF. The Union Minister for Power and New and Renewable Energy mentioned that the goal for the GSF is to secure $100 million, indicating future plans to internationalise the GSF. The ISA underscored that the GSF is specifically structured to provide confidence in investors to engage in projects in Africa, with the goal of providing 10 billion dollar in investments. This initiative aims to facilitate clean energy access in 35–40 million African households by 2030, benefiting approximately 200 million people in the region.

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Vibrant Energy signs third PPA with Amazon for a 198 MW wind project in Maharashtra

Vibrant Energy has signed their third power purchase agreement (PPA) with Amazon for a new 198- MW wind farm in Osmanabad, Maharashtra.

Amazon had announced its partnership with Vibrant for its first two wind-solar hybrid projects in India last year. Amazon has reached a milestone of more than 1.1 GW of renewable energy capacity in India with the addition of this wind project.

Saudi's SEC secures USD3 billion funding for grid infrastructure

The state-run Saudi Electricity Company (SEC) has signed a USD3 billion international syndicated facility agreement with four major regional banks, namely Dubai Islamic Bank PJSC, Kuwait Finance House, Mashreq Bank, and Saudi National Bank.

The financing arrangement spans a period of five years and notably requires no guarantees from SEC. The funding injection was part of its vision to invest approximately SAR500 billion in expanding its electricity sector and capex spending by 2030. These investments are geared towards delivering electricity services to subscribers, enhancing the company's regulated asset base, and fortifying its financial standing, thereby boosting prospects for revenue growth. These initiatives aim to create essential infrastructure for T&D grids, thereby optimising electricity generation efficiency levels and aligning with the goals of Vision 2030, Saudi Arabia's ambitious long-term development plan.

World Bank signs project worth USD200 million to increase renewable energy penetration in Himachal Pradesh

World Bank has signed USD200 million project with the Government of India and the Government of Himachal Pradesh that will facilitate power sector reforms in Himachal Pradesh (HP) and increase the share of renewable energy in the state's electricity generation.

This will contribute to the state's overall aim of adding 10,000 MW of additional renewable energy capacity to make the state's power supply greener. The World Bank's Himachal Pradesh Power Sector Development Program will help the state enhance the utilisation of its existing renewable energy resources, including hydropower, and help to diversify its renewable energy resources further.

Waaree Renewable Technologies receives LoA for 70 MW DC solar project

Waaree Renewable Technologies Limited has received a letter of award (LoA) for the execution of engineering, procurement and construction (EPC) works of a solar power project of 70 MW DC capacity on turnkey basis along with five years of operation and maintenance work. The project has order value of approximately Rs 1.83 billion. The projects are scheduled to be completed in the 2024-25, in various tranches as per the terms of the order.

KPI Green Energy secures LoA for 22.26 MW solar project

KPI Green Energy Limited has been awarded a letter of award (LoA) for a 22.26 MWp solar power project by Aditya Birla Renewable Energy Limited.

The project will be located in Gujarat and falls under the company's captive power producer (CPP) business segment. Additionally, the company will be responsible for providing a range of services, including design, engineering, procurement, supply, loading, unloading, transportation, arranging comprehensive insurance, construction, erection etc. In another development, the company has received repeat orders for 2.70 MW for executing solar power projects under CPP segment. Further, with addition of the order mentioned above, the cumulative orders of solar power projects, till date have crossed over 115 MW under CPP segment of the company.

Genus Power receives LoA for AMISP services under RDSS

Genus Power Infrastructures Limited has received letter of award (LoA) for a contract worth Rs 22,599.4 million for advanced metering infrastructure service provider (AMISP) under the Revamped Distribution Sector Scheme (RDSS). The scope of works includes design of advanced metering infrastructure (AMI) system with supply, installation, and commissioning with facility management services of 2.73 million smart prepaid meters, system meters including distribution transformer meters with corresponding energy accounting on design, build, finance, own, operate, and transfer basis. The scheme will be implemented for strengthening, renovation and augmentation of existing distribution infrastructures.

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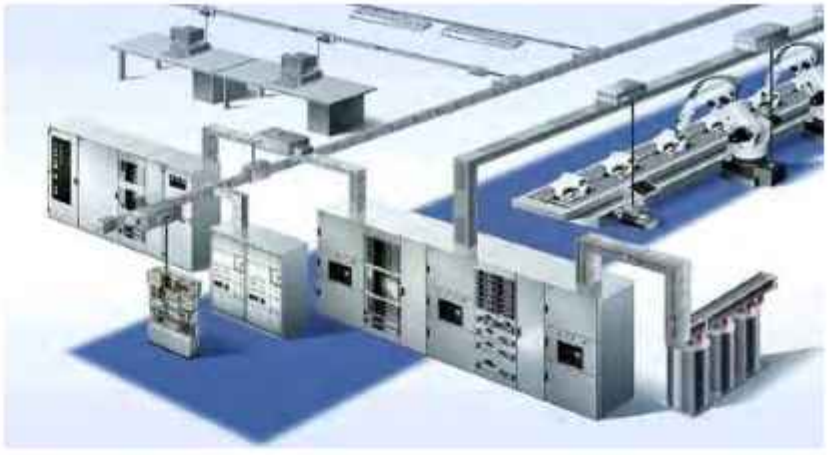
Bus Duct Basics



A key part of electrical power distribution is the bus duct. Also called busway, bus duct provides an alternative means of conducting electricity. Bus duct is used in commercial and industrial settings to conduct electricity to power cables or cable bus. Structurally, a bus duct is a sheet metal duct containing either aluminum or copper busbars (metallic strips or bars that conduct a substantial electrical current) in a grounded metal enclosure. Bus duct is easy to maintain and flexible, helping to accommodate changing load requirements.

Busway was first introduced in 1932 for use in the automotive industry. Since then this product has grown and now serves many other industries.

Bus duct can be installed in most applications where cable or conduit would normally be used. Many people believe bus duct only serves high-amperage applications. This is a misconception–busway can provide a high degree of efficiency for both low- and high-amperage situations. Bus duct systems are manufactured ranging from 100A to 6500A. Some low-amperage applications could be high-tech companies, like computer manufacturers. High-amperage busway systems are required by heavy assembly industries like automotive.

Busway is also versatile. Thanks to developments like elbows and offsets, bus duct offers a lot of layout flexibility, like adapting to directional changes. Tap-off units or new sections can easily help meet load changes. There are some cases, however, where cable and conduit are the appropriate option. For example, bus duct cannot be installed where it's subject to corrosive vapors.

When ordering a bus duct for a specific application, it's imperative that you plan ahead. EC&M recommends paying particular attention to dimensions. Note any bends, columns, floor elevation changes or other route information. Develop sketches of the route the bus duct must follow. The manufacturer can use this information to develop final layout drawings. For any uncomplicated installations, standard bus duct can be ordered from the inventory stock.

Top-quality electrical gear is incredibly important for the safety of both the electricians installing it and the personnel working in the building where it's used. Current Midwest has a large inventory of bus duct and plugs, both current and obsolete models, as well as reconditioned used products. We supply products manufactured by Square D, ITE, Bulldog, GE, Cutler-Hammer and Siemens. Any used bus duct or plug we offer has been thoroughly reconditioned by our highly-trained staff; all of our reconditioned equipment comes with a three-year warranty.

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Revolutionizing Home Comfort:

The Rise of BLDC Fans

Introduction :

In recent years, the market for ceiling fans has witnessed a significant evolution with the emergence of Brushless DC (BLDC) fans. These innovative and energy-efficient appliances have revolutionized the way we experience comfort in our homes. By employing advanced technology, BLDC fans have surpassed traditional fans in terms of performance, energy efficiency, and durability. This article explores the features, benefits, and applications of BLDC fans, shedding light on why they are rapidly gaining popularity among homeowners worldwide.

1. What are BLDC fans?

BLDC fans are an advanced variation of traditional ceiling fans that utilize brushless DC motors to drive the blades. Unlike conventional fans that use AC motors and require brushes for commutation, BLDC fans eliminate the need for brushes, resulting in a more efficient and durable design. By employing electronic circuitry to control the motor's operation, BLDC fans provide precise speed control and improved energy efficiency.

2. Energy efficiency:

One of the key advantages of BLDC fans is their exceptional energy efficiency. Traditional ceiling fans often consume significant amounts of electricity, leading to high energy bills. BLDC fans, on the other hand, operate on much lower power consumption without compromising on performance. Thanks to their brushless motors, these fans convert a higher percentage of electrical input into useful airflow, making them up to 70% more efficient than conventional fans. By choosing BLDC fans, homeowners can enjoy a comfortable living space while reducing their carbon footprint and saving money.

3. Silent operation:

BLDC fans excel in providing a peaceful and quiet environment. The brushless motor technology eliminates the mechanical friction and humming noise associated with traditional fans. This makes BLDC fans an ideal choice for bedrooms, libraries, and other areas where a tranquil atmosphere is desired. By eliminating distractions, these fans enhance relaxation and improve sleep quality.

4. Variable speed control:

BLDC fans offer precise speed control, allowing users to select their desired airflow intensity. With multiple speed settings, homeowners can easily adjust the fan's speed to match their comfort requirements. Whether it's a gentle breeze on a cool evening or a strong airflow on a hot summer day, BLDC fans deliver personalized comfort at the touch of a button.

5. Remote control and smart features:

Many BLDC fans come equipped with remote controls, enabling users to conveniently operate the fan without getting up from their seat. Additionally, some models offer smart features, such as compatibility with voice assistants or integration with home automation systems. These smart capabilities allow users to control the fan using voice commands or smartphone apps, enhancing convenience and seamlessly integrating with modern smart homes.

6. Durability and low maintenance:

BLDC fans are built to last. The absence of brushes in the motor design reduces wear and tear, resulting in a longer lifespan compared to traditional fans. Additionally, the elimination of mechanical friction reduces the need for regular maintenance, making BLDC fans a hassle-free appliance for homeowners. With proper care, these fans can provide years of reliable and efficient performance.

7. Applications and versatility:

BLDC fans are not limited to residential applications alone. They find extensive use in commercial spaces, offices, hotels, restaurants, and other public places. Their efficient operation and superior airflow make them suitable for large rooms and areas with high occupancy. BLDC fans are available in various sizes and designs, allowing users to choose the style that complements their interior decor.

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इकॅम पुणे विभागाची ३९ वी वार्षिक सर्वसाधारण सभा

इकॅम पुणे विभागाची ३९ वी वार्षिक सर्वसाधारण सभा, ज्ञानल मंगल कार्यालय, नवी पेठ, पुणे, येथे दि. १९ ऑक्टोबर २०२३ रोजी संपन्न झाली.

सुरुवातीला इकॅम महासमितीचे माजी अध्यक्ष, कै. सुनील भुरे, तसेच मागील वर्षभरात जे सभासद, त्यांचे नातेवाईक व इतर ज्ञात अज्ञात व्यक्ती यांचे निधन झाले. त्यांना श्रद्धांजली वाहण्यात आली.

दीपप्रज्वलन झाल्यावर राष्ट्रगीताने सभेस सुरूवात झाली.

सचिव श्री. अनिल महाजन यांनी मागील ३८व्या वार्षिक सर्वसाधारण सभेचा इतिवृत्तान्त मांडला. सभेने तो एकमताने मंजूर केला.

मागील वर्षभरात संघटनेच्या वतीने जे कार्यक्रम आयोजित केले गेले, त्याचा आढावा, सचिव श्री. अनिल महाजन यांनी घेतला.

खजिनदार श्री. प्रकाश जाधव यांनी सन २०२२ - २०२३चा आर्थिक जमा खर्च सभेपुढे मांडला. त्यास सभेने एकमताने मंजूरी दिली.

खजिनदार श्री. प्रकाश जाधव यांनी सन २०२३ - २०२४चे अंदाजपत्रक सभेपुढे सादर केले. तसेच पुढील आर्थिक वर्षासाठी, मे. एस. बी. गुरव यांची लेखापरीक्षक म्हणून नेमणूक करण्याचा प्रस्ताव मांडला. त्यास सभेने एकमताने मान्यता दिली.

या सभेत इकॅमच्या ज्येष्ठ सभासदांना शाल, श्रीफळ आणि सन्मानचिन्ह देऊन गौरविण्यात आले.

सर्वश्री विजय वडीतके यांचा सन्मान श्री. संजय कोल्हटकर यांनी, सुधीर महाजन यांचा सन्मान, श्री. मिलिंद नाईक यांनी, तर एस. बी. गुंदेचा त्यांचा सन्मान इकॅम पुणे चे अध्यक्ष श्री. अमर पाटील यांनी केला.

नॅशनल इलेक्ट्रिक कोड २०२३ साठी दिलेल्या सक्रिय योगदानासाठी, श्री. संजय कोल्हटकर यांचा सन्मान, या सभेत केला गेला.

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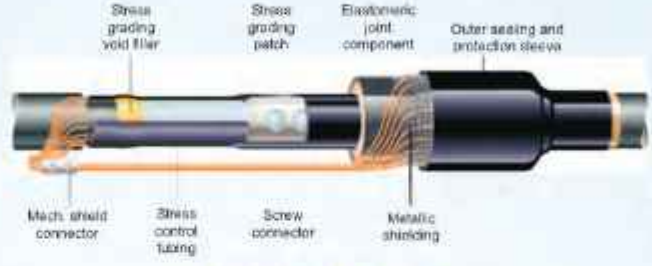

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इकॅम पुणे विभागाच्या वतीने, माजी अध्यक्ष कै. शिरीष देवधर यांच्या नावे उत्कृष्ट बीज संचमाडणीसाठी दरवर्षी पुरस्कार दिला जातो.

यावर्षी, सर्वश्री सुनील गायकवाड, राजीव जतकर आणि अजय सातपुते यांना या






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पुरस्काराने सन्मानित करण्यात आले.

इकॅम पुणे विभागाची सन २०२३ ते २०२६ या कालावधीसाठी, अध्यक्ष १, सचिव १ आणि संचालक ३, अशा पदांसाठी निवडणूक झाली. या निवडणुकीत अध्यक्षपदी, श्री. अनिल महाजन,

सचिवपदी, श्री. संजय कान्हेकर, तर संचालकपदी सर्वश्री काळूराम जानकर, विनोद कोठावदे आणि अशोक पांढरे हे बहुमतांनी निवडून आले.

इकॅम पुणे विभागीय कार्यालयात गेली बरेच वर्ष काम करणारा ऋषीकेश चौधरी, आणि नुकताच सेवेत आलेला सोहम पांचाळ यांचा सन्मान उपाध्यक्ष श्री. मारुती माळी यांनी केला.

निवडणूक निर्णय अधिकारी श्री. राजेंद्र सिन्नरकर यांचा सन्मान श्री. सुधीर महाजन यांनी केला.

वार्षिक सभेच्या वेळी, संघटनेच्या ३ हितचिंतकांनी स्टॉल लावले होते. त्यांचा सन्मान करण्यात आला. यामध्ये मे. टू पॉवर लि.चे श्री. सचिन पाटील, मे. श्री इंजिनिअरिंगचे श्री. राजेंद्र नारायणपुरे आणि मे. पॉवरक्राफ्ट इंजिनिअरिंगचे श्री. बिपीन शेठ, यांचा समावेश होता.

अध्यक्ष श्री. अमर पाटील यांनी आपल्या मनोगतात, त्यांच्या चार वर्षांच्या अध्यक्षपदाच्या कारकीर्दीचा सांगोपांग आढावा घेतला. या काळात सर्वांनी केलेल्या सहकार्याबद्दल आभार व्यक्त केले. सभेचे सूत्रसंचलन श्री. अजय सातपुते यांनी तर आभार प्रदर्शन श्री. सुनील गायकवाड यांनी केले. सादरीकरणासाठी तांत्रिक सहकार्य श्री. प्रसन्न सिन्नरकर यांचे होते.

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पुणे पीआरसी साहेब

प्रादेशिक संचालक, पुणे श्री नाळे साहेबांना ग्राहकांना आलेल्या थकबाकीच्या नोटीसीबाबत निवेदन दिले

आपल्या पाठवलेल्या नोटीशीच्या अनुषंगाने मी आपणास निदर्शनास आणून देतो की आपण नोटीस पाठवलेल्या ठिकाणी मीटर चालू आहे. त्यामुळे आपल्या नोटीसीच्या आधारे सदर ठिकाणी लाईट कशी चालू आहे याचा मला प्रश्न पडतो. कारण आपण आपल्या नोटिसीमध्ये संबंधित ग्राहकाच्या थकबाकी पोटी आपला विद्युत पुरवठा कायमस्वरूपी खंडित करण्यात आला आहे असं लिहिले असून आपणास सुचित करण्यात येते असा मजकूर असून त्या मजकुराला काहीही अर्थ राहत नाही. कारण त्या ठिकाणी मीटर चालू आहे. वीज पुरवठा चालू आहे, त्यामुळे आपण आपल्या कार्यालयीन आदेशानुसार ज्या वेळची थकबाकी आहे ज्या ठिकाणची थकबाकी आहे त्या वेळेच्या अधिकाऱ्याला आणि कर्मचाऱ्यांना नोटीस काढावी आणि त्याची इन्क्वायरी करावी आणि सदरची थकबाकीची रक्कम त्या अधिकाऱ्याच्या आणि कर्मचाऱ्यांच्या पगारातून वसूल करावी. कारण ज्या ठिकाणी थकबाकी आहे त्या ठिकाणी वीज कनेक्शन देण्याचे काम त्यांनीच केलेले आहे. ग्राहकांचा त्याचा काही संबंध नाही. हा सरळ सरळ भ्रष्टाचार असून विनाकारण ग्राहकांच्या माथी पाडत आहे. मी आपणास पुन्हा विनंती करतो की, माझ्याकडे ज्या नोटिसी आहेत त्या नोटीसीच्या आधारे आपण संबंधित अधिकाऱ्याची चौकशी करून त्या रकमा वसूल करण्यात याव्यात आणि आपणास विनंती करतो की, ज्या काही नोटीसी पाठवल्या असतील आपण त्वरित संबंधित अधिकाऱ्यांना सूचना देण्यात याव्या अन्यथा मला आपल्या विरुद्ध कोर्टात जावं लागेल, याची आपण नोंद घ्यावी

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कचऱ्यातून १०० मेगावॉट

वीज देवनार, कांजूरमार्ग डम्पिंग ग्राऊंड परिसराची दुर्गंधीतून सुटका होणार

मुंबई : शहर आणि उपनगरांतील कचरा आणि डम्पिंग ग्राऊंडमुळे पसरणाऱ्या दुर्गंधीपासून मुंबईकरांची सुटका होण्याची शक्यता आहे. केंद्र सरकारच्या सूचनेनुसार आणि राज्य सरकारच्या मदतीने, मुंबईतील कचऱ्यापासून सुमारे १०० मेगावॉट वीजनिर्मिती करण्याचा महापालिकेचा विचार आहे. देवनार आणि कांजूरमार्ग डम्पिंग ग्राऊंडमध्ये रोज सुमारे सात हजार मेट्रिक टन कचरा टाकला जातो. या कचऱ्यातून ही वीजनिर्मिती करण्यात येणार आहे. केंद्रीय शहरी विकासमंत्री हरदीप सिंग पुरी यांच्यासोबत व्हिडिओ कॉन्फरन्सद्वारे नुकत्याच झालेल्या बैठकीत मुंबईतील कचऱ्याच्या समस्ये उपाय आणि कचऱ्यापासून वीज निर्मिती करण्यावर सहमती झाल्याची माहिती मुंबई महापालिकेच्या एका वरिष्ठ अधिकाऱ्याने दिली. सध्या देवनार आणि कांजूरमार्ग येथे टाकण्यात येणाऱ्या कचऱ्याची गुणवत्ता चाचणी करण्यात येत असल्याचे सांगितले. यावरून दोन्ही डम्पिंग ग्राउंडमधून कचऱ्याची वीजनिर्मिती करण्याची क्षमता किती आहे हे स्पष्ट होईल. त्यानंतर अंतिम निर्णय घेतला जाणार आहे.

या संदर्भात एक समितीही स्थापन करण्याचा प्रस्ताव असून त्यात केंद्र सरकारचे सचिव, राज्याचे प्रधान सचिव, मुंबई महापालिका आयुक्त आणि महापालिकेचे अतिरिक्त आयुक्त यांचा समावेश असेल. ही समिती आधुनिक तंत्रज्ञानाचा वापर करून मुंबईतील मुलुंड, कांजूर मार्ग आणि देवनार येथील डम्पिंग ग्राऊंडमधील हजारो टन कचऱ्याची शास्त्रीय पद्धतीने विल्हेवाट कशी लावता येईल, याचा अहवाल तयार करणार आहे.

या अहवालात कचऱ्यापासून वीजनिर्मिती वाढविण्याच्या पर्यायांचा समावेश केला आहे. मुंबईतील कचऱ्याच्या समस्येवर पंतप्रधान कार्यालय लक्ष ठेवून असल्याचे या अधिकाऱ्याने सांगितले. मुंबईतील कचऱ्याची विशेषकरून डम्पिंग ग्राऊंडची समस्या लवकरात लवकर सोडवण्याचे आदेश केंद्राकडून सरकारला प्राप्त झाले आहेत.

डम्पिंग ग्राऊंडचा भार हलका

मुंबईत निर्माण होणाऱ्या कचऱ्यापैकी ९० टक्के कचरा कांजूरमार्ग डम्पिंग ग्राऊंडमध्ये टाकला जातो. देवनारमधील कचऱ्याचा भार हलका करण्यासाठी कांजूरमार्गमध्ये बायोरिएक्टर पद्धतीने कचऱ्याची विल्हेवाट लावली जाते. दोन्ही डंपिंग ग्राऊंडमधून कालांतराने एकूण १०० मेगावॉट वीजनिर्मिती करण्याचा प्रयत्न असेल.

२०२६पर्यंत वीजनिर्मिती

देवनार डम्पिंग ग्राऊंडमध्ये दररोज सुमारे ६०० मेट्रिक टन

कचरा टाकला जातो. हा प्रकल्प पहिल्या टप्प्यात ६०० मेट्रिक टन कचऱ्यापासून वीजनिर्मिती करेल. यामुळे सुरुवातीला दररोज सहा मेगावॉट वीज उपलब्ध होणार आहे. या प्रकल्पामधून २०२५-२६पर्यंत वीज उत्पादन सुरू होण्याची आशा मुंबई महापालिकेला आहे. जवळपास दशकभरापासून मुंबईकर हा प्रकल्प सुरू होण्याची वाट पाहत आहेत.

देशात अनेक प्रकल्प देशातील अनेक शहरांमध्ये

कचऱ्यापासून वीजनिर्मिती प्रकल्प उभारण्यात आले आहेत. काही प्रकल्पांमध्ये वीजनिर्मिती सुरूही झाली आहे. तर काही प्रकल्प प्रक्रियेत आहेत. एका अंदाजानुसार देशात दरवर्षी ६५ दशलक्ष टन कचरा निर्माण होतो. याचा वापर करून वर्षभरात ६५००० मेगावॅट वीजनिर्मिती करता येईल. महापालिका क्षेत्रात ७५-८० टक्के कचरा गोळा केला जातो, त्यापैकी केवळ २२ ते २८ टक्के कचऱ्यावर प्रक्रिया केली जाते. एक टन कचरा एक किलोवॉट वीजनिर्मितीसाठी पुरेसा मानला जातो.

रोज १० मेगावॉट वीज

या प्रकल्पातून भविष्यात १,८०० मेट्रिक टन कचऱ्याचे रूपांतर करून वीजनिर्मिती करण्याचे नियोजन आहे. त्यावेळी दररोज सुमारे १० मेगावॉट वीजनिर्मिती होऊ शकते. कचऱ्यापासून निर्माण होणाऱ्या विजेचा काही भाग याच प्रकल्पामध्ये वापरला जाणार आहे.

- राजस्थानमधील जोधपूरमध्ये सुमारे आठ वर्षांपूर्वी कचऱ्यापासून वीजनिर्मिती सुरू झाली.
- कर्नाटकमधील बेंगळुरू येथे २०२१मध्ये कचऱ्यापासून वीजनिर्मिती करणारा प्रकल्प सुरू झाला.
- १ ऑगस्ट, २०२३ रोजी पंतप्रधान नरेंद्र मोदी यांनी पिंपरी-चिंचवड येथे ७०० मेट्रिक टन कचऱ्यापासून १४ मेगावॉट वीजनिर्मिती प्रकल्पाचे उद्घाटन केले होते.

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आगीच्या घटना टाळण्यासाठी ही खबरदारी आवश्यक

मुंबई : गोरेगावमध्ये एसआरए इमारतीला लागलेल्या आगीत आठ जणांचा, तर बोरिवली पश्चिमेकडील एका इमारतीमधील घरात आग लागून दोन जणांचा मृत्यू झाल्याच्या घटना नुकत्याच घडल्या. या घटनांमुळे मुंबईतील इमारतींमध्ये असलेली अग्निसुरक्षा यंत्रणा, अग्निसुरक्षेबाबतच्या नियमावलीचे पालन न होणे, आग लागल्यास नेमके काय करावे आदी मुद्दे उपस्थित झाले. मुंबईत २०२०-२१, २०२१-२२ आणि २०२२-२३ या वर्षात एकूण १३ हजारांपेक्षा जास्त लहान-मोठ्या आगीच्या घटना घडल्या आहेत. यामध्ये ६२ जणांचा मृत्यू झाला आहे. तर ३८६ जण जखमी झाले आहेत. २०२०-२१ च्या तुलनेत २०२२- २३ मध्ये आगीच्या घटनांमध्ये वाढच झाली आहे. ही वाढ अद्यापही कायम राहिली आहे. त्यामुळे, आगीच्या दुर्घटना टाळण्यासाठी मुंबईकरांनी नेमकी कोणती खबरदारी घेणे गरजेचे आहे, याबाबत विशेष माहिती.

इमारतींमध्ये या सुरक्षा उपाययोजना करा

- तुमच्या आवारातील निरुपयोगी वस्तू त्वरित टाकून द्या. इमारतीतून बाहेर पडण्याचे मार्ग, जिना आणि आश्रय क्षेत्र जाणून घ्या.
- इमारतीतील जिने, लॉबी, बाहेर पडण्याचे मार्ग, आश्रय क्षेत्र हे कायम मोकळे असले पाहिजे.
- तुमची वाहने निजोजित क्षेत्रात पार्क करा. फायर इंजिनच्या फिरवण्यासाठी रिकामी जागा असू द्या.
- इमारतीमध्ये वेळोवेळी इलेक्ट्रिक ऑडिट करा.
- तुमच्या इमारतींमध्ये नकाशा, सुरक्षा चिन्हे ठिकठिकाणी लावावीत.
- अग्निरोधक सामग्री उपलब्ध करून ठेवा.

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- तात्काळ अग्निशमन दल नियंत्रण कक्षाशी संपर्क साधा.
- कमी वेळात इमारत रिकामी करण्याचा प्रयत्न करा.
- लिफ्टचा वापर करू नका. इमारतीच्या जिन्यानेच उतरा.
- इमारतीचा नकाशा असल्यास इमारतीबाहेर पडण्यासाठी त्याचीही मदत घ्या.
- इमारतीमधील आश्रय मजल्याचा आश्रय घ्या.
- धुरामध्ये गुदमरू नये यासाठी जमिनीवर रांगत पुढे जा.
- इमारतीच्या आवाराच्या बाहेर पडणे शक्य नसल्यास आवारातच एखाद्या सुरक्षित ठिकाणी थांबा.
- घरात असाल तर खोलीचा दरवाजा बंद करा.
- धूर पसरू नये म्हणून दरवाजाच्या अथवा खिडक्यांच्या भेगांमध्ये ओला टॉवेल, कपड्याचा वापर करा.
- अग्निशमन दलाचे लोक येईपर्यंत इमारतीपासून सुरक्षित अंतरावर जाऊन, हवेशीर जागेवर थांबा.
- धुरामध्ये ओला टॉवेल किंवा ओला रूमाल नाकावर, तोंडावर लावा. (आगीमधील विषारी धूर जास्त घोकादायक असतो.)

सहामाही प्रमाणपत्र बंधनकारक

■ मुंबईतील रहिवासी इमारती आणि आस्थापनांमध्ये अग्निशमन यंत्रणा सुस्थितीत असल्याचे प्रमाणपत्र (नमुना ब) मुंबई महापालिकेच्या (https://portal.mcgm.gov.in) संकेतस्थळावर सादर करा.

इमारत किंवा इमारतीच्या भागामधील आग प्रतिबंधक व जीवसंरक्षक योजनेमधील प्रस्थापित अग्निशमन यंत्रणा उत्तम स्थितीत असल्याबाबत परवानाप्राप्त अभिकारणाकडून सहामाही प्रमाणपत्र (नमुना ब) वर्षातून दोनदा जानेवारी व जुलै महिन्यात प्राप्त करून घेणे हे बंधनकारक आहे.

■ प्रमाणपत्र इमारतीचे मालक आणि भोगवटादार यांनी महापालिका संकेतस्थळावर सादर करावे.

भारत-सौदीमध्ये हरित ऊर्जेसाठी करार

विजेची देवाणघेवाणे, हरित हायड्रोजन निर्मिती आणि पुरवठा साखळीचे मजबुतीकरण यासाठी भारत आणि सौदी अरेबिया यांच्यात करार झाला आहे. केंद्रीय ऊर्जामंत्री आर. के. सिंह आणि सौदी अरेबियाचे ऊर्जामंत्री अब्दुलअझिझ बिन सलमान अल्सौद यांनी नुकत्याच या करारावर स्वाक्षऱ्या केल्या.

यातून सौदी अरेबियाची राजधानी न्यातील रियाधमध्ये आठ ते १२ चमधून ऑक्टोबरदरम्यान 'एमईएनए होतं क्लायमेट वीक'चे आयोजन करण्यात - करू आले आहे. सौदीमध्ये 'कॉप २८' नोकरी ही पर्यावरणविषयक परिषद होणार प्रवास आहे. त्या परिषदेच्या पार्श्वभूमीवर नगरी पर्यावरणविषयक उपाययोजनांवर आली चर्चा करणे हा या उपक्रमामागील असे हेतू आहे. त्यासाठी सिंह यांच्या केन नेतृत्वाखाली भारतीय शिष्टमंडळ गेले आहे. या कार्यक्रमाआधी दोन्ही देशांत करार करण्यात आला.

दोन्ही देशांदरम्यान बिझनेस टू बिझनेस (बीटूबी) शिखर परिषदा आयोजित केल्या जाव्यात आणि या पद्धतीचा संवाद नियमितपणे होत राहावा, असेही दोन्ही ऊर्जामंत्र्यांच्या चर्चेदरम्यान निश्चित करण्यात आले.

भारत-सौदी अरेबिया करार कशासाठी?

- विद्युत देवाणघेवाणीसाठी जाळे उभारणे
- सर्वाधिक मागणीच्या काळात आणि आपत्कालीन स्थितीत दोन्ही देश एकमेकांना वीजपुरवठा करू शकतील
- संयुक्तरीत्या प्रकल्प उभारणी
- पर्यावरणपूरक हायड्रोजन आणि अपारंपरिक ऊर्जेचे संयुक्त उत्पादन
- हरित ऊर्जा क्षेत्रातील पुरवठा साखळी मजबूत करणे

२७ हजार ग्राहकांनी ऊर्जा खरेदीसाठी मोजले युनिटमागे अतिरिक्त ६६ पैसे

हरित उर्जेसाठी मुंबईकरांनी मोजले २८ कोटी

हरित ऊर्जा खरेदीसाठी मुंबईकरांनी २८ कोटी रुपये खर्च केले आहेत. प्राप्त– युनिट ६६ पैसे अधिक देऊन २७ हजार ग्राहकांसाठी टाटा पॉवर कंपनीने अशी हरित ऊर्जा खरेदी केली आहे.

हरित उर्जेसाठी ग्राहकांनी ६६ पैसे प्रति युनिट अतिरिक्त दिल्यास, त्या ग्राहकाच्या एकूण वीज वापराइतकी हरित ऊर्जा वीज वितरण कंपन्या खरेदी करतात. याला 'हरित दर', असे संबोधले जाते. त्यानुसार टाटा पॉवरच्या मुंबईतील साडेसात लाखांपैकी २७ हजार ग्राहकांनी अशा हरित ऊर्जा खरेदीचा पर्याय स्वीकारला आहे. या माध्यमातून जवळपास कंपनीने आतापर्यंत २७० दशलक्ष युनिट (जवळपास २७० मेगावॉट) हरित ऊर्जा खरेदी केली आहे.

कंपनीने दिलेल्या माहितीनुसार, या उपक्रमामुळे जवळपास २७० दशलक्ष हरित उर्जेची खरेदी झाली आहे. त्यामुळे वार्षिक २०० किलो टन कार्बन उत्सर्जन कमी करण्यात मदत झाली आहे. या २७ हजार ग्राहकांमध्ये ० ते १०० युनिट श्रेणीमधील ३,५७६ ग्राहकांचाही समावेश आहे. तर या सणासुदीच्या काळादरम्यान यासंबंधी विशेष उपक्रम सादर करण्यात आला होता. या उपक्रमाला यश मिळाले असून त्या कालावधीत ६, २७४ नवीन ग्राहकांनी हरित दरांचा हा पर्याय नव्याने स्वीकारला.

स्मार्ट मीटरचे फायदे

■ टाटा पॉवरने त्यांच्या सर्व साडेसात लाख ग्राहकांना आर्थिक वर्ष २०२५ पर्यंत 'स्मार्ट मीटर' लावून देण्याचा निर्णय घेतला आहे.

स्मार्ट मीटर ऊर्जा कार्यक्षमता सक्षम करतात, ज्यामुळे वापरकर्त्यांची मोठ्या प्रमाणात बचत होते.

या आजाराची तीव्रता वाढून गुंतागुंत वाढू शकते, याकडे लक्ष वेधले आहे. वजन कमी होणे हे क अशक्तपणाचे लक्षण असू कॅलरी, वेगळ्या पद्धतीचा मानसिक अनारोग्याच्या तक्रारी वजन कमी होण्याचे लक्षण किती कालावधीमध्ये वजन कम आहे याकडे गांभीर्याने लक्ष द्यायल चांगला आहार व नियमित व्याया असूनही वजन कमी झाले तर डॉक

■ ग्राहक वेब पोर्टल व मोबाइल ॲप्लिकेशनच्या माध्यमातून वीज वापर व विश्लेषणाचा रिअल-टाइम डेटा पाहू शकतात.

■ ग्राहक विनाअतिरिक्त शुल्कांसह प्रीपेड किंवा पोस्ट-पेड मीटरिंगचाही अवलंब करू शकतात.

ग्राहकांचाही समावेश आहे. तर या सणासुदीच्या काळादरम्यान यासंबंधी विशेष उपक्रम सादर करण्यात आला होता. या उपक्रमाला यश मिळाले असून त्या कालावधीत ६, २७४ नवीन ग्राहकांनी हरित दरांचा हा पर्याय नव्याने स्वीकारला.

POWER SYSTEMS FOR MILITARY APPLICATIONS

Military equipment often requires power systems that can withstand harsh environments and extreme conditions, such as high temperatures, shock and vibration, and electromagnetic interference. Additionally, these power systems must be able to operate in remote locations and be able to function under a wide range of temperatures.

The requirements of military equipment can vary widely depending on the type of equipment. It may be required to operate for extended periods of time without maintenance, which means that the power systems must be highly reliable and have long service lives. They must be lightweight and compact, so as to minimize the overall weight of the equipment.

Military grade power management systems such as battery management systems must be able to monitor and control the power source and provide a reliable power source heat management systems, such as heatsinks, must be able to dissipate heat effectively and prevent damage to the power source.

Recent Developments

There have been several recent developments in providing military equipment with a reliable and long-lasting power source that is lightweight and compact, thus increasing the mobility and autonomy of the equipment. Some of the most notable include:

Lithium-ion Batteries: These have a high energy density, which allows for long-lasting power in a lightweight package. They also have a long service life and can be rapidly charged.

Fuel Cells: Highly efficient, lightweight, long-lasting power source, which can operate in remote locations.

Solar Power: Solar panels are a lightweight, long-lasting power source that can be used to generate electricity in remote locations. They can be integrated into military equipment.

Microgrids: Microgrids are small-scale power systems that can be used in remote locations to provide power to a single piece or to a group of equipment.

Hybrid Power Systems: These systems combine multiple power sources, such as batteries, fuel cells, and generators, to provide a reliable and long-lasting power source.

Power Systems for Drones

Small and large drones have different power system requirements, but some general requirements are common to both. Drones have limited space for power systems, so the energy density of the power source must be high to provide a long-lasting power source in a small package. Lithium-ion batteries and fuel cells are commonly used for this reason.

Power system must be lightweight particularly important for small drones. High power-to-weight ratio is required, ie, more power relative to their weight. Power system must be highly reliable for drones to be able to fly for extended periods without maintenance.

Drones are susceptible to Electromagnetic Interference (EMI) and Electromagnetic Compatibility (EMC) issues. For large drones, the long-lasting power source must be able to provide a high level of power output. Large drones need to be able to fly even if one of the power systems fails, so the power system must have built-in redundancy. Harsh environments mean the power system must be able to withstand extreme temperatures, humidity and other environmental factors.

Power Systems for Fighter Aircraft

Fighter aircraft need to power the various systems on the aircraft, other than engines, ie, avionics and weapons systems.

Weight is critical, hence, power system must be lightweight as well with high power-to-weight ratio.

For flying for extended periods of time without maintenance, the power system must be highly reliable and safe to use in punishing environments.

Power Systems for Submarines

Submarines have limited space for power systems. They need to be able to operate for extended periods of time without maintenance, in a high-pressure underwater environment, quietly to avoid detection.

Auxiliary power systems for submarines have several special requirements, including compactness, high reliability, safety, generate minimal noise and vibration, minimum downtime, and withstand the high pressure and low temperature of the underwater environment.

Power Systems for Soldiers

Soldiers need to carry their own equipment in the field in remote locations and operate in different harsh environment.

Power systems for soldiers must be lightweight to minimize the load on the soldier, must have a high energy density to provide long-lasting power source in a small package and be reliable and safe in a variety of environments.

The power source must be durable to withstand rough handling and rugged conditions, and low in maintenance and, at the same time, must be flexible and adaptable to different power needs depending on the mission.

Power Systems for Tanks

Besides the power pack, tanks require auxiliary power tooperate the various systems on the tank, such as weapons systems, and communications equipment. They need to be able to operate for extended periods of time without maintenance.

Power Systems for Military Communications Military communications have several special requirements, primarily EMI/EMC compatibility, portability and ruggedness.

Missiles and Strategic Systems

Missiles and strategic systems need to be able to operate for

extended periods of time without maintenance. They are susceptible to EMI and EMC issues, and have limited space for power systems. Redundancy and safety factors are important in the case of missiles.

Alternate Sources of Power

There are increasing calls for military vehicles and equipment to reduce carbon emissions. Alternate sources of power are being explored.

Electric power can be generated from a variety of sources, such as solar, wind, and hydro, which are all renewable and produce no emissions. Electric power can be stored in batteries and used to power military vehicles and equipment.

Hybrid power systems, combining internal combustion engines with electric motors and batteries can improve the fuel efficiency of military vehicles and equipment.

Fuel cells, which convert chemical energy into electricity and can be powered by hydrogen, a clean-burning fuel that produces only water vapor when burned, can be used to power military vehicles and equipment.

Biofuels, such as biodiesel and bioalcohol, are being tried in transport aircraft.

Propane, natural gas, solar energy, are other alternatives to traditional fossil fuels, with lower carbon content, which can be used to power military vehicles and equipment.

Critical Components and Materials

Military grade power sources and power systems require specialized components and materials that can withstand harsh conditions and demanding environments.

Military grade batteries and fuel cells must be able to withstand high temperatures, shock and vibration, and extreme conditions. Lithium-ion batteries and nickel-cadmium batteries are commonly used in military applications due to their high energy density and long service life. Military grade fuel cells typically use platinum and ceramics. Solar panels are typically made with materials such as silicon and glass.

Military grade power electronics, such as inverters and converters, use materials such as silicon and ceramic. Military grade cabling and connectors use materials such as copper and fibre optics.

Common Factors

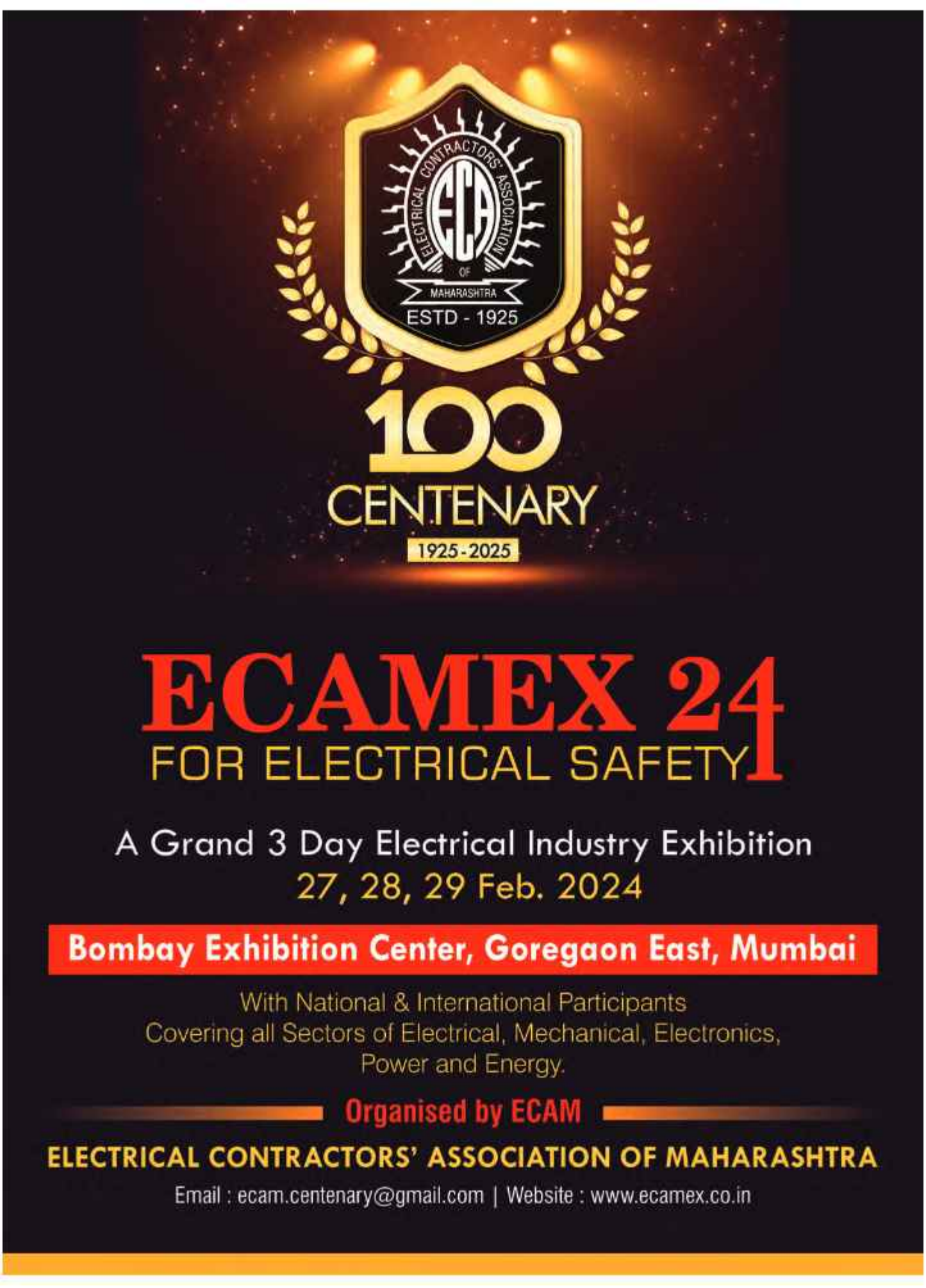
Military equipment is required to be used for extended periods of time without maintenance, in a variety of environments, rough terrain and harsh conditions, including hot and cold temperatures. They cannot be allowed to fail.

Military systems have limited space for power systems. They are susceptible to EMI and EMC issues.

The power sources need to provide long-lasting power, be portable and utilize minimum fuel and increase the system's endurance. The power source must be compact to fit in the limited space.

The power system must have built-in redundancy, be able to withstand extreme temperatures, humidity, and other environmental factors.

The power system must be highly reliable and safe to use, EMI/EMC compatible, provide for redundancy, climate resistance (extreme temperatures, humidity), and be compact to fit in the limited space.



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The Electrical Contractors' Association of Maharashtra Indian has great pleasure in presenting the ECAMEX 2024 at Bombay Exhibition Center, Goregaon east, Mumbai, India during 27, 28, 29 February 2024.

The 72 billion dollar electrical Industry in India is witnessing a double digit growth in recent years, thanks to the emphasis being given on infrastructure development by the Central and State Governments and the growing awareness of the importance of appropriate fittings in day to day applications. With the increased investments in the Infrastructural sectors, the electrical industry is poised for rapid development. Smart city concepts have thrown open many avenues and electricals play a critical role.

The electrical industry in India is on a globalization drive and is now providing the Indian consumers a variety of electrical products sourced domestically as well as from overseas. In the context of the reduced import duty regime in India, the globalization drive is gaining momentum.

The growing living standards in India are finding expressions in the electrical industry in many ways. The country is in the midst of an unprecedented growth in industrial and infrastructure facilities.
The Ecamex 2024 will publicize the developments taking place in the electrical industry and provide excellent marketing opportunities for all the products and services covered by the industry.

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Products Profile

- Cables and Wires
- Accessories for Wiring
- Electrical Safety Equipments
- Stabilizers & UPS
- Electrical & Electronics appliances
- Cables Jointing kits
- Raw materials & components
- Meters & Relays
- Railway / Metro/ Refineries / Mines
- Street Lighting
- Lighting and Luminaries
- Switch gears & Control gears
- Generators & Motors
- Control Panel Boards
- Intelligent Building systems
- Solar Power Panels
- Flameproof Equipments
- Wiring Devices
- Residential, Commercial, Industrial
- Lighting with non-conventional energy
- Transformers & Capacitors
- Measuring Instruments
- IT and Data Networking
- Conduit Pipes, Casings
- LED Lighting Products
- Capital Goods & Machinery
- Industrial Lightings
- Power Saving Solutions
- Security/Safety/Speciality
- Consultancy Services

Visitors Profile

Ecamex 24 will be mainly Electrical Industry and B2B event. Free Entry for Visitors. The Visitors Profile as below :

- Electrical Contractors & Engineers
- OEM & Manufacturers
- Municipal Corporations
- Electrical Consultants
- Sugar Industries
- MEP Consultants
- TATA Power Officials
- Panel Builders
- Owners & Manufacturers
- Government Departments
- Architects & Interior Designers
- Realtors & Developers
- CREDAI Members
- Industrial Consultants
- MSEDCL Officials
- MCCIA Members
- BEST Officials
- Metro Officials
- Corporate Clients
- Dealer & Distributers
- Builders and Promoters
- Industry End Users
- COSMA Members
- Lighting Consultants
- IE&L Department
- MEDA Members
- Reliance Officials
- PWD Officials
- Residential Customers
- Engg. College Students

Advertising & Publicity

• An effective ad campaign during and prior to the event will be run in different media. • Advertisements in national newspapers and industrial journals will be published well ahead, which would flash highlights and previews of the event. • TV commercials, Hoardings & Banners across the Metro cities. • Direct mailers and special invitations will be sent to decision - makers and key personnel and professionals related to the industry.

Who Should Participate ?

• Manufacturers, importers, agents, dealers in electrical industry • R&D institutions, Testing & Measuring instruments manufacturers • Publishers, Service providers, Electrical Consultants & Design software companies • Government Departments, Electric Utilities, Non Conventional Energy. • Housing, Commercial, Industrial Development Agency.

Why Exhibit?

• Ecamex, the oldest established association in the country, provides a platform to project your products, technologies and services to the entire cross section of electrical interests from specialized interest groups to large users from government and industry. • Ecamex gives access to engineers, designers, architects, consultants, researchers and government and industry decision makers as well as the general public. • Ecamex is an event of ECAM, the only Association completing 100 years of existence dedicated to promoting good professional practices. • Ecamex has introduced a special pavilion, the Safety Pavilion for featuring innovative safety products, design solutions and applications and state of the art technology. • Ecamex is the right platform for increasing brand awareness, launching new products, exploring investment opportunities and locating partners for joint ventures and tie-ups. • Ecamex is planned with a concurrent one day Technical Seminar with international faculties to address the Emerging trends in Electrical Safety.

Modular Stalls

Modular in construction as per international standards. In terms of features, facilities and aesthetics, the stalls will be in a well-lit ambience. Standard modules with fascia would measure 9 sqm / 12 sqm. Larger modules available on request.

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Pavelion Charges depends on Activities
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Ecamex Planning For Fair Directory
1000 Nos Fair Directories in Exhibition

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Technical Visits & Study Tours	Region wise Celebration	Felicitation of Students	IECT Special Issues	Ecam Diary 2024 & 2025
Centennial Souvenir 2024 & 2025	Contests with Prize Distribution	Ecamex Fair Directory	Entertainment Events	Award Ceremony

Gala Concluding Ceremony: 10 January 2025

The year long celebration will be concluded with a Gala event with Entertainment & Dinner

Organisation Committee

No.	Designation	Name	Mobile	Mail id
1	PRESIDENT - ECAM MAHARASHTRA	SHRI WAMAN BHURE	98226 54276	waman.bhure@gmail.com
2	VICE PRESIDENT - ECAM	SHRI UMESH REKHE	98222 88423	ramavijayaele@gmail.com
3	GENERAL SECRETARY - ECAM	SHRI DEVANG THAKUR	94222 49672	devangthakur@yahoo.co.in
4	JOINT SECRETARY - ECAM	SHRI YOGESH PAWAR	94220 06661	yogesh.prashantelectricals@gmail.com
5	TREASURER- ECAM	SHRI RAOSAHEB RAKIBE	98231 68563	prajelectricals@yahoo.com
6	IMMEDIATE PAST PRESIDENT	SHRI SUNIL BHURE	98509 70114	trimurty123@gmail.com
7	CHAIRMAN-PUNE REGION	SHRI AMARNATH PATIL	93710 02577	patil.amarnath@gmail.com
8	CHAIRMAN-NASIK REGION	SHRI SACHIN FARTADE	98232 81170	sachin.fartade22@gmail.com
9	CHAIRMAN-NAGAR REGION	SHRI DATTA ZINJURDE	92700 03874	chintamanie0033@yahoo.com
10	CHAIRMAN-JALGAON REGION	SHRI SAYYAD MEHDI	98232 93405	mehdielectrical@gmail.com
11	CHAIRMAN-WEST. MAHA. REGION	SHRI DILIPKUMAR KADAM	94212 68888	powerindias@rediffmail.com
12	CHAIRMAN-DHULE NANDURBAR REGION	SHRI PRAVIN BADGUJAR	94239 81945	pragatienggworks@gmail.com
13	CHAIRMAN-THANE REGION	SHRI NILESH TIVRAMKAR	90046 46579	nilrock89@gmail.com
14	ACTING CHAIRMAN-KONKAN REGION	SHRI ULHAS VAJRE	98216 72242	ulhasvajre@gmail.com
15	CHAIRMAN-CENTENARY COM MITTEE	SHRI AMARNATH PATIL	93710 02577	patil.amarnath@gmail.com
16	CO-CHAIRMAN-CENTENARY COMM.	SHRI ANIL MAHAJAN	9422008629	samarthsuhasha@rediffmail.com
17	CO-CHAIRMAN-CENTENARY COMM.	SHRI MARUTI MALI	9822218577	msmali.pune@gmail.com
18	CO-CHAIRMAN - ECAMEX	SHRI AMEY KANNAV	9860023349	ameykannav@rybelectricals.com
19	CONVENOR - CENTENARY COMM.	SHRI SATISH SINNARKAR	9821039722	info.cmasters@gmail.com

..Your Sincerely..

SHRI WAMAN BHURE
President ECAM

SHRI DEVANG THAKUR
General Secretary

SHRI MARUTI MALI
Chairman ECAMEX

Best Practices for Prevention to Ensuring Electrical Fire Safety

Electrical fires pose a significant risk, emphasizing the need to prioritize electrical fire safety to prevent potential hazards. Implementing best practices is crucial in addressing electrical fire safety issues effectively. Here's a comprehensive guide to help you safeguard your property and occupants:

1. Regular Inspections & Professional Electrical Assessment:

Regular inspections of your electrical system are paramount for identifying signs of wear, damage, or ageing. During these inspections, pay attention to:

- Frayed wires
- Damaged outlets
- Exposed conductors

If uncertainty exists about the condition of your electrical system, enlist the services of a qualified electrician for a thorough assessment. Additionally, establish a routine for professional inspections, especially in older homes or commercial buildings.

2. Upgrading Wiring and Components:

Stay current with electrical code standards by upgrading outdated wiring. Replace old or damaged outlets and switches with modern, safer alternatives to enhance overall safety.

3. Use of AFCIs and GFCIs:

Install Arc Fault Circuit Interrupters (AFCIs) and Ground Fault Circuit Interrupters (GFCIs) in appropriate areas. AFCIs detect and mitigate arc faults, while GFCIs protect against ground faults, contributing significantly to electrical safety.

4. Proper Use of Outlets:

Prevent overloading outlets or power strips, and use extension cords and power strips only as temporary solutions, avoiding them for permanent wiring.

5. Appliance Safety:

Regularly inspect appliances, promptly replacing damaged cords or plugs. Adhere to manufacturer guidelines for maintenance and proper usage to mitigate potential electrical risks.

6. Safe Installation Practices:

Ensure that all electrical work is carried out by licensed and qualified electricians. Adhere to proper wiring techniques and follow electrical code regulations for safe installations.

Also, Understand the capacity of your circuit breakers and avoid overloading circuits. Frequent tripping of breakers may indicate underlying issues that require professional attention.

7. Monitoring for Warning Signs:

Stay vigilant for warning signs such as flickering lights, sparking outlets, or a burning smell. Address these issues promptly to prevent potential fire hazards.

8. Emergency Disconnects:

Familiarize yourself with the location of your electrical panel and know how to shut off power in case of an emergency. Keep the area around the electrical panel clear for easy access.

9. Fire Extinguishers and Smoke Alarms:

Keep fire extinguishers easily accessible, especially near electrical panels. Install and regularly test smoke alarms throughout your property for early detection of potential fire incidents.

10. Emergency Response Plan:

Develop and communicate an emergency response plan that includes specific procedures for addressing electrical fires. Conduct regular drills to ensure everyone is familiar with the plan. Also, Ensure that residents or employees are educated on basic electrical safety practices. Provide clear instructions on actions to take in the event of an electrical emergency.

In case of electrical problems or concerns about electrical fire safety, it is essential to consult with a qualified electrician or relevant professionals. Electrical work should always be performed by trained individuals to ensure compliance with safety standards and codes. Prioritizing safety and taking immediate action upon noticing any signs of electrical issues is crucial for preventing potential hazards.

KPCL and THDCL signs pact for power projects worth Rs 150 billion in Karnataka

The Karnataka Power Corporation Limited (KPCL) and Tehri Hydro Development Corporation Limited (THDCL) have signed a memorandum of understanding (MoU) to develope various power projects.

The projects will include hydro, solar comprising floating and ground mounting, and pumped storage projects. These projects, once finalised, will lead to an investment of more than Rs 150 billion in Karnataka by THDCL. The MoU pertains to the development of a 100 MW floating solar photovoltaic (PV) plant at the Kadra Dam reservoir in Uttara Kannada district and the establishment of 170 MW ground-mounted rooftop solar PV plant on the premises of KPCL plants and a 1,500 MW pumped storage plant at Varahi in Shimoga district.

India's decarbonized urbanization - A perspective

Whether from the point of view of decarbonization or from the air-quality perspective or from impending extreme weather events point of view, urban planning is going to play a crucial role, necessitating a drastic shift from businessas-usual scenario.

In the last few days, there were two eye-catching news items in the newspapers. The first one referred to the United Nations World Urbanisation Prospects report, which said that by 2030, India will have over 70, millionplus cities compared to 55 such cities in the United States [1]. Indeed, as per a new World Bank report titled "Financing India's Urban Infrastructure Needs: Constraints to Commercial Financing and Prospects for Policy Action" by 2036, 600 million people will be living in urban cities in India, representing 40 percent of

Scenarios". This report has projected a warmer and wetter future for almost the whole of India during the short-term period of the 2030s along with increase in heatwaves [2]. In order to complete the picture, let us also include India's longterm goal of reaching net-zero by 2070 as well as its increasing urban pollution not only over the Indo-Gangetic plain but also in other metropolises like Mumbai and Kolkata. It is evident, therefore, that whether from the point of view of decarbonization or from the air-quality perspective or from impending extreme weather events point of view; urban planning is going to play a crucial role, necessitating a drastic shift from business-as-usual scenario. India's `Long-Term Low-Emissions Development Strategy (LT-LEDS)' acknowledges it explicitly when it states that `Currently, the major part of India's emissions are from cities..... Further, buildings account for more

than 40 per cent of India's total energy consumption in cities.'

While LT-LEDS lists out policies and practices already in place as regard urban planning, the ground situation is quite different. NITI Aayog's 'Reforms in Urban Planning Capacity in India' 2021 report [3] is illuminating in encapsulating the wide-spread maladies. It very clearly states that (a) urban planning, which is the foundation for the integrated development of cities, citizens, and the environment, has not received adequate attention, (b) 65% of the 7933 urban settlements do not have any master plan, and (c) an inadequate number of urban planners in the State planning machineries and lack of multi-disciplinary teams are serious issues. Considering that a better part of forthcoming urbanization is going to be greenfield, the current approach of urban planning is simply unviable in light of challenges listed above. For instance, can the country afford to let urbanization continue to take place haphazardly and then try to somehow contain its ill effects? If the urban India is going to be engines of economic growth – as per LT-LEDS – obviously it must also be a key element of India's transition to net-zero emissions economy. What is required, instead, is to start incorporating necessary measures in the very planning framework, ranging from urban spaces to buildings to intra/inter-city

Considering that a better part of forthcoming urbanization is going to be greenfield, the current approach of urban planning is simply unviable in light of challenges listed above. For instance, can the country afford to let urbanization continue to take place haphazardly and then try to somehow contain its ill effects? If the urban India is going to be engines of economic growth – as per LT-LEDS – obviously it must also be a key element of India's transition to net-zero emissions economy. What is required, instead, is to start incorporating necessary measures in the very planning framework, ranging from urban spaces to buildings to intra/inter-city divorced from the ease of commuting between residences and places of work or between homes and commercial/institutional establishments. Likewise, scant attention is given to holistic mobility plans centred around public transportation, walkways, and cycling. Instead, band-aid solutions like flyovers and selective metro network are resorted to by the time the problem had already

taken an unsurmountable proportion. These are supplemented with other knee-jerk measures like odd-even without creating accessible and convenient alternatives. Let us also remember that while EVs happen to be an important part of decarbonization of fledging transport sector, ultimately its largescale transition to efficient and convenient public transportation that would lead us to our net-zero goal and sustainable LiFE. Same goes for buildings: since a significant portion of India's building stock has not yet been built, we have the opportunity to control future cooling requirements through energy efficient design. Although passive building design occupies an important place in our energy conservation building codes; the situation is that in today's buildings, provisions like natural ventilation have become an exception. Thus, first our modern architecture contributes to the temperature rise around us, which we then try to cool by air conditioning. Early architecture was attuned to the local weather conditions. But now? Even though the climates of Gurgaon and Hyderabad differ vastly, both will have similar concrete-glass buildings. And when ever-increasing heatwaves require more of air-conditioning – and the concomitant power – resort to super-efficient air-conditioners and clean electricity augmentation. Essentially, instead of planning pre-emptive measures, help crises to develop and then apply short-term but expensive remedies

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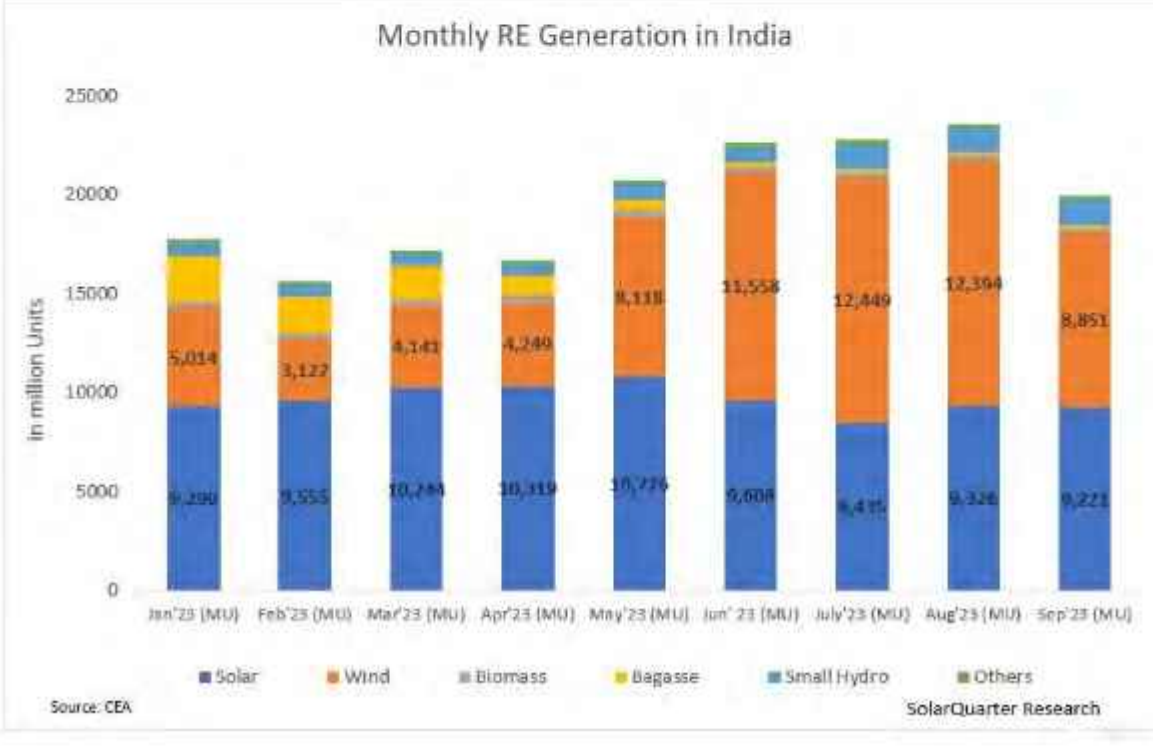
Solar Power Surpasses 46% Share In Total Renewable Energy Generation in September 2023

Representational image. Credit: Canva

In a significant milestone for India's renewable energy sector, solar power has emerged as a dominant player, contributing 46.34% to the total renewable energy generation by the end of September 2023. This development underscores the country's commitment to sustainable energy and the growing importance of solar technologies in meeting its energy demands.

India has been making substantial strides in the renewable energy sector over the past few years, with a particular focus on solar power. The ambitious targets set by the government under the National Solar Mission and other renewable energy initiatives have propelled the nation into a leading position in the global renewable energy landscape.



The data from September highlights a notable transformation in the energy landscape, with solar power accounting for nearly half of the total renewable energy generated in India, reaching 9,221 million units. This accomplishment underscores the collaborative efforts of the government, private sector, and various stakeholders in promoting clean and sustainable energy sources. In September 2023, the total renewable energy generation amounted to 19,909.96 million units, with wind contributing 8,850.82 million units, and other sources making up the remaining 9.23% of the total.

A driving force behind the surge in solar power generation is the rapid expansion of solar capacity nationwide. Government initiatives to scale up solar infrastructure, coupled with supportive policies and incentives, have attracted significant investments, leading to substantial growth in solar installations and contributing significantly to the overall renewable energy capacity.

The decreasing costs of solar technology have also played a crucial role in the widespread adoption of solar power in India. Advances in solar photovoltaic technology, combined with economies of scale, have substantially reduced the cost of solar power generation. This cost-effectiveness has made solar energy an attractive choice for both large-scale utility projects and distributed generation, further enhancing its share in the energy mix.

Moreover, the growing awareness and commitment to environmental sustainability have motivated businesses and consumers to embrace solar power. Many industries and commercial establishments are investing in rooftop solar installations to meet their energy needs while simultaneously reducing their carbon footprint. This trend not only contributes to the overall solar capacity but also fosters a decentralized and resilient energy infrastructure.

India's total solar PV installed capacity has surpassed 70 GW, with wind power capacity reaching 44 GW. These two renewable energy sources have dominated the renewable power market in the past decades, contributing to a combined renewable installed power capacity of approximately 132 GW (excluding hydro).

The success of solar power in India can also be attributed to favorable geographic conditions, as the country experiences abundant sunlight throughout the year. States with high solar potential, such as Rajasthan, Gujarat, and Karnataka, have emerged as significant contributors to the solar power surge, hosting large-scale solar projects.

Despite the commendable growth of solar power, challenges, and opportunities lie ahead. Addressing critical aspects such as grid integration, energy storage, and intermittency issues is essential to ensuring a reliable and stable power supply. Policymakers and industry stakeholders must collaborate to tackle these challenges and create an environment conducive to the continued growth of solar power in India.

As India surpasses the 46.34% mark in solar contribution to total renewable energy generation, it serves as a beacon for other nations seeking to transition to cleaner and more sustainable energy sources. This achievement not only reflects technological advancements but also signifies the collective commitment of the Indian government, businesses, and citizens toward building a greener and more sustainable future.

Bangladesh approves first OSW project

The Bangladesh government has given in principle approval to a green investment proposal worth USD1.3 billion for developing the country's first 500 MW utility-scale offshore wind (OSW) project by Denmark's Copenhagen Infrastructure Partners (CIP) and Copenhagen Offshore Partners (COP), in association with Bangladesh's Summit Group.

The three entities had jointly submitted the foreign direct investment proposal in July 2023 to the government. The latest approval from the latter is for carrying out a detailed feasibility study and implementing the first phase of development with site exclusivity in the next three years. The proposed project site is located offshore of Cox's Bazar district. Once operational, electricity will be supplied directly to the national grid via an onshore substation.

Emergency lights in trains are mandatory

The administration has got serious on safety of rail passengers. Kapurthala has developed five coaches using fire-retardant materials and roof-mounted air conditioning package units with reverse cycle feature for heating arrangements besides automatic smoke detection. As per reports, improved materials have been used for electrical fittings and fixtures such as MCB (Miniature Circuit Breaker), light fittings, terminal boards, connectors.

Fire-retardant material is being used in coach furnishing, while fire extinguishers are now installed in rail coaches for passenger safety. The RCF is the first unit in the Indian Railways to have manufactured a roof-mounted AC unit in 1992. Roof-mounted package units maintain temperature and humidity to the comfort level inside the air-conditioned coaches.

Though, India's rail network is in expansion mode. But notwithstanding the euphoria of upgradation with Vande Bharat adding on, we suffered a setback and witnessed one of the ghastliest train accidents in decades which left 288 passengers dead and over 900 injured in Odisha.

Rail safety was back in discussion but there is a strong possibility that the accident was a case of sabotage and is under investigation. But just as we ensure safety by installing emergency lights, fire extinguishers, sprinklers and photoluminescent signages in homes, shops, malls, hospitals, business institutions and all kinds of enclosed spaces, even trains are equipped with emergency lights mandatorily today.

For example, consider Fig.1, Prolite's Ceiling Mounted Emergency Escape Lights are designed to illuminate passageways comprehensively taking up minimum space and consuming comparatively less power than the conventional varieties of emergency lights or CFL lights. These lights can be of 1 watt and upto 3 Watt capacity lights which are useful in railways, containers or any outdoor commercial establishment. Non photoluminescent signages will disappear when darkness falls but with the support of these emergency lights, people will be able to see and read the signs even in pitch darkness.

In Fig.2, is the Bulkhead Emergency Light which allows for bright light to cascade into any setting, a condition essential for many industrial sites of both the past and the present. Their durability made them ideal choices for outdoor fittings, within the confines of railways or even within commercial buildings.

Their functionality and durability make them particularly useful within railways while their robust design makes them seamlessly blend into the look of

any respective environment. Their design ensures they are tough, withstanding the attacks of dust and water, whilst their ability to provide a vast amount of light make them useful features on the indoor or outdoor walls as a valuable security measure.

The government has planned to run 75 Vande Bharat trains by August 2023. To complete PM Narendra Modi's vision, the government is committed to re-develop railway stations too. Currently, only two Vande Bharat Expresses are operational in India from New Delhi to Varanasi and New Delhi to Katra.

During extreme emergencies such as derailment, collisions, or other the power is likely to fail and put the interiors in pitch darkness in the critical moments. Emergency Light Units then come on to facilitate immediate rescue during such emergencies. It is vital to provide illumination during failure of all other power supplies inside the coach. Vande Bharat trains also have four emergency lights in every coach in case of electric failure.

The culture of safety is welcome in any environment. Be it stagnant as in enclosed spaces or moving as in these coaches, safety is imperative and non-negotiable. That is why the NBC has issued strict guidelines on safety related issues to be observed by builders, developers, planners and architects right from the planning stage till the said construction is erect and active.

File No.CEA-PS-16/25/2023-CEI Division

भारत सरकार/Govt. Of India
विद्युत मंत्रालय/Ministry of Power
केन्द्रीय विद्युत प्राधिकरण/Central Electricity Authority
मुख्य विद्युत निरीक्षणालय प्रभाग/Chief Electrical Inspectorate Division
****

To,

As per List

Sub: Advisory to ensure One Nation, One License for Electrical Contractors" - regarding.

In view of representations received from various organizations/contractors it has been felt that there is a need of having "One Nation, One License" for electrical contractors so that under the ease of doing business they can take up the works in various States by having a valid license in any of the States/Union Territories. This will avoid long drawn process of obtaining the separate license in the respective States, where they intend to work.

It is also informed that, a meeting in this regard was also taken by Chief Engineer, CEA on 29.09.2023 with all the State Electrical Inspectorates in which most of the States welcomed the step of One Nation, One License. It was discussed in the meeting that Supervisor License holder and wiremen license holder of different States are allowed to work in other states by different arrangements made by different States (like reciprocal MoUs/ verification/ endorsement etc.) however, no such procedure is allowed for Electrical Contractor license holder of other States. As such, all State Electrical Inspectorates in which there is no such procedure existing to allow Electrical Contractor of other States are advised to take necessary measures as mentioned below:

1. **Endorsement/verification of outside contractor licenses issued by other State Licensing Board:** In order to facilitate the Electrical Contractor who possesses an Electrical Contractor License granted by one State to take up work in another State, it is hereby advised to allow the same by way of endorsement/verification subject to the fulfilment of the following conditions:

    a) Needs verification of authenticity of:
        i. license of the contractor,
        ii. workman permit of workman
        iii. "Supervisor competency certificate" of supervisor working under the contractor.

    The contractor is to make an undertaking that the supervisor and the workmen possess the required qualifications. The competency certificate of the workmen/supervisor should be self-certified/ self-attested.

एनआरपीसी परिसर, कटवारिया सराय, नई दिल्ली-110016 टेली: 011-26565214 ईमेल: cea-eidivision@gov.in वेबसाइट: www.cea.nic.in
NRPC Complex, Katwaria Sarai, New Delhi-110016 Tele: 011-26565214 Email: cea-eidivision@gov.in Website: www.cea.nic.in

b) Adjustment of appropriate category of Electrical Contractor according to the respective State/UTs regulation.
c) The respective State Government/UT Administration where the work is to be undertaken by the Electrical Contractor to get the verification of the license by the issuing State in not more than 15 days.

2. **Territorial Restrictions:** In addition to these, it is advised that while granting licenses to Electrical Contractor no State shall put territorial restrictions for undertaking works in their State only.

3. **Revoking of License:** In case of misconduct by any Electrical Contractor license holder of other States, an inquiry is advised to be conducted by a subcommittee led by the officer of the level of Superintending Engineer (to be nominated by the appropriate Government) of State in which presently working. The findings of this subcommittee are then presented to the Licensing Board of State in which presently working. The decision of the Licensing Board will be conclusive and obligatory.

It issues with the approval of competent Authority.

Yours faithfully,

for Rishika Sharan 20/11/2023

(Rishika Sharan)
Chief Engineer, Chief Electrical Inspectorate

Copy for information to:

1. SA to Chairperson, CEA
2. SA to Member (Hydro), CEA

IECT TOP 10

The Importance of Electrical Fire Safety

Electrical fire safety is of paramount importance in ensuring the well-being of individuals, protecting property, and preventing potentially catastrophic incidents. As electricity is an integral part of modern life, understanding and prioritizing electrical fire safety measures are crucial. Here are key reasons highlighting the significance of electrical fire safety:

1. Preventing Human Casualties:

Electrical fires can lead to severe injuries and fatalities. Prioritizing electrical fire safety measures helps minimize the risk of harm to individuals, ensuring their safety in homes, workplaces, and public spaces.

2. Protecting Property and Assets:

Electrical fires can cause extensive damage to buildings, homes, and valuable possessions. By implementing safety practices, property owners can safeguard their investments and reduce the financial impact of potential fire-related losses.

3. Avoiding Disruption and Downtime:

Electrical fires can lead to business interruptions, causing downtime and financial losses for businesses. Adhering to electrical fire safety protocols helps maintain operational continuity, preserving productivity and minimizing disruptions.

4. Preserving Critical Infrastructure:

Electrical systems are vital components of critical infrastructure, including hospitals, data centers, and emergency services. Ensuring the safety of these systems is essential to maintaining the functionality of essential services during emergencies.

5. Preventing Extensive Fire Spread:

Electrical fires have the potential to spread rapidly, especially if not detected and addressed promptly. Implementing safety measures helps contain fires, preventing them from escalating and causing more extensive damage.

6. Mitigating Environmental Impact:

Electrical fires may release harmful substances and pollutants into the environment. By preventing these fires, individuals and businesses contribute to environmental conservation by reducing air and water pollution associated with fire incidents.

7. Compliance with Regulations :

Adhering to electrical fire safety guidelines ensures compliance with local, regional, and national regulations. Compliance not only mitigates legal risks but also demonstrates a commitment to responsible and safe practices.

8. Enhancing Public Safety Awareness:

Promoting electrical fire safety raises public awareness about potential risks and preventive measures. Education empowers individuals to recognize warning signs, take appropriate actions, and contribute to creating safer communities.

9. Reducing Fire Department Responses:

Preventing electrical fires reduces the strain on emergency services and fire departments. This allows these resources to be allocated more efficiently to respond to other emergencies, improving overall community safety.

10. Supporting Sustainable Practice

Electrical fire safety aligns with sustainability goals by reducing the environmental impact of fires. Minimizing fire incidents helps preserve resources, prevent waste, and contribute to a more sustainable and resilient society.

Electrical safety leads to fire safety

In conclusion, the importance of electrical fire safety extends far beyond individual protection. It encompasses the well-being of communities, the preservation of property and assets, and the sustainability of our environment. By recognizing and prioritizing electrical fire safety, individuals and organizations contribute to creating safer, more resilient, and sustainable living and working environments.

Powering the Future: Sustainable Energy Business Ideas Shaping a Greener Tomorrow

As our global community grapples with the urgent need to address climate change, sustainable energy business ideas have emerged as beacons of hope, illuminating a path towards a cleaner and more sustainable future. These innovative ventures not only contribute to the fight against environmental degradation but also represent lucrative opportunities for forward-thinking entrepreneurs. Here, we explore the top 10 sustainable energy business ideas that are poised to revolutionize the energy landscape and power the world towards a greener tomorrow.

1. Solar Energy Installation and Maintenance: Illuminating the Path to Clean Power

Embracing the power of the sun, businesses focusing on the design, installation, and maintenance of solar power systems are at the forefront of the sustainable energy revolution. From residential rooftops to expansive solar farms, harnessing the abundant energy radiating from the sun is not only environmentally responsible but economically viable.

2. Wind Turbine Manufacturing: Harnessing the Winds of Change

Wind energy has proven to be a formidable force in sustainable power generation. Entrepreneurs venturing into wind turbine manufacturing are not only creating

job opportunities but also driving the development of small-scale turbines for decentralized energy production. The winds of change are blowing, and wind energy entrepreneurs are riding the gusts towards a cleaner energy future.

3. Energy-Efficient Consulting: Guiding Businesses and Homes Towards Sustainability

Knowledge is power, and in the realm of sustainability, it's the key to reducing energy consumption. Energy-efficient consulting businesses are advising enterprises and homeowners on optimizing their energy use, promoting the adoption of sustainable practices and technologies that benefit both the environment and the bottom line.

4. Smart Grid Solutions: Building Intelligent Energy Networks

The future of energy lies in smart grids that seamlessly integrate renewable sources, storage solutions, and intelligent demand-response systems. Businesses dedicated to developing and implementing smart grid technologies are paving the way for a more efficient, reliable, and resilient energy infrastructure.

5. Bioenergy Production: Turning Waste into Wealth

Waste can be a valuable resource when it comes to sustainable energy. Entrepreneurs in bioenergy production are transforming organic waste materials into biofuels, biogas, and biomass pellets. By tapping into the potential of bioenergy, these businesses are not just mitigating waste but also generating clean, renewable power.

6. Energy Storage Solutions: Storing Power for a Sustainable Tomorrow

The intermittent nature of renewable energy sources necessitates effective energy storage solutions. Businesses dedicated to developing advanced batteries and innovative storage systems are playing a crucial role in ensuring a stable and reliable energy supply, even when the sun isn't shining or the wind isn't blowing.

7. Electric Vehicle Infrastructure: Charging Towards a Sustainable Transportation Future

With the rise of electric vehicles (EVs), the demand for charging infrastructure is soaring. Entrepreneurs investing in EV charging stations are not only supporting the transition to cleaner transportation but also capitalizing on a burgeoning market that aligns with the sustainable energy ethos.

8. Hydropower Solutions: Harnessing the Power of Flowing Water

Water, a timeless source of energy, continues to offer sustainable solutions. Small-scale hydropower businesses, focusing on micro-hydro systems, are tapping into the energy potential of flowing water to provide communities with reliable and environmentally friendly electricity.

9. Energy-Efficient Building Materials: Constructing a Greener Future

The construction industry is undergoing a green revolution with businesses developing energy-efficient building materials. From better insulation to sustainable construction practices, these entrepreneurs are contributing to the creation of eco-friendly structures that consume less energy and stand as testaments to sustainable living.

10. Community Solar Farms: Fostering Local Sustainability

Community solar farms are empowering residents and businesses to collectively invest in or subscribe to solar energy shares. These ventures not only democratize access to clean energy but also strengthen local communities, fostering a sense of shared responsibility for a sustainable future.

In conclusion, these top 10 sustainable energy business ideas represent the innovative spirit of entrepreneurs committed to shaping a greener tomorrow. As they harness the power of the sun, wind, water, and waste, these businesses are not just meeting the demands of the present; they are laying the foundation for a sustainable and resilient future where clean energy powers our world. The time to invest in sustainable energy is now, and these visionary entrepreneurs are leading the charge towards a brighter and more sustainable tomorrow.

REC signs MoU with RailTel to finance infra projects in telecom, IT and railway signalling

REC Limited signed an memorendum of understanding (MoU) with RailTel to extend financial assistance upto Rs 300 billion for infrastructure projects to be executed by RailTel in next five years.

These projects encompass a wide range of areas, including data center products and services, telecom and IT products and services, railways and metro projects, and the KAVACH train collision prevention system. Additionally, the MoU extends to the possibility of financing overseas ventures related to high-speed rail, metro, IT network, and the upgradation of railway network, as part of bilateral country discussions and infrastructure projects in Southeast Asia and Eastern Africa where RailTel is currently focusing.

CERC approves Rs 8.76 billion for emission control at Vallur power station

The Central Electricity Regulatory Commission (CERC) has approved a budget of about Rs 8.76 billion towards installation of emission control systems at Vallur thermal power station in Tamil Nadu.

NTPC Tamil Nadu Energy Company Limited (NTECL), a joint venture between NTPC Limited and Tamil Nadu Generation and Distribution Corporation Limited runs the 3×500 MW Vallur thermal power station. This development will help enable compliance to the sulphur dioxide emission control norms set by the Ministry of Environment, Forest and Climate Change (MoEFCC). As per the MoEFCC notification in 2022, thermal power plants located within a 10-km radius of National Capital Region or in cities having million plus population (as per 2011 census of India) have to comply with the norms by December 31, 2024.

Smart Pole 2.0

The concept of smart cities came into being as a consequential development to internet of things (IoT), digital connectivity, global warming and the compelling necessities for energy saving. More than 50 % of the world's population lives in cities, A city environment, with a closely knit street light network became a natural choice for a smart city concept, hosting sensor networks and wireless communications for traffic control, smart parking, noise and air quality monitoring, incident detection, and more. Smart city lights are not stand alone system. They have to be integrated with other systems under what is known as Internet of Things (IoT). Hence the chosen smart city light poles should be able to accommodate a full range of lighting controls compatible to remote control and integral with suitable sensors for the respective application.

In fact, the smart city pole is going to be a service platform for various services for Network redundancy, application areas such as mobile connectivity WLAN), traffic control, security camera (CCTV), information transfer, public announcement with loud speakers, smart parking, environmental monitoring and even the electric charger for electric cars etc.,

K-Lite proudly announces the introduction of smart city poles (Intelligent poles) with its modular solution, to cater to the above needs in the upcoming smart cities with the salient features as below :

Salient Feature of Smart City Pole

One main pole with one to five modules, Smart column is a multitude of combinations. With flexible modules, the smart column is very handy and flexible for add-on. Choose your combination, add the module, connect them together and the smart column is ready to meet your requirement.

ENERGY SAVINGS. PERFORMANCE AND LITTLE-TO-NO MAINTENANCE

Opportunity

The total cost of ownership for the Crocina Tunnel in Arrezo, Italy was too high due to the excessive cost of relamping in a tunnel application. The city searched for more economical options and evaluated a range of LED solutions. The results concluded that Cree Lighting's EDGE® luminaires offered the cost-effective solutions the city needed for energy savings, performance and little-to-no maintenance.

Solution

Arrezo wasted little time to upgrade all existing 100-watt high-pressure sodium lamps in the Crocina Tunnel with Cree Lighting's EDGE® tunnel luminaires. City officials noticed an immediate and dramatic improvement in uniformity, color, and brightness.

Benefits

The City of Arrezo was able to reduce energy usage by 61 percent by installing Cree Lighting's EDGE® fixtures with an integrated two-level system. In addition to reducing energy consumption, the Cree Lighting luminaires deliver incredible uniformity that provides better visual perception over high-pressure sodium fixtures. The increased uniformity dramatically increases vehicle safety and visibility. With a life rating in excess of 100,000 hours, Cree Lighting luminaires require virtually no maintenance — translating into big cost savings for the city.

- *61 percent energy savings*
- *Incredible uniformity dramatically increasing vehicle safety and visibility*
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World's Largest Nuclear Fusion Reactor Opens In Japan

On December 1, Japan inaugurated JT-60SA, the largest operational superconducting tokamak in the world to date. A tokamak is a nuclear fusion reactor shaped like a donut and this new-build in Japan, with the support of the European Union (EU), is meant to be the forerunner of the under-construction International Thermonuclear Experimental Reactor (ITER), which is currently being built in France and is expected to open in a few years.

The goal of this nuclear fusion reactor is to demonstrate that the design can output a net amount of energy. More energy needs to come out than is put in for it to make sense. Nuclear fusion has the potential to release an enormous amount of clean carbon-free energy. After all, it is what powers stars. But to recreate the conditions that happen at the heart of stars, energy needs to be invested. And that's where the difficult trade-off happens.

A different setup from the tokamak, called inertial confinement fusion, has demonstrated net gain in the last year but still not enough to be commercially viable. This tokamak heats up plasma kept in a strong magnetic field to up to 200 million degrees Celsius (360 million degrees Fahrenheit), with currents going through it at 1 million amps. A household circuit carries between 15 and 20 amps.

Researchers expect that scaling will allow them to extract more and more energy. This is why ITER is designed to be bigger, being able to achieve burning plasma first and then full fusion by 2035. JT-60SA will inform the next steps in reactor approaches, and it is already showing promise. The first plasma was shown to circulate in October with much lower currents going through it.

"What happens here today will matter tomorrow for the contribution of fusion in a carbon-free energy mix. JT-60SA is key to the international fusion roadmap because it provides a one-of-a-kind possibility to learn, operate this unique fusion device and to share that valuable knowledge with ITER," Marc Lachaise, director of Fusion for Energy, said in a speech during the inauguration.

Fusion for Energy is responsible for the EU's contribution to ITER. Thirty-five countries are part of ITER: the whole EU, Switzerland, the United Kingdom, India, Japan, Russia, China, and the United States. ITER is being constructed in the south of France and it is expected to have the first fusion plasma inside it in 2025.

Enhancing Electrical and Fire Safety in the Indian Warehousing and Industrial Sector

Introduction:

The Indian warehousing and industrial sectors have witnessed tremendous growth in recent years, driven by factors such as urbanization, e-commerce, and increased manufacturing activities. As these industries continue to expand, ensuring robust electrical and fire safety measures becomes of paramount importance. This article delves into the significance of electrical and fire safety in the Indian warehousing and industrial industry and explores key strategies to enhance safety standards.

Importance of Electrical Safety:

Electrical safety is a critical aspect of any industrial facility. In the Indian context, where power infrastructure and regulatory frameworks are continuously evolving, it is essential to prioritize electrical safety in warehouses and industrial settings. Adherence to strict safety protocols minimizes the risk of electrical hazards, protects employees and assets, and prevents costly disruptions to operations.

Key Measures for Electrical Safety:

1. Regular Inspections and Maintenance: Conducting routine inspections of electrical systems and equipment helps identify potential issues such as faulty wiring, overloaded circuits, or damaged components. Regular maintenance and timely repairs ensure optimal functioning and reduce the risk of electrical accidents.

2. Compliance with Regulatory Standards: Adhering to national and local electrical safety codes and regulations is crucial. Organizations should ensure that their electrical installations comply with the guidelines set forth by the Bureau of Indian Standards (BIS) and the Central Electricity Authority (CEA). Compliance with these standards not only enhances safety but also helps mitigate legal and financial liabilities.

3. Employee Training and Awareness: Well-trained employees play a pivotal role in maintaining electrical safety. Organizations should invest in comprehensive training programs to educate their workforce about electrical hazards, safe work practices, and emergency response protocols. Regular refreshers and awareness campaigns reinforce a safety-conscious culture.

Fire Safety in Warehousing and Industrial Facilities:

Warehouses and industrial facilities often store large quantities of combustible materials, making fire safety an equally crucial concern. The potential for devastating fires necessitates proactive measures to prevent, detect, and mitigate fire risks.

Key Measures for Fire Safety:

1. Adequate Fire Detection and Suppression Systems: Installing and regularly maintaining fire detection and suppression systems, including smoke detectors, fire alarms, sprinklers, and fire extinguishers, is essential. These systems should comply with relevant standards and undergo periodic inspections to ensure they are in optimal working condition.

2. Proper Storage and Housekeeping: Implementing effective storage practices is crucial to minimize fire hazards. This includes proper segregation of flammable materials, maintaining clear pathways for emergency evacuation, and practicing good housekeeping to prevent the accumulation of combustible substances.

3. Emergency Preparedness and Training: Developing and regularly reviewing emergency response plans is vital to mitigate the impact of fire incidents. Conducting fire drills, training employees on evacuation procedures and designating responsible personnel for fire fighting and emergency response are essential steps in fostering a culture of preparedness.

Collaboration and Continuous Improvement:

Enhancing electrical and fire safety in the warehousing and industrial industry requires collaboration among various stakeholders. Government bodies, industry associations, facility owners, and employees need to work together to establish robust safety frameworks, share best practices, and promote a safety-first mind set. Continuous improvement through periodic safety audits, incident analysis, and the adoption of emerging technologies is crucial to address evolving safety challenges.

Conclusion:

The Indian warehousing and industrial industry must prioritize electrical and fire safety to protect lives, assets, and business continuity. By implementing stringent safety measures, complying with regulations, investing in employee training, and fostering a culture of safety, organizations can create safer work environments. Emphasizing collaboration, continuous improvement, and leveraging technological advancements will further enhance safety standards and contribute to sustainable growth in the industry.

Innovative wireless lights switch could cut house wiring costs in half

"Imagine heaA University Of Alberta Engineering Researcher Has Developed A Wireless Light Switch That Could Reduce The Cost Of Wiring A House By As Much As 50%.

Wireless Switches—consisting Of A Transmitter On The Switch And A Receiver Near A Light Fixture Or Other Appliance—have Been Around For Many Years, And Have Been Proven That They Can Reduce The Material And Labor Cost For Wiring Houses, Says Kambiz Moez, Director Of Electrical Engineering In The Department Of Electrical And Computer Engineering, But They Require Batteries To Operate.

"if You Have 50 Wireless Light Switches In A House, It's Very Inconvenient For An Average Homeowner To Run Around And Replace Batteries All The Time," He Says.

What Makes His System Unique Is That The Switches Run Without Batteries, Harvesting Energy From Ambient Sources Such As Radio Frequency Signals. Instead, Each Floor Would Have One Or Two Rf (radio Frequency) Power Transmitters To Power Up All Switches Inside The House.

Moez Has So Far Developed A Prototype Switch For Less Than One Dollar That Can Be Installed Anywhere On A Wall. The System Is "scalable, Easy To Replicate And Adopt, And Can Be Customized To Meet The Specific Needs Of Homeowners, Contractors And Regulators," He Says.

In 2018, Alberta Became The First Province To Allow Wireless Electricity Control In New Homes. With The Current Housing Crisis In Canada, Moez Says His Innovation Could Help Reduce Construction Costs.

The Switch Can Also Accommodate Sensors For Temperature, Humidity And Occupancy That Can Drastically Reduce Energy Consumption.ting a 3,000-square-foot house, but you're only using a room at any given time. If your house has wirelessly controlled vents, you can close the vents outside that room, or maybe a couple of bedrooms," says Moez.

The "seamlessly automated" system could also turn lights on and off as occupants move from room to room.

"By enabling the wireless control of each section of homes, our solution prevents unnecessary use of energy, which in turn lowers energy bills and reduces carbon emissions," says Moez.

Tata Power acquires Bikaner Transmission renewable energy project for Rs 1,544 crore from PFC

The transmission project, to be undertaken on a Build-Own-Operate-Transfer (BOOT) basis, is poised to facilitate the evacuation of 7.7 gigawatts (GW) of renewable energy from the Bikaner Complex in Rajasthan.

Recently, Tata Power Renewable Energy Limited (TPREL), a subsidiary of the company, was been awarded the job of developing a 200 MW firm and dispatchable renewable energy (FDRE) project with SJVN.

Tata Power Ltd announced that it has won the bid to acquire Bikaner-III Neemrana-II Transmission renewable energy project for about Rs 1,544 crore.

The energy project is of a special purpose vehicle (SPV) set up by PFC Consulting Limited, a subsidiary of Power Finance Corporation. A special purpose vehicle (SPV), also called a special purpose entity (SPE), is a subsidiary created by a parent company to isolate its financial risks.

The transmission project, to be undertaken on a Build-Own-Operate-Transfer (BOOT) basis, is poised to facilitate the evacuation of 7.7 gigawatts (GW) of renewable energy from the Bikaner Complex in Rajasthan. "The project entails the establishment of a 340 kilometers transmission corridor from Bikaner-III pooling station to Neemrana II substation,"_the companysaid in an exchange filing.

Tata Power will maintain the transmission project for 35 years. The project is expected to be commissioned within 24 months from the project SPV transfer date.

The company also added that upon successful commissioning, the project will serve as a crucial component in the roadmap outlined by the Ministry of Power in 2022. This roadmap aims to integrate over 500 gigawatts (GW) of renewable energy capacity into the national grid by 2030.

Recently, Tata Power Renewable Energy Limited (TPREL), a subsidiary of the company, was been awarded the job of developing a 200 MW firm and dispatchable renewable energy (FDRE) project with SJVN. The plant has been carefully designed with a hybrid configuration comprising solar, wind, and battery storage components, each sized appropriately for their capacities.

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Neon Flex LED : A Shining Revolution in Lighting Design

Lafit Lighting brings you the Electrifying Allure of Neon Flex to lighting up the Modern World"

Neon Flex lighting has emerged as a revolutionary trend in the world of design and interior décor. This modern take on the classic neon light has captivated the imagination of artists, architects, and homeowners alike.

Versatile Applications

The versatility of Neon Flex lighting is truly astounding, making it a prominent choice for designers and architects. From commercial spaces to residential homes, Neon Flex is making its mark in diverse applications:

1. **Architectural Marvels**: Neon Flex lighting is used to accentuate the architectural features of buildings. The ability to bend and twist the flexible tubes allows for the creation of intricate designs, adding a touch of creativity to modern cityscapes.
2. **Interior Décor**: Homeowners have embraced Neon Flex for interior decoration. It's commonly found in bedrooms, kitchens, and even bathrooms. Neon Flex can be customized to spell out words, form abstract designs, or mimic natural elements like vines and waves.
3. **Retail Spaces**: Neon Flex is a popular choice for retailers aiming to create a vibrant and memorable shopping experience. It can be used to outline products, form eye-catching signs, and add a dynamic flair to window displays.
4. **Event and Entertainment**: Neon Flex is a favourite at parties, concerts, and events. It can be used to create stunning backdrops, illuminate stages, and set the mood for any occasion with its colours-changing capabilities.

The Aesthetic Allure

The soft, diffused glow of Neon Flex creates an atmosphere that is both inviting and visually stimulating. Its various colours and the ability to change colours through remote control add an element of interactivity to the environment.

Neon Flex lighting has redefined the way we think about illumination. It combines the best of the old and the new, offering a blend of nostalgia and contemporary design. Its versatility, aesthetic allure, and sustainability make it a shining star in the world of lighting, destined to continue captivating our senses and inspiring our creativity. As Neon Flex continues to evolve, we can only anticipate more electrifying innovations in the field of lighting and design.

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Biggest solar farm contracted for green hydrogen to begin construction

Construction is about to begin on the 380 MW Aldoga solar project near Gladstone in Queensland, the biggest solar project to date that will provide all its output for a green hydrogen facility in Australia.

The Queensland government, which has contracted the output for the solar project through the state owned Stanwell generation company, says construction will begin in early 2024, about 20kms north of the Gladstone port, a centre for the coal and LNG industries.

The output is destined for Stanwell's Central Queensland Hydrogen Project (CQ-H2), one of the most advanced green hydrogen projects in Australia. It will serve that customer "behind the meter".

Another large solar project, the Bulli Creek facility in south Queensland, also has an MoU with Fortescue Metals to use the output for its Gibson Island green hydrogen project, although this is less advanced.

The Queensland government says the Aldoga project, which will rank behind only the Western Downs solar project as the biggest in the state, will create 360 jobs and inject $150 million back into the local economy.,

"This demonstrates that the manufacturing of clean energy and green hydrogen spells good jobs for regional Queensland," energy and hydrogen minister Mick de Brenni said in a statement.

Acciona Energia managing director Brett Wickham says the company will source at least $150 million in work from local companies and suppliers around Gladstone and the Sunshine State to help build the project.

"The Aldoga Solar Farm will be a catalyst for a vibrant hydrogen industry here in Gladstone and we're proud to finally be getting construction underway."

Acciona Energia has 1.5GW of renewable projects under construction in Queensland, with work well underway on the 1GW Macintyre wind project, which will be the biggest in the country once complete, at least for a time.

Why does Prolite participate in exhibitions, seminars and conferences regularly?

One of the greatest B2B and even B2C platforms for sales promotion and marketing is undoubtedly an exhibition. This is a platform where people do not come to visit a particular kiosk or buy a particular product. The reason invariably is to browse and gain knowledge and collect information about that particular range of products and/or services on display before taking an informed decision.

When a casual browser visits Prolite's stall and out of sheer curiosity, walks in and ASKS, what he or she learns may probably form the foundation of a greater and better safety environment in the future. The visitors learn about products that are absolutely essential for installation in enclosed spaces and how to use them in the golden moments when a little hesitation can cause loss of life itself. They learn that it is not only essential to install these paraphernalia but mandatory as per NBC. They learn that if the architects and builders/developers have neglected to do so in the premises where they dwell or even visit, they have every right to take them to task for putting their lives and belongings at risk. They come out much wiser. So, if a CEO or MD or corporate head decides to visit an exhibition related directly or even indirectly, to safety and security they would be well advised to not just take their family along but also the cook, the sweeper, the gardener and the work maid or anyone else who wants to tag along.

Recently, Prolite Autoglo Ltd. had a robust exposure at Kings Excellence Awards held on 1st Sept, 2023 at the Taj Mahal Hotel, in Mumbai where the company received the **"Best Evac-Safe Solutions"** Award. We also had a stall at this event organized by King's Expomedia where they gave away awards to firefighter brave hearts. Prolite's products elicited great interest amongst the 150 odd people who were there including dignitaries and big names in the fire safety segment across India.

Mr Jaidev Sanda, General Manager & Nisha Singh, PR Executive delivered a detailed presentation on Prolite, its work and its newly launched product **"Rescue & Search Tower Light"** on the occasion which was hugely appreciated. Prolite showcased around 7 prominent products at the event including floor embedded Passerelle light, Multi light, Exit lights, Conversion module and some Autoglo signages too. Some company representatives who attended even said they would like to install some of the products in their premises.

The event was a super hit and Prolite stall at Taj Mahal Hotel was buzzing with activity and this in itself, was an endorsement of the company's performance in recent times.

Disaster Management and safety related bodies and professionals are often frustrated by the lack of awareness amongst common people about the most basic protocols and rules governing the subject. That is why exhibitions like Fire India, OSH India, ISEE are needed and the robust response that the exhibition attracted was heartening. Prolite's stall at OSH India also saw great response there. In ISEE, the company displayed its products directly related to safety concerning Lifts, Elevators and Escalators and more than 300 footfalls gladdened the hearts of the attendants at the stall. Especially because the products were supplementary to the main subject of the show.

Besides all that, the company also had on display one of the sleekest Emergency lights meant for the lift cabin. Prolite got some inquiries about their products from visitors from different parts of the country who visited the stall, including builders and developers who attended the exhibition.

Union Minister for Power RK Singh inaugurates National Conference on "Energy Transition in India in Gandhinagar

Union Minister for Power and New and Renewable Energy Shri R.K. Singh today inaugurated a two-day National Conference on "Energy Transition in India - Road Travelled and Opportunities Ahead" in Gandhinagar. Shri Kanubhai Desai, Minister of Energy Petrochemicals and Finance, Government of Gujarat was also present along with other dignitaries on the occasion. Organized as a part of the upcoming Vibrant Gujarat Global Summit 2024, the event is being attended by more than 250 Indian and foreign representatives of power and renewable energy sector. The two-day conference will focus on scaling up renewable energy, generation and consumption by considering challenges related to grid integration, financing tools and developing supporting infrastructure.

The Union Minister for Power in his address said the main objective of this conference is to move forward with an ambitious vision of promoting clean energy and facilitating the energy transition. He said that India is committed to reducing the emission intensity of its GDP by 45 percent by 2030 compare to 2005 level. Later, while talking to media persons on the sidelines of the conference, Shri R.K. Singh said that the developed countries should focus on reducing carbon emissions rather than looking in to how carbon emissions are produced. 80 percent of the carbon emission burden lies with developed countries, which account only a one- third of the world's population, he said. The Union Minister further said India aims to add capacity so as to reach 500 GW of non-fossil fuel-based capacity by 2030 and increase the share of renewable energy based capacity to at least 50 percent in terms of installed capacity.

Speaking on the occasion, Shri Kanubhai Desai, Minister of Finance and Energy of Gujarat government said that due to the vision and long-term planning of the Prime Minister and the then Chief Minister of Gujarat Shri Narendra Modi, Gujarat has emerged as the leading state in the country in the field of renewable energy. A separate department for Climate Change was set up in Gujarat for the first time in the country when Shri Modi was the CM, enabling measures to achieve sustainability, energy transition and net-zero goals, he said. Gujarat is also the first state in the country to issue policies on renewable energy providing incentives for the development of renewable energy.He said that Gujarat today ranked first in the country in terms of installed wind power capacity, accounting for 25 percent of the country's total installed wind power capacity. In addition, Gujarat has the highest installed rooftop solar capacity, accounting for 26 percent of India's total rooftop solar capacity.

SECI Invites Bids for 1 GW Firm Power Supply from Renewable Projects

The last date for the submission of bids is January 9, 2024. Bids will be opened on January 12.

The developer is responsible for establishing ISTS-connected power projects, including the transmission network up to the interconnection/delivery points.

The developer's responsibilities include identifying land, installing and owning the projects, obtaining connectivity, necessary approvals, and interconnection with the ISTS network/State Transmission Utility (STU) or Intra-State Transmission System to supply power to SECI.

If STU interconnection is required, the developer may install the project in the same state where the buying entity is located.

While the projects selected under this program are intended for deploying renewable energy projects, the selection process is technology-agnostic, allowing for flexibility in choosing renewable energy technologies.

The projects must be designed to connect to the ISTS substation at a voltage level of 220 kV or higher.

Energy storage systems must be an integral part of the project. A storage system charged using a source other than renewables will not be considered renewable power.

Energy storage systems must be an integral part of the project. A storage system charged using a source other than renewables will not be considered renewable power.

Bidders have to submit 1.5 million (~$18,000) + 18% GST for each project as bid processing fee.

They must provide an earnest money deposit calculated as a [928,000 (~$11,136) * S +1,264,000 (~$15,168) *w] * D + 3,66,000 * E,

where :

- S: Rated Installed Capacity of Solar component (in MW)
- W: Rated Installed Capacity of Wind component and other RE sources (in MW)
- E: Rated cumulative Installed Capacity of ESS component (in MWh)
- D: Multiplication factor (A/B)
- A: Annual Energy to be supplied (6089096* C kWh), where C is the Contracted Capacity of the Project (in MW)
- B: Annual Energy to be supplied based on committed capacity [(S* 0.26 + W* 0.35)* 8766 * 1000 - 0.20 * Z kWh]
- Z: Annual Energy proposed through ESS (in kWh)

A bidder, along with its parent, affiliate, or ultimate parent or any group company, is required to submit a single bid offering a cumulative

contracted capacity ranging from a minimum of 50 MW to a maximum of

500 MW, following the prescribed formats.

The projects can be situated anywhere in India. For a single project, renewable energy generation components, including storage, can either be co-located or located at different sites. These various project components can connect to the ISTS network at different substations.

To optimize the operation of the generating systems, the developer can

supply power beyond the contracted capacity in any time block to a third

party or power exchange without needing a no-objection certificate from

SECI or the buying entity.

SECI will accept the partial commencement of power supply from the project under the condition that the minimum capacity for the acceptance of the first and subsequent parts will be 50 MW, with the last part constituting the remaining contracted capacity.

The tender aims to support only well-established and operational technologies to minimize technology risk and ensure the timely initiation of power supply from the projects.

To ensure the installation of high-quality systems and take advantage of the latest developments/models, wind turbine models certified by type and listed in the Revised List of Models and Manufacturers issued by the Ministry of New and Renewable Energy until the scheduled commercial operation date (SCSD) of the project will be permitted.

The guidelines outlined in the MNRE's Order on "Approved Models and Manufacturers of Solar Photovoltaic Modules (Requirement of Compulsory Registration) Order, 2019-Implementation-Reg.," will be applicable and solar modules and balance of systems used in the projects must be included in List-I under the order.

The Bidders' net worth should be equal to or greater than the amount calculated based on the installed capacity break-up quoted. The minimum net worth requirement must be ten times the amount payable as part of the EMD.

For instance, if the calculated EMD is 35 million ($59,993), the minimum net worth requirement would be 5 million x 10, i.e., 50 million ($599,937). Bidders must demonstrate this net worth amount as of the last day of the previous financial year.

Last month, SECI invited bids to select renewable energy developers to supply 800 MW firm and dispatchable power from ISTS-connected renewable energy projects, including energy storage systems, under tariff-based competitive bidding.

Earlier, SECI had invited bids for selecting renewable energy developers for the supply of 1.5 GW firm and dispatchable power from ISTS- connected renewable energy projects under tariff-based competitive bidding.

Subscribe to Mercom's India Solar Tender Tracker to stay on top of real- time tender activity.

कंत्राटदारांच्या सोईसाठी खास क्यूआर कोडची निर्मिती

पुण्याचे विद्युत निरीक्षक श्री. नितीन सूर्यवंशी यांच्या संकल्पनेतून, विद्युत कंत्राटदार आणि त्यांच्या कर्मचाऱ्यांच्या सोईसाठी खास क्यूआर कोडची निर्मिती करण्यात आली आहे. नविन अनुज्ञप्ती, नूतनीकरण तसेच तारतंत्री आणि पर्यवेक्षक परिक्षा व सूट यासाठी लागणारे विविध प्रकारचे फॉर्मस् या क्यूआर कोडच्या माध्यमातून डाऊनलोड करता येतील. संबंधित कोड स्कॅन करून फॉर्मस् डाऊनलोड करून, आवश्यक माहिती भरून टंकलिखित करून सादर करावयाचे आहेत. सोबत सर्व क्यूआर कोड दिलेले आहेत. ही संकल्पना राबवून प्रत्यक्षात आणल्या बद्दल श्री. नितीन सूर्यवंशी साहेबांचे इकॅम परिवाराकडून विशेष अभिनंदन.

विद्युत ठेकेदार अनुज्ञप्ती नूतणीकरण
मालक व पर्यवेक्षक वेगवेगळे
Electrical Contractor License Renewal
With Owner and different Supervisor

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Electricity Duty Gras System challan

Gensol Engineering emerges lowest bidder for NHPC's Kargil green hydrogen mobility station EPC project

Gensol Engineering Limited has emerged as the lowest bidder for engineering, procurement and commissioning (EPC) contract for a green hydrogen based mobility station in Kargil, Ladakh.

Gensol has secured this project by demonstrating the technocommercial competency in collaboration with Matrix Gas & Renewables Limited (Matrix). The project will be commissioned by NHPC Limited, and is aimed at operating buses powered by hydrogen fuel cells within the region. This initiative is in line with the government's ambitious targets for green hydrogen energy. Gensol is set to develop a 500-kW grid-connected, ground-mounted solar power project that will provide energy to the hydrogen refueling station.

Electrical Fire Safety

Mr Shreegopal Kabra

MD and Group President

RR Kabel Identifies smoke and not fire as the main culprits in human casualties arising from these accidents, though both are the causes together. "Smoke is more dangerous than fire. The major human loss is because of smoke, because of this one cannot see and breathe, and it becomes an issue," Mr Kabra says. The use of polyvinyl chloride (PVC) in the manufacture of electric wires and cables is to be blamed for the smoke in electric fires, and the smoke emitted is toxic and corrosive, affects visibility, and results in asphyxiation and suffocation. "As it hampers the decision-making power of a person trapped in smoke, rendering the person incapable of identifying the location of the exit, major incidents and casualties occur. So, anything made of PVC should not be used," explains Mr Kabra. Though, usually, fire is limited to a particular point, it is the cable carries that it rapidly from the first floor to all the top floors in a high-rise building. "So, it is very significant when it comes to choosing a product, based on quality and performance. About 80% of these accidents take place due to wire, cable and/or switchgear. Hence focus should be on these areas," says Mr Kabra.

Mr Kabra analyses, "Can you control fire? Yes, but not 100 per cent, even after following the due process. On the other hand, can you control smoke? Yes, it can be done 100%." The PVC wires in vogue today have the potential to obstruct 85 per cent of the visibility in times of fire, and they melt at a low temperature of 650-7000

Celsius, while fire intensity touches 10000C in hazardous conditions, affecting all wires in the conduit

"So, the trick lies in adopting Fire-Retardant LSOH wires, which is a halogen-free single-core cable, adhering to global standards. In all common areas fire retardant(FR) copper cable must be used. BIS made the mistake of approving aluminium wires earlier," says Kabra. They offer about 96 per cent visibility enabling easy human evacuation, and can withstand over 56 percent higher temperature than the PVC insulated wires. RR Kabel, part of the US$ 1.25 billion RR Global group, was the first to introduce FIREX LSOH wires and cables about 23 years back, presently even backed by IS 17048 mark, FIA/TAC approvals, for use in places of public use. On regulatory oversight, Mr Kabra said, "It's the lowest in the world, and the big challenge is that BIS should implement its norms very stringently. Most of the big manufacturers in the electrical industry are manipulating with the BIS standard."

Electrical Fire Safety

Mr Shashi Amin
CEO (Cable Solutions), APAR Industries Limited

A new safety bill was presented in Maharashtra State Assembly on March 21, 2023. How effective it would be in addressing the issue and preventing such fire-related disasters?

Given various fire incidents in Mumbai's high-rises in the past, the Maharashtra state government has passed a new fire bill which has been drafted with stringent regulations to follow and a legal framework under which violators can be booked. Under the bill, a fire safety officer and supervisor are mandatory for all highrise buildings with 22 floors and above. Both residential and industrial buildings engaged in hazardous activities are instructed to set an Internet of Things (IoT) enabled fire safety mechanism. The sensor-based system will monitor the buildings for any potential fire incident and immediately alert them even in case of failure of any fire safety equipment that doesn't work. Additionally, a bi-annual fire audit is also made compulsory. The use of proper wire as per the equipment's current rating, continuous condition monitoring and preventive maintenance of the fire safety system can significantly reduce the number of fire incidents. Most housing societies don't have a proper maintenance plan to keep tabs on the system. Having a fire officer in place and a continuous

monitoring system with process alarms will ensure fewer fire hazards.

What is the Current Provision Regarding Fire Safety in India?

At present, fire prevention and firefighting services are organised by the concerned states and Union Territories (UTs), and Urban Local Bodies (ULBs). Standing Fire Advisory Council was constituted to advise the Government of India on matters concerning the organization and speedy development of fire services all over the country. The Standing Fire Advisory Committee was renamed the Standing Fire Advisory Council in 1980. The membership of the SFAC includes all State Government representatives and representatives of all Union Territories and other Central Ministries.

The National Building Code (NBC) of India, 2016: Published by the Bureau of Indian Standards, NBC is a "recommendatory document", and state governments are expected to incorporate it into their local building by-laws to make the recommendations a mandatory requirement. It mainly contains administrative regulations, general building requirements such as fire safety requirements, structural design and construction (including safety) provisions.

National Disaster Management Authority (NDMA): Guidelines by the National Disaster Management Authority stipulate fire safety requirements for public buildings, including hospitals along with design guidelines relating to maintaining a minimum level of open space, exit mechanisms, stairs, and evacuation drills.

Electrical fire safety is a critical aspect. Despite this, it is, unfortunately, true that safety has not always been given the importance it deserves. Your views on this

Electrical negligence leads to accidents or even worse resulting in the loss of human lives. Statistically speaking, more than 40% of fire accidents in a building happen due to electrical issues, most of which are triggered by improper connections & fittings, short circuits, overloading and poor maintenance. A major issue is the fact that there is minimal awareness among people about standards of electrical safety. It is critical to upgrade the wiring systems after a point of time, which is often neglected. A building is designed for 25+ years of serviceable life and during the same period a

lot of changes might happen with regards to electrical systems but we continue to use the same electrical wiring/system without any timely upgradation. This is extremely dangerous and should also be closely looked at. Even though we have a National Building Code that dictates the dos and don'ts to prevent electrical hazards and fires due to shortcomings in electrical systems, its implementation is rather remiss.

Unfortunately, the country's market is awash with substandard and low-quality electric wires and equipment, and building owners appear very careless when it comes to getting a proper electrical design and hiring skilled electric technicians. how do you see this scenario and how does this need to be addressed?

The cable industry can be considered a conversion industry. This means that material costs determine a large part of the costs of the end product, typically over 60%. As a result, cable manufacturers need to strive for perfection in the transformation processes in the company. That's where the profits are made. But with the emergence of several local players, price point has dropped with a compromise in quality adversely affecting the reliability of cables due to decreasing heat resistance, cold resistance, moisture resistance, resistance to cyclical effects of temperature and solar radiation, ozone resistance etc. Similarly, builders and developers compromise with quality overprice, risking a higher probability of fire. Sometimes improper installation of electrical equipment and cables due to lack of skilled manpower risk the equipment and human life. We at APAR Industries Limited believes in "Tomorrow's Solution Today" and with this vision, we always look forward to exploring new opportunities, developing new product, and adapting the latest technology. Our flagship innovative light-duty cable APAR Anushakti house wire, powered by e-beam technology is now easily available for every household. This product is melt-resistant, fire-retardant, non-softening, infusible & non-dripping under overload and short-circuit conditions does not melt easily in contact with hot objects, has self-extinguishing, and has high insulation resistance with a 50-year lifespan. Having such rugged properties these cables are proven in fireprotectionsaving life of man & machine

Electrical Fire Safety

Mr. Vivek Yadav
Executive Vice President, Havells India

A new safety bill has been presented in Maharashtra State Assembly on March 21, 2023. How effective it would be in addressing the issue and preventing such fire-related disasters?

It's a very good initiative taken by Maharashtra fire prevention & life safety measures to minimize the damage in the event of fire especially in high-rise buildings.

The most common causes of electrical fires can be categorized:

- Incorrectly installed wiring
- Overloaded circuits and extension cords
- Defective or improper plugs, switches and outlets
- Misuse and poor maintenance of lighting
- According to NCRB, electrical faults are a major cause of fires. From 2010 to 2014, they caused the death of 7743 people.
- 56% of industrial fire incidents are reportedly caused by electrical faults according to the Fire and Security Association of India and this initiative of advance alarm through an enabled smart fire alarm system would help in reducing the risk drastically

What is the current provision regarding FireSafety in India?

The prevailing system regarding fire safety is very limited to fire retardant cables, fire retardant

switchgear and basic smoke detector which triggers an alarm post-fire based on the intensity of smoke. Now going forward, continuous innovation in the field of advanced detection of fire is possible by installing AFDD(Arc fault detection device) in the critical circuits so that the circuit can be disconnected/isolated before the disastrous situation occurs.

Electrical fire safety is a critical aspect. Despite this, it is, unfortunately, true that safety has not always been given the importance it deserves. Your views on this? The galling laxity In India is often taken in the decision to invest in electrical circuit protection devices. It is difficult to comprehend that this basic piece of information is neglected. With the increasing electrical load and higher dependence on electrical and electronic equipment, our electrical infrastructure must have built-in residual current protection devices and AFDD (Arc fault detection device)

Havells India has always been a thought leader in espousing the cause of Electrical Safety and we have taken various steps to reinforce the need for the same. We have constantly provided training to electricians to promote electrical safety. We also have alsosigned several MoUs with DISCOMs, widespread consumer interaction through RWA/IWA(s) etc., where our technical personnel explain the advantages of using the right quality protective equipment, for the safety of both – their equipment and their precious lives.

Havells is the first one in the industry to launch PRCD devices; an innovative adaptor type we call a PRCD plug and adaptor. These can be installed with devices where we have a higher possibility of human interaction with machines (leakage current threat)like Washing machines, water coolers, desert coolers, Microwaves, water purifiers, laptops, music speakers, Geysers, hair dryers etc.

Havells is also the first one in the industry to launch AFDD devices; an innovative watchdog device which detects the arc fault well in advance and ensures power is connected before it could trigger a major fire or disaster.

These devices can be installed in the in-comer or sub-incomer with a combination of MCB (Arc fault + overload +short circuit fault) OR with a combination of CBO (Arc fault + overload +short circuit + leakage current) to address all kinds of calamities which occur in

power distribution network be it in the home or commercial establishment or industries.

To reiterate the messaging around consumer safety, recently Havells and BSES partnered to promote home automation solutions for energy conservation and safety among consumers. Under the program a smart home automation solution comprising of Wi-Fi enabled smart plugs and Earth Leakage Circuit Breakers ELCB)/Residual Current Circuit Breakers ELCB (RCCB) are being offered at discounted prices to BSES consumers in South and West Delhi. Both the top-of-the-lineSmartPlugs and ELCBs /RCCBs are manufactured in HIL's state-of-the-art factory in Noida and have advanced features.

Unfortunately, the country's market is awash with substandard and low-quality electric wires and equipment, and building owners appear very careless when it comes to getting a proper electrical design and hiring skilled electric technicians. how do you see this scenario and how this needs to be addressed?

Safety is the new buzzword in the construction industry these days. Public safety has become an important aspect with both government and all reputed players of the industry focussing on fire safety. However electrical contractors and builders are still not pushing safety while designing and executing the construction of public places such as airports, schools and hospitals.

In 2019, 90% of fire accidents were caused by electricity. An electrical short circuit is the most common cause of accidental fires in residential and commercial buildings resulting in major loss of property and life. Nearly 13 per cent of accidental fires that take place are due to shortcircuit & poor wiring, out of which two-thirds of deaths happen due to inhaling toxic gases. Moreover, fire mishaps caused by short circuits are attributed to the usage of low-quality insulation material, which is not flame retardant.

The long-term challenge has been awareness among consumers and electricians. Wires and cables are often given little to no attention after it has been installed and are only revisited when they need to be replaced or repaired.

It's highly recommended that HRFR insulation with advanced S3 technology, offers higher current carrying capacity and heat resistant properties suitable for operation at high temperatures. Our commitment to an environment-friendly nature with features such as RoHS compliance, High insulation resistance, and

Anti-termite and anti-rodent features makes it the idealWire.

Due to increasing recommendations by the IndianElectrical experts and to overcome the shortcomings of PVC, the government has now started pushing a new compound to make insulators called HFFR or (Halogen-free flame retardant) cables. Unlike PVC cables which produce vast amounts of dense black smoke, toxicfumes and acid gas when exposed to fire, HFFR (halogen-free flame retardant) cables produce very low levels of smoke and toxic fumes and no acid gases. They are essentially halogen-free cables. Due to these properties, they are therefore often used indoors, especially in public areas, and in other hazardous environments and poorly ventilated areas. This includes cars, aircraft, railway carriages and ships. HFFR sheathed cables are commonly used across tunnels and underground rail networks.

Consultants and experts are suggesting and recommending stopping the usage of PVC-infused wires, many commercial establishments such as hotels, hospitals, malls, and luxury housing developers are installing FRLS-H or HFFR (halogen-free flame retardant) cables now.

The factor in India which needs to be improved is the correct product for the correct application. The other important parameter is the proper termination of all the electrical circuits. As a layman, one might not understand all the technical details of the electrical system, and it's essential to trust an experienced professional for wiring, rewiring and maintenance work.

In India, the majority of the wire & cables in use currently are of PVC insulation conforming to Bureau of Indian standard (BIS)specifications &codes as included in the National Building Code of India. For phasing out PVC cables, the cable industry has in cooperation with the Bureau of IndianStandards (BIS)implemented a new standard IS 17048:2018 for halogen-free flame retardant (HFFR) cables The Halogen FreeFlameRetardant (HFFR) has received approval from the Bureau of IndianStandard (BIS) under the standard number IS-17048-2018.

This specification is mandatory and meant to emphasize fire safety, similar to international standards. The building codes are also being revised as per the new standard.

Electrical Fire Safety

How effective would the new fire safety bill be in addressing the issue and preventing such fire-related disasters?

As a business leader, I would welcome the new fire safety bill, as it mandates crucial measures to improve fire safety in high-rise buildings. The provision for setting up an IoT-enabled fire safety mechanism, which includes 24/7 monitoring of premises and annual fire safety audits, can go a long way in detecting potential fire hazards and minimizing risks. The introduction of a fire safety officer and supervisor for buildings taller than 22 floors will also ensure better oversight of fire safety protocols.

However, the effectiveness of the bill ultimately depends on how well it is implemented and enforced. It is crucial to ensure that all buildings, both residential and industrial, comply with the new regulations and that the penalties for violating safety laws are strictly enforced. In addition, regular training in personnel on fire safety protocols can help raise awareness and reduce the incidence of fires.

Mr Bhushan Sawhney
Executive President and
Chief Business Officer (Cables)
Polycab India Ltd.

What is the current provision regarding FireSafety in India?

The current provision regarding fire safety in India involves multiple components and authorities. The fire prevention & firefighting services are organised by the respective states, Union Territories, and UrbanLocal Bodies. The National Building Code (NBC)of India,

2016, published by the Bureau of Indian Standards, provides recommended guidelines that state governments are expected to incorporate into their local building bylaws, making them mandatory. The NBC covers administrative regulations, and building requirements, including safety, structural design, and construction provisions

The National Disaster Management Authority(NDMA) has issued guidelines that outline fire safety requirements for public buildings, including hospitals, and provide design guidelines for open spaces, exit mechanisms, stairs, and evacuation drills. Overall, these provisions aim to establish a framework for fire safety in India, ensuring that buildings meet the necessary fire safety standards and guidelines. As a responsible organisation, we are committed to complying with these regulations and promoting a culture of fire safety within our organization and among our stakeholders.

Electrical fire safety is a critical aspect. Despite this, it is, unfortunately, true that safety has not always been given the importance it deserves. Give your views on this.

I understand the critical role that electrical safety plays in preventing fires. Unfortunately, safety has not always been given the importance it deserves. However, I believe that there is a growing awareness of the importance of electrical safety, and steps are being taken to address the issue.

As a responsible business, we prioritise safety and quality in all our products. Combining breakthrough engineering with meticulously selected materials, we have introduced 'Polycab Green Wire' conforming to stringent European norms in environmental sustainability and cable safety. The Polycab GreenWire is energy efficient, recyclable, RoHS compliant, has low smoke density and emits fewer toxic gases in extreme fire situations, thus making it the preferred choice for Green Buildings. We have a bouquet of more fire safety cables that are designed to meet the highest standards of safety and performance, and we work closely with builders and contractors to ensure that our products are installed correctly and in compliance with safety regulations.

It is essential to create awareness among building owners and contractors about the importance of electrical safety and the dangers of using substandard and low-quality electrical equipment. Regular inspections and maintenance of electrical systems can also help prevent electrical fires.

Unfortunately, the country's market is awash with substandard and low-quality electric wires and equipment, and building owners appear very careless when it comes to getting a proper electrical design and hiring skilled electric technicians. How do you see this scenario, and how does this need to be addressed?

As India's largest manufacturer of cables and wires, we are acutely aware of the dangers of substandard and low-quality electrical equipment. The use of such equipment not only poses a significant risk to life and property but also damages the reputation of the industry. I believe that it is our responsibility to educate consumers about the importance of quality and safety and raise awareness about the risks of using sub-standard products.

Polycab is committed to manufacturing high-quality products that comply with all relevant safety standards. We ensure that our wires and cables are made of the best quality materials and are rigorously tested for fire safety and electrical safety before they are made available to the market

As of today, there is a lack of procedural check-ups, initial and periodical verification and testing as per specified norms. Your views on this?

This is a serious concern because electrical systems are a critical part of any building's infrastructure, and negligence in this area can have severe consequences in terms of fire safety and overall safety. Building owners and managers need to prioritize regular inspections and testing of electrical systems and equipment to ensure they are in good working condition and up to code.

Additionally, there should be regular inspections of buildings, testing of electrical equipment, and certification of electricians and contractors to ensure they are qualified to carry out electrical work. By taking these steps, we can create a safer environment for all citizens and prevent tragedies caused by fires and electrical mishaps.

Electrical Fire Safety

Mr. Gautam Seth
Joint Managing Director, HPL Electric & Power Ltd.

A new safety bill has been presented in Maharashtra State Assembly on March 21, 2023. How effective would it be in addressing the issue and preventing fire-related disasters?

While we acknowledge the introduction of the new safety bill in Maharashtra, it would require a thorough analysis and understanding of the specific provisions outlined in the bill to assess its effectiveness. We believe that any legislation aimed at addressing fire-related disasters should focus on robust safety measures, adherence to national and international standards, effective implementation, and strict enforcement Additionally, awareness campaigns, training programs, and regular inspections are essential to ensure the effectiveness of such legislation.

What is the current provision regarding fire safety in India?

In India, fire safety is regulated by various laws and regulations, including the National Building Code (NBC), the Fire Prevention and Fire Safety Act, and the Electricity Act. These provisions define guidelines for fire prevention, fire protection systems, evacuation plans, and safety measures for buildings and establishments. However, effective implementation, enforcement, and compliance with these regulations remain key challenges.

Electrical fire safety is a critical aspect. Despite this, it is, unfortunately, true that safety has not always been given the importance it deserves. Your views on this?

We strongly believe that electrical fire safety is of

utmost importance and should always be given the highest priority. Negligence or inadequate attention to safety measures can have devastating consequences. It is essential for all stakeholders, including government authorities, manufacturers, builders, and consumers, to prioritize electrical safety by adhering to standardized electrical practices, using quality products, conducting regular inspections, and promoting awareness about electrical hazards and preventive measures.

Unfortunately, the country's market is awash with substandard and low-quality electric wires and equipment, and building owners appear very careless when it comes to getting a proper electrical design and hiring skilled electric technicians. How do you see this scenario, and how does it need to be addressed?

We share your concern regarding the presence of substandard and low-quality electrical products in the market. To address this issue, stringent quality control measures, certifications, and standards compliance need to be enforced. Increased surveillance, regular audits, and strict penalties for non-compliance are necessary to discourage the use of substandard products. Furthermore, it is crucial for building owners to prioritize electrical safety by engaging certified professionals for electrical design, installation, and maintenance, ensuring the use of quality products, and conducting periodic inspections,

As of today, there is a lack of procedural check-ups, initial and periodical verification, and testing as per specified norms. Your views on this?

We recognize the existing gap in procedural check-ups, initial verification, and periodic testing in accordance with specified norms. To enhance electrical safety it is imperative to establish a robust framework for inspection, verification, and testing. This includes developing clear guidelines, conducting regular audits and ensuring compliance with prescribed norms Implementing a system of periodic electrical inspections and verification, along with appropriate certifications. can significantly contribute to mitigating potential risks and ensuring adherence to safety standards.

Mecc Alte has been a highly focused company in the field of industrial alternators. And that has been the reason for success of the product across the globe.

Success of Mecc Alte is also drawn from its superior innovative design (both technically and aesthetically) and uncompromising quality. Mecc Alte alternators are arguably the most efficient in their respective classes, and certainly one of the most reliable alternators in the world. Mecc Alte alternators are built to last.

We have all the necessary quality certifications which further reinforce our credentials.

Whilst our 65+ trained and Authorized Service Centers with 220+ touch points, throughout India alone can fulfill any Customer Service expectation at a short notice.

Some key features of 'best in class' Mecc Alte Alternators are mentioned below:

1. Best efficiency on our range thereby reducing the fuel consumption
2. The first and the only alternator company in India to introduce Fully Programmable Digital Regulator with out of standard specs for special application, to maximize end user and manufacturer performance and also be used as a diagnostic tool for the entire range from 5 to 5000 kVA.
3. Insulation systems, understanding the application and environment where your generator or alternator will be operating is CRITICAL, where operating conditions fall outside of nominal conditions, upgrades on impregnation can guarantee reliability and extend life cycle of the product.
4. Exceptional excitation with MAUX (Mecc Alte Auxiliary Winding) Power Boost
5. Excellent motor starting, 300% short circuit current for 20 sec as a standard.
6. 12 wire re-connectable as a standard for 3 – Phase which allows interchangeability to different voltage, frequency and phase requirements.
7. Superior aesthetics and low noise
8. Easy maintenance specially in higher ratings
9. Quality guaranteed, quality is at the forefront of everything we do, we ensure long term customer satisfaction & loyalty by producing advanced technological products & service of the highest quality

Mr. Sameer Wagh
Managing Director

But our core purpose is to integrate with our clients' operations by being a source of independent, responsive world class advice so that they can optimize their efficiency and be more competitive. We deliver this support by designing and manufacturing industrial alternators and associated power solutions and by always considering the best route to meeting our clients' needs. One such example of this is the Mecc Alte App which enables clients 24/7 instant access to alternator specifications and data.

Mecc Alte has been a highly focused company in the field of industrial alternators. And that has been the reason for success of the product across the globe.

We do not compete with our customers (we do not manufacture or sell complete gensets) and we are amongst the leading manufacturers of industrial alternators globally and, proud to be the largest independent supplier in the world.

Mecc Alte offers a single product range – Synchronous Alternators from 1 – 5000kVA, right from portable alternators to industrial alternators through to medium and high voltage alternators for power generation.

Mecc Alte also offer 2 pole and 4 pole alternators that provide best in class efficiencies and excel in other performance parameters. As a leading manufacturer of industrial alternators, we have consistently addressed our customer requirements through product modifications and innovations.

TOTAL CONTROL FROM EVERY PERSPECTIVE

Anyone who knows gensets, knows that Mecc Alte is unrivalled for our knowledge and expertise worldwide. From alternators and controllers to an integrated generator system, we are the Power from Within. From prime power to standby power, data centre, renewables, telecoms and more. Mecc Alte delivers complete intelligent systems with digital AVR to identify fuel efficiencies and every component working perfectly together. All backed up by the support and unbiased advice you only get from the world's leading independent alternator specialists. Take 360° control. Talk to Mecc Alte.

The world's largest independent producer of alternators 1 – 5,000kVA

C: Sameer Wagh, Chief GM Commercial
E: sameer.wagh@meccalte.in
P: +91 2137 673200

Mecc Alte India Private Limited
Plot No1, Talegaon Dhamdhere, S.O.
Tal. Shirur, Dist. Pune – 412208, Maharashtra, India

FOR FURTHER INFORMATION **VISIT** WWW.MECCALTE.COM

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POWER
FROM WITHIN

In the Indian market we have very significant opportunities across all the segments. From a manufacturing perspective we will be continuously moving towards higher horsepower (HHP) alternators to cover the entire range of requirements from 1 to 2500 kVA LT range for all range of applications in Agriculture, Industrial, Retail, Data center, Marine, Aviation, etc.

Our customers will also find superior value in the range of accessories that we will introduce shortly and provide our customers with a single window for service across all our products and related to alternators.

We have launched the C-Type range of alternators- the next generation in power.

Drawing on over seventy years' experience in manufacturing the world's class alternators, our radical new approach has led to product innovations that deliver tangible performance benefits for our customers. We have reconsidered every aspect and variable to create a ground-breaking new family of alternators.

Mecc Alte follows a no compromise approach on product quality. The design guidelines are followed strictly at all manufacturing locations. As a result, we consistently get the same world class quality at all our factories.

As power generation becomes much more about complete solutions than products, we recognized the growing need to offer single source supply and present versatile and robust power solutions for OEMs.

As such Mecc Alte can now offer: Genset Controller, Engine Controller and Battery Chargers.

Here are more insights on our controllers and the special features that make it stand out in the market.

We have carried out 48 hours Burn Test on our controller to ensure they withstand extreme operating conditions and affirms the rigidness.

Smart Programmable logic available on all range controller Alternator integration with controller is possible with MeccAlte controller User friendly interface Parameter adjustment and customized task can be done from Keypad and free software toolThis can control Non Electronic engine also (i.e. Mechanical engine)

More features and benefit of Meccalte Controller including 5G/GPS communication option are summarized below.

GPS /GPRS facilities help in asset tracking and monitoring of mobile and rental DG Set. 5G helps in remote monitoring and zero breakdown for remote operations.

These products will carry the same class and quality as that of Mecc Alte Alternators

With flexible component packages and our new product introductions, we will continue to meet our customers' order requirements in the post Covid-Era as we all look to work together and mutually build success.

Electrical Fire Safety

Mr Naman Singhal
Director, Prime Cable Industries Pvt. Ltd.

A new safety bill has been presented in Maharashtra State Assembly on March 21, 2023. How effective it would be in addressing the issue and prevent such fire-related disasters

A new safety bill has been presented in Maharashtra State Assembly on March 21, 2023. The bill will update the Maharashtra Fire Prevention and Life Safety Measure Act, 2006. The new safety law states that all buildings taller than 22 floors, including residential and industrial structures with hazardous activities, must appoint a dedicated fire safety officer for safety. Additionally, the bill states these buildings must set up an IoT-enabled fire safety mechanism for 24x7 monitoring of potential fire incidents. Furthermore, a bi-annual fire safety audit is now mandatory to assess preparedness. Violators of these new safety regulations can face imprisonment of up to three years and a penalty of up to INR 1 lakh.

This bill will ensure more concern is made on the fire safety in all the buildings and will create more awareness on the use of fire alarms, smoke detectors, fire extinguishers, sprinkler systems, and other appropriate fire suppression equipment. The bill would also ensure such systerns and outline standards for their installation, maintenance, and testing.

The contractors and builders using poor quality wires and cables will be dealt with by the Maharashtra Govemment through this bill. Therefore, there will be a growing usage of Lead Free Zero Halogen FRLS wires and cable in the building, in which Primecab is a leading manufacturer.

What is the Current Provision Regarding Fire Safety in India?

As of September 2021, fire safety regulations in India are primarily governed by the National

Building Code (NBC), which provides guidelines and standards for fire prevention, life safety, and fire protection systems in buildings. The NBC is a model code and serves as a reference for state and local governments to develop their own building regulations But most of the states lag in implernenting and specially monitoring these fire norms.

Currently there is a need to push the building contractors in order to meet the fire norms and ensure more safety by using the appropriate building materials which have evolved using modern technology in recent times.

Electrical fire safety is a critical aspect. Despite this, it is, unfortunately, true that safety has not always been given the importance it deserves. Your views on this Electrical faults and malfunctions are one of the leading causes of fires in buildings.

Faulty wiring, overloaded circuits, improper grounding. or inadequate electrical protection can generate sparks or excessive heat. leading to electrical fires. Adhering to electrical safety measures mitigates fire risks, preventing property damage and potential loss of life.

In many cases the loss of life has happened due to the smoke rather than fire. Therefore, there is a need to mitigate risks of both fire and the smoke generated by this fire. Both can be done using PFAs free. Lead free and Zero halogen products in the building. We are glad to inform you that PRIMECAB is the leading manufacturer in such wires and cables.

Unfortunately, the country's market is awash with

substandard and low-quality electric wires and equipment, and building owners appear very careless when it comes to getting a proper electrical design and hiring skilled electric technicians. How do you see this scenario and how this needs to be addressed?

In my view the first and the foremost step in this direction is through Education and Awareness. We as Cable manufacturing firm are doing are best in spreading this knowledge of using LSZH-FRLS wires and cables for better electrical fire safety. Similarly, these steps can be taken at each individual level, and also the Public Private partnership model can be put to use. Where all the concerned govt agencies, professionals, architects, consultants and manufacturers jointly work towards the awareness of using modern quality products in building and also to train the manpower in using this equipment's in order to achieve Electrical Fire safety in India.

As of today, there is a lack of procedural check-ups, initial and periodical verification and testing as per specified norms. Your views on this

Through the Make in India campaign, the industrial sector in our country has evolved much in recent years. Most of the good manufacturing firms are having modern equipment of testing as per International and Local standards, We ourselves have evolved immensely in recent times and have added huge testing equipment in terms of checking the fire retardedness, presence of low smoke, axygen free properties, etc in our wires and cables. The properties of which can be rechecked and witnessed by our customers in our premises.

We believe similar steps should be taken by each manufacturer and all the building contractors and other consumers should lay an emphasis on witnessing such tests to get better quality of products. Now at the customer end, similar system of rechecking of installation work should be done periodically to ensure the quality is not hampered by untrained or inefficient manpower

Electrical Fire Safety

Mr Vijay Karia
Chairman and Managing Director,
Ravin Group

A new safety bill has been presented in Maharashtra State Assembly on March 21, 2023. How effective it would be in addressing the issue and prevent such fire-related disasters

A brief summary of the Fire safety bill passed in Maharashtra is as under.

The Fire Safety Bill is passed in the state assembly, making it mandatory for all businesses mand and establishments to comply with stricter fire safety regulations.

The bill aims to enhance fire safety measures and prevention mechanisms in Mumbai and the state. IoT sensors will send alerts to your mobile 24/7 if any fire safety parameters fail in 22+ storey buildings in Mumbai.

Parameters include water tankers, sprinklers, pumps, fire extinguishers, alarms, and manual call points

It makes it mandatory for buildings with more than 22 floors to obtain a no-objection certificate from the fire department. The bill also mandates that all new buildings with

22 storeys and above must have fire safety equipment such as sprinklers, fire extinguishers, smoke detectors and public address systems installed As per the improvised version of the fire safety bill, IOT based fire systems will have to be mandatorily installed in hotels, malls, airports, multiplexes, and public complexes

The bill also stipulates that fire safety audits must be conducted every two years for 10 floors and above buildings, in Mumbai

Failure to comply with the new regulations will result in penalties (up to 10 lac) and legal action against the owners and occupants of the building.

The bills also includes provisions related to electrical equipments to ensure fire safety as we know 70% of the fire are due to electrical issues and most of these are related to short circuits.

While the bill is welcome and it shows that the Government is now enlightened and in action mode about fire safety measures as about 25000 people die due to fires in India every year. It is one of the highest risks in the manufacturing segments. However, the cause of the fires are not yet been addressed. Honestly there is not enough manpower nor the ability for equipment to audit the fire safely measures in the buildings.

Therefore the solution would be to understand the root in preventing fire related disasters. Creating strict laws, and implementing the same, without attacking the cause will not eliminate further disasters.

What is the Current Provision Regarding Fire Safety in India?

Current provisions vary from state to state and city to city. There is no uniform code of the fire safety throughout the country. The whole country needs to come to one document regarding fire safety. Though there are many building codes and stipulations attached to various segments, implementation of that remains to be a big challenge.

Electrical fire safety is a critical aspect. Despite this, it is, unfortunately, true that safety has not always been given the importance it deserves. Your views on this

I whole heartedly agree that electrical fire safety has been a much ignored aspect, and therefore we lose 25000 valuable lives or more every year. It is a fact thal most fires are preventable by a little bit of caution by better audit-by audit I mean intermal audit-both by The manufacturer and the installer of the product, but most importantly the buyer.

There is an old saying" Jo Dikhta Hai Wo Bikta Har Therefore most of the buyers do not bother about the unseen products and the installations. It is a high time that we start to change our views and have the consumers focus on safety rather than mere aesthetics

Unfortunately, the country's market is awash with substandard and low-quality electric wires and equipment, and building owners appear very careless when it comes to getting a proper electrical design and hiring skilled electric technicians. how do you see this scenario and how this needs to be addressed

I agree that our market is awash with sub standard and low quality wires and equipments and there is a lot of apathy about the product, the design and the installation

Whilst quality is a big issue the bigger issue is the design and construction of the electrical wires that are being sold in the country.

We are using flexible or class 5 construction rather than a class 2 or even a solid or class 1 construction Due to this class 5 construction- where there is misnomer that class 5 has got greater flexibility the finer of 0.2 or 0.3 mm wires actually break during installation and termination and cause hotspots during

usage, which probably lead to much higher incidents of short circuits Moreover class 5 conductors at the same time have a higher conductor resistance and therefore a lower current carrying capacity and with the propensity to overload the system because we connect various devices to the same outlet, we increase the chances of short circuits and fires.

We install either FRLS (Fire Retardent Low Smoke Zero Halogen) LSZH (Low Smoke Zero Halogen wires) in normal PVC conduits, so even in case of a short circuit and a resultant fire, the wire may not emit toxic gases or smoke or may not propagate the flame but the PVC conduits will do so. Other equipments and materials which are flammable then catch fire and spread the damage quickly.

One may argue that the wires and the conduits are embedded in the plaster or in the ceiling and therefore would not propagate the fire. This is true to a certain extent, but most of the propagation is from the wiring

in the ceiling which propagates the flame quickly and therefore you need to have a better construction of the conductor, where it is our research shows that class 2 or even class 1 conductors are much better than class 5 conductors when it comes to fire safety.

A general norm is that you have only 5 minutes to escape from a fire. But how can a small child or an elderly person escape a fire starting from the 18th floor, when they are on the 20th floor? The time given of 5 minutes if increased to 20 or 25 minutes will result in saving of a lot of lives. For this, the electrical industry especially the wire and cable industry needs to take this mantle upon themselves and come up with a better results and better product that can withstand fires for longer period of time without losing circuit integrity Therefore there has to be an ideal balance between commercial aspects and safety measures Fires can prove to be very expensive Installation, proper tooling and proper training about installation of the products also needs to be done for all persons involved in the business of installation and commissioning. Having one trained electrician for a site may be cost effective for the contractor, but compromises on salety measures to a very large extent, unless all of them are trained well.

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