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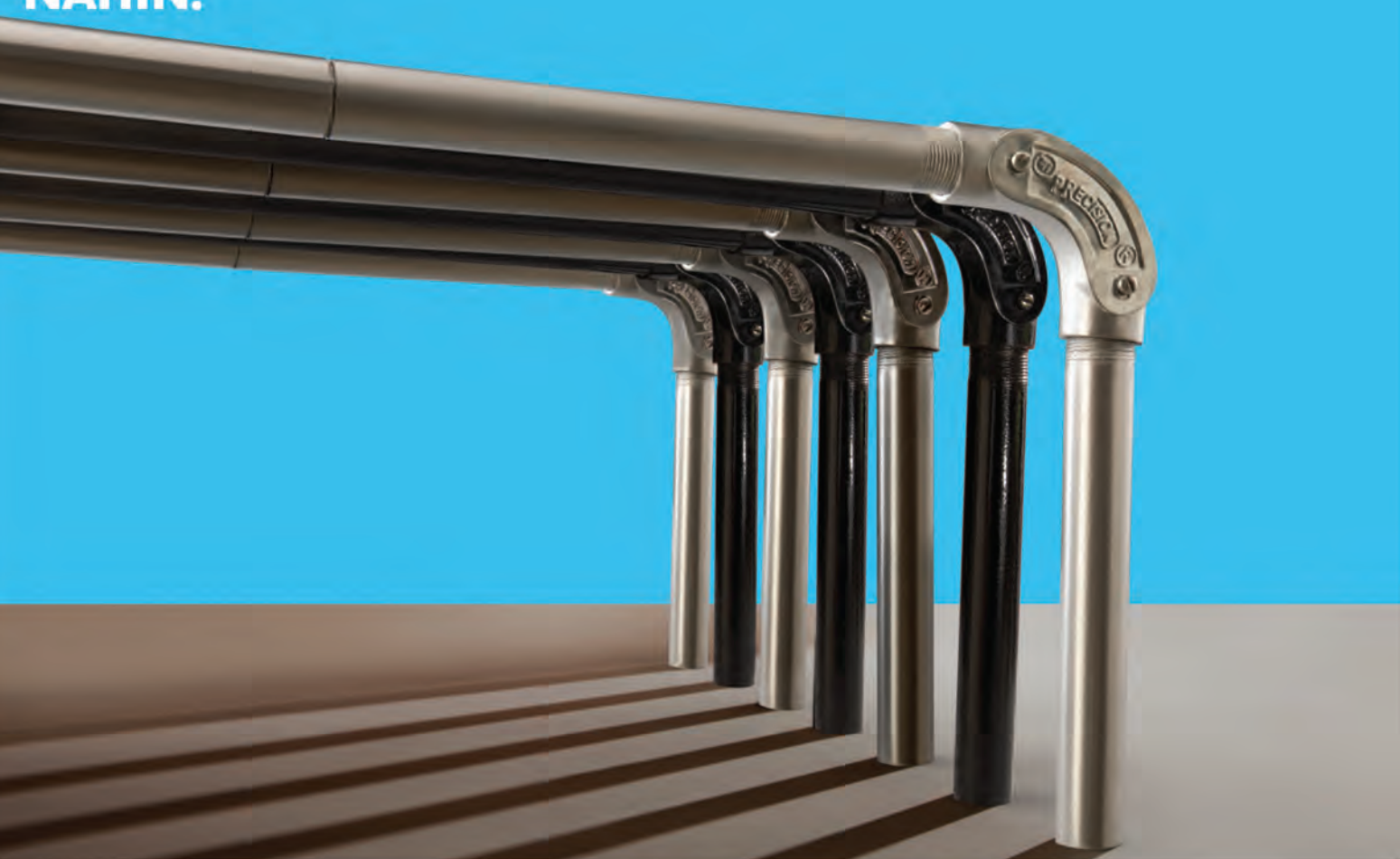

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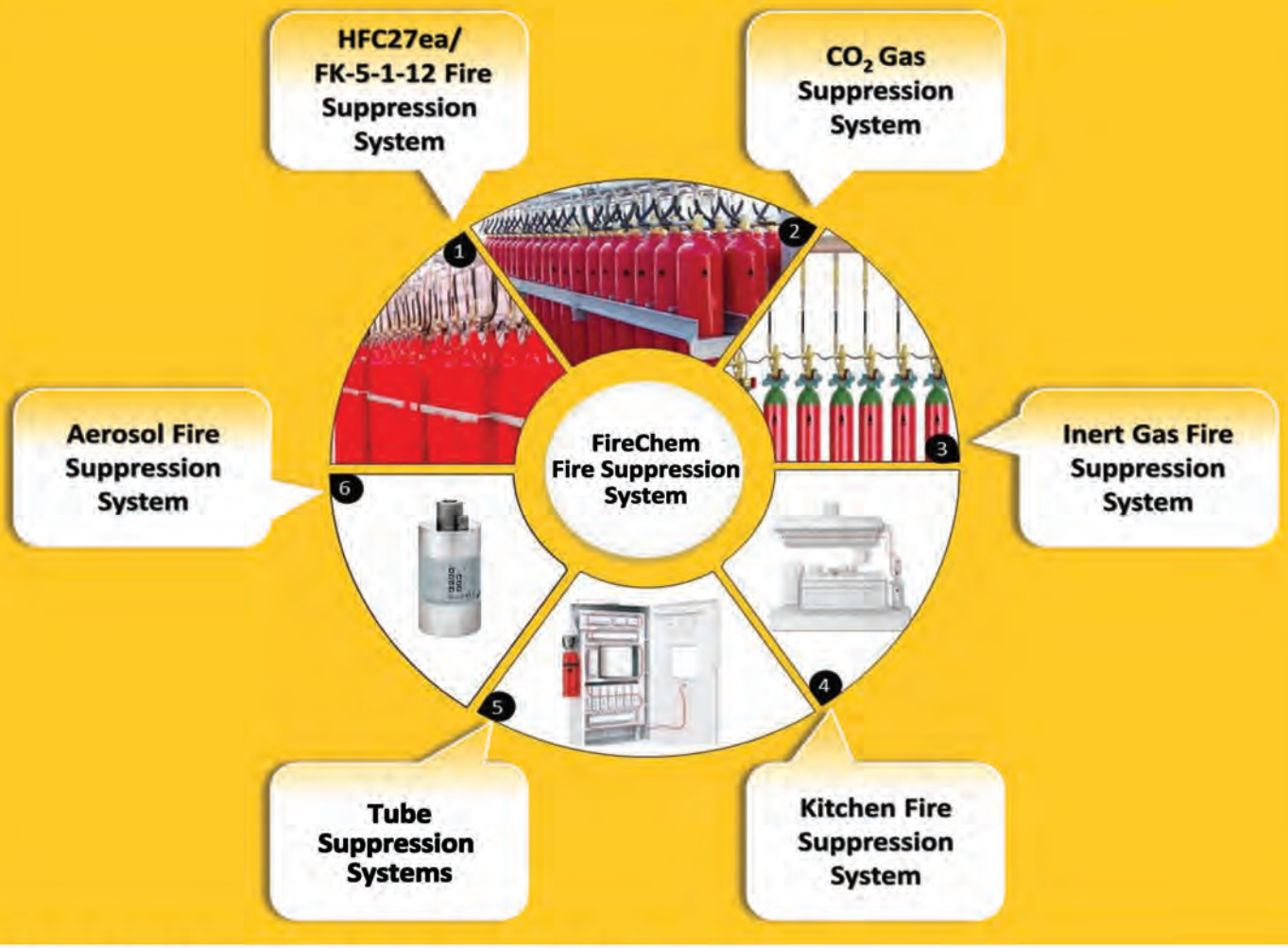

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अध्यक्ष, इकॅम

यशस्वी शताब्दी समारोपाबद्दल सर्वांचे अभिनंदन आणि आभार!

नमस्कार प्रिय सभासद बंधूनो /भगिनिंनो,

१०० वर्षे अविरत व अखंडपणे मार्गक्रमण करणाऱ्या आपल्या संघटनेच्या शताब्दी वर्षाचा समाप्तीचा समारोह कार्यक्रम दिनांक १५ जानेवारी २०२५ रोजी दि वेस्ट इन, पवई या पंचतारांकीत हॉटेल मध्ये संपन्न झाला.

सदरहु कार्यक्रम मा. श्री गोपाल काबरा साहेब (M.D. RR Kabel Group) तसेच आपल्या सोबत वर्षानुवर्षे कार्यरत असणाऱ्या विविध संस्थांच्या पदाधिकाऱ्यांच्या उपस्थितीत संपन्न झाला. तसेच यावेळी आपल्या संस्थेचे माजी पदाधिकारी श्री. शैलेश डॉक्टर, श्री. कमलेश शहा, श्री. सतिश काझी, श्री. चंद्रकांत ब्रीद, श्री. केशव काळे, श्री. अनिल गचके, श्री. वामन भुरे तसेच श्री. मिलिंद नाईक व इतर अनेक पदाधिकारी उपस्थित होते.

प्रथमतः मी मला भाग्यवान समजतो की, १०० व्या वर्षात अशा प्रतिष्ठित संस्थेच्या अध्यक्षपदाचा मान मला मिळाला व सेवा करण्याची संधी मिळाली.

या कार्यक्रमाची तयारी २ ते ३ वर्षांपुर्वी मा. कै. सुनिल भुरे साहेब यांच्या मार्गदर्शनाखाली सुरू झाली होती. त्यामध्ये उदघाटनाचा भव्य असा कार्यक्रम आपण दिनांक ११ जानेवारी २०२४ रोजी योगी सभागृह, दादर येथे आयोजित करून सुरवात झाली व लगेचच दिनांक २७ ते २९ दरम्यान ECAMEX 24 या भव्य प्रदर्शनाचे आयोजन Bombay Exhibition Center, गोरेगांव, मुंबई येथे आपण केले होते. एकंदर १०० स्टॉलचे भव्य प्रदर्शनाचे अतिशय उत्तम नियोजन त्यात केले होते. वर्षभर आपल्या सर्व विभागांनी (पुणे, नाशिक, अहिल्यानगर, धुळे - नंदुरबार, जळगाव, पश्चिम महाराष्ट्र, कोकण, ठाणे) त्यांच्या विभागात विद्युत सुरक्षा या विषयासंदर्भात विविध चर्चासत्रे, सेमिनार, वार्षिक सभा, विभागवार प्रदर्शन या द्वारे वर्षभर भरगच्च कार्यक्रमांचे आयोजन केले होते.

या सर्व कार्यक्रमांचा कळस म्हणजे १५ जानेवारी २०२५ हा दिवस संघटनेच्या इतिहासात सुवर्णाक्षरांनी लिहून ठेवला जाईल. त्या दिवशी आपली ९९ वी वार्षिक सभा आयोजित करण्यात आली होती व त्यानंतर शताब्दी समारोपाचा कार्यक्रम झाला व त्यानंतर मनोरंजनाचा संगीत रजनीचा कार्यक्रम संपन्न झाला. सदरहु दोन्ही कार्यक्रमाला ७५० ते ८०० सभासद, प्रतिष्ठित पाहुणे व विविध कंपन्यांचे प्रतिनिधी असे १००० ते १२०० लोक उपस्थित होते.

त्याच दिवशी सदरहु ठिकाणी विविध कंपन्यांचे २० स्टॉलचे प्रदर्शन आयोजित करण्यात आले होते. सदरहु स्टॉलला सभासदांचा भरघोस प्रतिसाद मिळाला. त्यानंतर सुग्रास भोजनाने कार्यक्रमाची सांगता झाली.

सदर कार्यक्रम यशस्वी करण्यासाठी गेली २-३ वर्षे संघटनेचे पदाधिकारी, सभासद अहोरात्र कार्यरत होते. त्यामुळेच आपण सर्व कार्यक्रम इतक्या भव्यदिव्यपणे यशस्वीरित्या पार पाडु शकलो असे मला वाटते. त्यामध्ये विशेषतः सर्व विभागांचे चेअरमन, सचिव, विभागीय कार्यकारिणी यांनी अत्यंत चांगले योगदान दिले. वर्षभर झटून काम करणाऱ्या सर्वांचा मी अत्यंत ऋणी असून त्यांचे शतशः आभार मानतो.

१०० वर्ष पूर्ती निमित्ताने आपल्या संघटनेच्या सर्व माजी पदाधिकाऱ्यांचा मी ऋणी आहे. त्यांच्या योग्य मार्गदर्शन व दिशादर्शनामुळे आपण हा दिवस (शतक वर्ष पूर्ती) पाहू शकलो.

विद्युत सुरक्षा, सभासदांचे हित व त्यांच्या अडीअडचणींबाबत आपली संघटना कटीबध्द असून आपल्या संघटनेची पुढील ध्येय धोरणे अशी असावीत असा माझा मानस आहे.

१. विद्युत कंत्राटदारांची देश पातळीवर भक्कम संघटना उभी करणे.

२. शालेय शिक्षणात विद्युत सुरक्षा या विषयाचा अंतर्भाव करणे.

३. समाजाला तज्ञ, जबाबदार व जाणकार कंत्राटदार उपलब्ध करणेसाठी अविरत प्रयत्न करणे.

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नमस्कार मित्रांनो,

इकॅम जळगाव विभागाच्या विद्यमाने दिनांक ७ ते १३ जानेवारी २०२५ रोजी होणाऱ्या विद्युत सुरक्षा सप्ताह कार्यक्रमाच्या अनुषंगाने मातोश्री हाईट, मातोश्री बँक्वेट हॉल, म्हाडा कॉलनी रोड, एम.आय.डी.सी, जळगाव येथे एक सेमिनार आयोजित करण्यात आला होता. यामध्ये विद्युत ठेकेदारांना विद्युत सुरक्षा संदर्भातील उपाययोजना व विद्युत सुरक्षेच्या मौलिक सूचना देण्यात आल्या. याप्रसंगी प्रमुख पाहुणे म्हणून जळगावचे विद्युत निरिक्षक श्री. निलेश अहिरे, सहाय्यक विद्युत निरिक्षक श्री. हेमंत शर्मा, सहाय्यक अभियंता श्री. सतीश चौधरी, शाखा अभियंता श्री. आकाश ढाकरे आणि कनिष्ठ अभियता श्रीमती पुनम शिंदे उपस्थित होत्या.

इकॅमची वार्षिक सर्वसाधारण सभा तसेच शताब्दी महोत्सवाचा समारोप सोहळा बुधवार दिनांक १५ जानेवारी २०२५ रोजी दि. वेस्ट इन, मुंबई पवई लेक, २ आणि ३ बी, चिन्मयानंद आश्रम, कैलाश नगर, मयुर नगर, मोरारजी नगर जवळ, पवई, मुंबई-४०० ०८७ येथे संपन्न झाला. दुपारी २.०० वाजता इकॅमची ९९ वी वार्षिक सर्वसाधारण सभा आयोजित करण्यात आली होती. सदर सभा खेळीमेळीच्या वातावरणात संपन्न झाली. त्यानंतर सायंकाळी ५.०० वाजता शताब्दी महोत्सवाचा समारोप सोहळा वेस्ट ईन हॉटेलच्या सभागृहात मान्यवरांच्या उपस्थितीत साजरा झाला. वेस्ट ईन या हॉटेलचे भव्य आणि आकर्षक सभागृह, प्रवेशद्वार आणि संपूर्ण इमारतीला केलेली नेत्रदीपक सजावट, महाराष्ट्रातील विविध विभागांतून आलेल्या सभासदांचा उस्फुर्त प्रतिसाद व सहभाग तसेच विद्युत क्षेत्रातील मान्यवरांची उपस्थिती यामुळे हा कार्यक्रम इकॅमच्या इतिहासात नेहमीच स्मरणात राहील. याप्रसंगी आर. आर. काबेलचे अध्यक्ष श्री गोपाल काबरा हे प्रमुख पाहुणे या नात्याने आले होते. विद्युत ठेकेदारांनी विद्युत सामानाच्या गुणवत्तेबद्दल अतिशय जागरूक असणे आवश्यक आहे तसेच समाजाला विद्युत सुरक्षा पुरवावी अशी अपेक्षा श्री गोपाल काबरा यांनी व्यक्त केली. संघटनेचे अध्यक्ष उमेश रेखे यांनी आगामी काळात संघटनेला राष्ट्रीय स्तरावर नेण्याचे ध्येय जाहीर केले. त्याचप्रमाणे विद्युत सुरक्षेला शालेय अभ्यासक्रमात स्थान मिळवून देण्यासाठी शासनदरबारी प्रयत्न करण्याचे सुतोवाच केले. या कार्यक्रमासाठी विद्युत क्षेत्रातील अनेक कंपन्यांचा सहभाग होता.

सदर प्रसंगी एक छोटेखानी विद्युत साहित्याचे प्रदर्शन आयोजित करण्यात आले होते. या प्रदर्शनास सभासदांचा उस्फूर्त प्रतिसाद होता. या प्रसंगी संस्थेच्या ज्येष्ठ मान्यवर सभासदांचा सत्कार करण्यात आला.

IECT मासिकाचे संपादक श्री. सतिश सिन्नरकर यांनी संघटनेला त्यांनी दिलेल्या २५ वर्षाच्या अविरत सेवेबद्दल कृतज्ञता व्यक्त केली.

माझ्या दृष्टीने हा क्षण भाग्याचा, आनंदाचा आणि भूतो न भविष्यति असा असुन हा कार्यक्रम सुवर्णाक्षरात लिहिला जाईल.

तसेच आपली संघटना ही आर्थिक दृष्टया मजबूत असुन आपण नेहमी तरूण रक्ताला वाव देत आलो आहोत.

समारोपाचे भाषण करताना अध्यक्ष श्री. उमेश रेखे यांनी संपूर्ण शताब्दी वर्षाचा आढावा घेतला आणि पुढील काळात संघटनेला मजबुत करून व नवनवे तंत्रज्ञान आत्मसात करून सभासदांनी आपला उत्कर्ष साधावा असे आवाहन केले.

सभासदांनी आपला भरघोस प्रतिसाद इकॅमच्या वार्षिक सर्वसाधारण सभेस तसेच शताब्दी महोत्सवाच्या समारोप सोहळयास दिल्याबद्दल सर्वांचे मनःपूर्वक आभार.

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THE QUALITY REVOLUTION

The Editor's Desk

70 to 90-hour work week?

Satish Sinnarkar
Editor, IECT

Larsen & Toubro (L&T) chairman S N Subrahmanyan sparked an online outrage with his comments advocating a 90-hour work week and suggesting that employees should even give up Sundays.

"How long can you stare at your wife," he is heard saying in a purported video address to employees where he urged them to spend less time at home and more in the office.

His remarks reignited the work-life balance debate, first triggered by Infosys co-founder Narayana Murthy's suggestion of a 70-hour work week.

"I regret I am not able to make you work on Sundays.

"If I can make you work on Sundays, I will be more happy, because I work on Sundays," Subrahmanyan is heard saying in an undated video circulating on social media.

"What do you do sitting at home? How long can you stare at your wife? How long can the wives stare at their husbands? Come on, get to the office and start working," he further said.

His comments drew criticism on social media with some asking how long could "employees stare at screens and fat*** managers?"

Soon after, L&T issued a clarification saying the chairman's remarks were in the context of extraordinary efforts required for achieving extraordinary outcomes for the nation.

"We believe this is India's decade, a time demanding collective dedication and effort to drive progress and realise our shared vision of becoming a developed nation.

"The chairman's remarks reflect this larger ambition, emphasising that extraordinary effort," L&T spokesperson said in a brief statement.

Stating that nation-building is at the core of L&T's mandate, it said for over eight decades, the company has been shaping India's infrastructure, industries, and technological capabilities.

"At L&T, we remain committed to fostering a culture where passion, purpose, and performance drive us forward," the spokesperson added.

He cited a conversation he had with a Chinese person who said that China could surpass the US because of the country's strong work ethic.

According to Subrahmanyan, the Chinese person said, "Chinese people work 90 hours a week, while Americans work only 50 hours a week."

Drawing a parallel, Subrahmanyan encouraged L&T employees to follow a similar work regime.

"So that's the answer for you. If you have got to be on top of the world, you have to work 90 hours a week," he is heard saying in the video.

The video went viral quickly, attracting some nasty comments as well.

"Another CEO promoting slavery shamelessly," one person commented.

Some questioned why highly paid CEOs with different job pressures expect the same level of commitment from less-paid employees.

Subrahmanyan's comments reignited the work-life balance debate that came into limelight in July last year following the death of a 26-year-old EY consultant.

Infosys co-founder Murthy, too, had a few months back advocated a 70-hour work week.

"India's work productivity is one of the lowest in the world... my request is that our youngsters must say, 'this is my country, I want to work 70 hours a week'," Murthy had said.

Last month, billionaire Gautam Adani had also waded into the work-life balance debate when he said the spouse will leave if one was to spend eight hours with the family.

He had reportedly stated that work-life balance is a matter of personal choice.

In the life of electrical contractors, working for 12 to 14 hours a day is a common phenomenon. But getting same work done from the employees is a difficult task.

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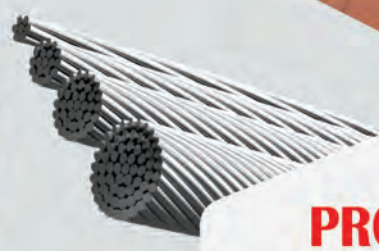

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इकॅमच्या ९९व्या वार्षिक सर्वसाधारण सभेचा सोहळा...

बुधवार दिनांक १५ जानेवारी २०२५ रोजी इकॅमची ९९ वी वार्षिक सर्वसाधारण सभा, हॉटेल वेस्टीन, पवई, मुंबई येथे मोठ्या दिमाखात संपन्न झाली.

व्यासपीठावर मान्यवर स्थानापन्न झाल्यावर, सुरुवातीला महासचिव श्री. देवांग ठाकूर यांनी सर्व उपस्थितांचे स्वागत केले, आणि राष्ट्रगीताने सभेची सुरुवात झाली.

मागील ९८व्या वार्षिक सर्वसाधारण सभेचा वृत्तांत, इकॅम धुळे विभागाचे अध्यक्ष श्री. प्रवीण बडगुजर यांनी सभेपुढे मांडला. सभेने तो एक मताने मंजूर केला. सुचक श्री. सुशील भुरे तर अनुमोदक होते, श्री. साहेबराव जाधव.

इकॅम नाशिक विभागाचे अध्यक्ष श्री. सचिन फरतडे यांनी, मागील वर्षात झालेल्या कामाचा आढावा घेतला. इकॅमेक्स २४ हे विद्युत साहित्याचे भव्य प्रदर्शन, विविध विभागांमध्ये वर्षभरात झालेले अनेक कइत्यादींचा अहवाल त्यांनी विस्तृतपणे सभेपुढे मांडला. सूचक श्री. संजय नेरकर तर अनुमोदक होते, श्री. अजिंक्य कोळपकर.

इकॅमचा सन २०२३-२०२४ चा जमाखर्चाचा ताळेबंद, खजिनदार तथा सहसचिव श्री. रावसाहेब रकिबे यांनी सभेपुढे सादर केला. सभेने त्यास कोणतीही हरकत न घेता तो बहुमताने मंजूर केला. सूचक श्री. राजू देशमुख तर अनुमोदक होते, समर्थ इलेक्ट्रिकल्सचे श्री. निकम.

सन २०२४-२०२५ साठी लेखापरीक्षक यांची नियुक्ती करण्याबाबतचा ठराव श्री. रकिबे यांनी मांडला. मे. स्पार्क ॲण्ड असोसिएटचे श्री. रंजन चव्हाण यांची नियुक्ती यावेळी एकमताने करण्यात आली. सूचक श्री. सुनील गायकवाड तर अनुमोदक होते श्री. दत्तात्रय कदम.

या सभेच्या आणि शताब्दी सांगता समारोहाच्या निमित्ताने, जे प्रायोजक होते, त्यांचाही सन्मान यावेळी करण्यात आला. शाल, पुष्पगुच्छ आणि स्मृतिचिन्ह असे सन्मानाचे स्वरूप होते.

प्लॅटिनम स्पॉन्सर

१) एल ॲंड टी या कंपनीचे सीनियर मॅनेजर श्री. दीपक घारपुरे आणि श्री राहुल शाह यांचा सन्मान, इकॅमचे प्रभारी अध्यक्ष श्री. उमेश रेखे यांच्या हस्ते करण्यात आला.

२) पॅनासोनीकचे व्हाईस प्रेसिडेंट श्री. शहाब नकवी यांचा सन्मान महासचिव श्री. देवांग ठाकूर यांच्या हस्ते करण्यात आला.

गोल्डन स्पॉन्सर

लेग्रा (Legrand) चे व्हाईस प्रेसिडेंट श्री. सुनील पाटील यांचा सन्मान इकॅम पुणे विभागाचे अध्यक्ष श्री. अनिल महाजन यांच्या हस्ते करण्यात आला.

सिल्वर स्पॉन्सर

१) सुजित इंडस्ट्रीजचे मॅनेजिंग डायरेक्टर श्री. बाबासाहेब हरदे यांचा सन्मान इकॅम जळगाव विभागाचे अध्यक्ष श्री. सय्यद मेहदी यांच्या हस्ते करण्यात आला.

२) आयएमसेफचे श्री. मदन दोडेजा आणि श्री इंद्रनील भट्टाचार्य यांचा सन्मान इकॅम अहिल्यानगर विभागाचे अध्यक्ष श्री. दत्ता झिंजुर्डे यांच्या हस्ते करण्यात आला.

३) जी एम मॉड्युलरचे प्रोजेक्ट हेड श्री. केतन चौहान यांचा

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४) ३ एम चे टेक्निकल मॅनेजर श्री. गगन चावला आणि श्री. प्रशांत इनामदार यांचा सन्मान इकॅम नाशिक विभागाचे अध्यक्ष श्री. सचिन फरतडे यांच्या हस्ते करण्यात आला.

५) आर आर काबेलचे मार्केटिंग मॅनेजर श्री. सौमित सरदेसाई यांचा सन्मान इकॅम ठाणे विभागाचे अध्यक्ष श्री. निलेश तिवरामकर यांच्या हस्ते करण्यात आला.

६) पॉलीकॅब इंडिया लिमिटेडचे सेल्स मॅनेजर श्री. वरूण अगरवाल आणि श्री उदय चव्हाण यांचा सन्मान इकॅम पिंपरी चिंचवड विभागाचे अध्यक्ष श्री. सयाजी पाटील यांच्या हस्ते करण्यात आला.

७) ग्रेटव्हाईट इलेक्ट्रिकल्सचे प्रोजेक्ट हेड श्री. सचिन सिंग यांचा सन्मान इकॅम पश्चिम महाराष्ट्र विभागाचे अध्यक्ष श्री. दिलीपकुमार कदम यांच्या हस्ते करण्यात आला.

८) के लाईट चे श्री. रघुनाथन यांचा सन्मान इकॅमचे खजिनदार श्री. रावसाहेब रकिबे यांच्या हस्ते करण्यात आला

यावेळी इकॅमच्या दिनदर्शिका २०२५ चे प्रकाशन व्यासपीठावरील मान्यवरांनी केले. दिनदर्शिका समितीचे अध्यक्ष श्री. रघुवीर पाटील यांचे उत्तम दिनदर्शिका तयार केल्याबद्दल, सर्वांनी विशेष कौतुक केले.

या सभेत इकॅम नाशिक विभागाचा, गतवर्षातील सर्वोत्तम विभाग म्हणून, खास सन्मानचिन्ह देऊन गौरव करण्यात आला. यावेळी इकॅम नाशिक विभागाच्या सदस्यांनी मोठा जल्लोष केला.

आयत्या वेळच्या विषयांमध्ये खालील सभासदांनी आपली विविध विषयांवर मते व्यक्त केली. सर्वश्री सुनील गायकवाड, रामसूदन सोमल, प्रल्हाद चव्हाण, प्रवीण कुदळे, किशोर पाटील, कानिफनाथ घोगरे, प्रल्हाद सैंदाणे पाटील, बालाजी घुमे, ग्यानरंजन साहू, अतुल कदम, प्रवीण सूर्यवंशी, चेतन भोईटे, तुषार वऱ्हाडे, संदीप पाटील, भूपेंद्र श्रीवास्तव, मोहन पवार,

ऋषिकेश थोरात, संतोष वांजळे, नितीन चौधरी, सचिन मोरे, अजित शिंदे, केदारनाथ येनगुडे, अवि नार्वेकर आणि अनिकेत देवकर.

इकॅमचे महासचिव श्री. देवांग ठाकूर हे आपल्या मनोगतात म्हणाले की, ''शताब्दी वर्षांमध्ये संघटनेचे महासचिव पद सांभाळण्याची संधी मिळाली, याबद्दल सर्व सभासदांचे मनःपूर्वक आभार. संघटनेला १०० वर्षे पूर्ण झाली, ती इतकी वर्षे उत्तम प्रकारे चालवली गेली. तिची उत्तरोत्तर प्रगती होत गेली. या गोष्टीचे श्रेय सर्व वडीलधाऱ्या मंडळींना आहे. ज्यांनी संघटनेची स्थापना केली, ती वाढवली नावारूपास आणली, त्या सर्वांना मी वंदन करतो.''

इकॅमचे प्रभारी अध्यक्ष श्री. उमेश रेखे आपल्या मनोगतात म्हणाले की, ''संघटनेसाठी मोलाचे योगदान देऊन कार्य केलेल्या हयात नसलेल्या व असलेल्या सर्व वडीलधाऱ्या मंडळींचे आभार मानून, स्मरण करून मी हे कार्य पुढे नेण्याचा प्रयत्न करीत आहे, व यापुढेही करीत राहीन. सभासदांच्या अडचणी

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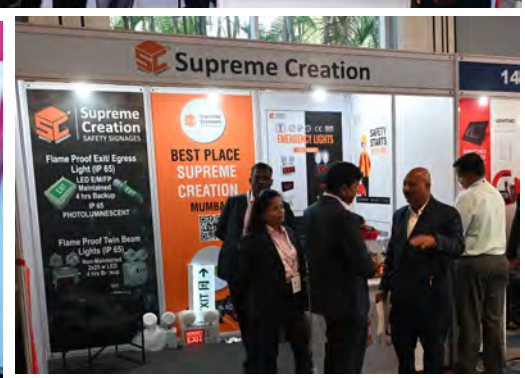
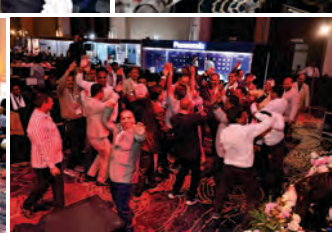
सोडविण्यासाठी कायम प्रयत्नशील राहू. आपल्या संस्थेची मतदान प्रक्रिया, जी पूर्वापार चालत आली आहे, ती बदलून नवीन ऑनलाइन पद्धतीने मतदान प्रक्रिया राबविण्याचा प्रयत्न सुरू आहे. पुढील एक दोन महिन्यात त्याचे सॉफ्टवेअर तयार होईल. संचालक मंडळाच्या पुढील सभेत सभासद विम्या बाबत चर्चा करून, निर्णय घेण्यात येईल. आजच्या कार्यक्रमा साठीच्या ऑनलाईन नोंदणी प्रक्रियेमुळे, सभासदांचा डाटा अपडेट झाला आहे. येथून पुढे त्यांच्याशी संपर्क साधताना अडचण येणार नाही. सोलर क्षेत्रात येत्या काळात कामाची मोठी संधी आहे. या संधीचा इकॅमच्या सभासदांनी आवर्जून लाभ घ्यावा, आणि आपल्या व्यवसायाची वृद्धी करावी. येथून पुढच्या काळात संघटनेची वाढ महाराष्ट्रभर करण्यासाठी प्रयत्न सुरू करणार आहोत.''

सभेचे आभार प्रदर्शन श्री. अमेय काण्णव यांनी, तर

सूत्रसंचालन श्री. अनिरुद्ध कुर्तडीकर यांनी केले.

– शब्दांकन : राजेन्द्र सिन्नरकर





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इकॅम शताब्दीचा भव्य समारोप

आपल्या व्यवसायात विद्युत सुरक्षेला प्राधान्य देणाऱ्या कंत्राटदारांच्या संघटनेचा, शताब्दी वर्षाचा समारोप, मुंबईतील पवई येथील वेस्टिन हॉटेलच्या भव्य सभागृहात मान्यवरांच्या उपस्थितीत साजरा झाला. या प्रसंगी व्यासपीठावर आर आर काबेलचे सर्वोसर्वा श्री. श्री गोपालजी काबरा, इकॅमचे प्रभारी अध्यक्ष श्री. उमेश रेखे, इकॅमचे महासचिव श्री. देवांग ठाकूर यांच्यासह इकॅमच्या सर्व विभागांचे अध्यक्ष स्थानापन्न झाले होते.आर. आर. काबेल या कंपनीचे अध्यक्ष श्री. श्रीगोपाल काबरा हे कार्यक्रमाचे प्रमुख पाहुणे या नात्याने आले होते.

इलेक्ट्रिकल कॉन्ट्रॅक्टर्स असोसिएशन ऑफ महाराष्ट्र (इकॅम) या संघटनेची स्थापना, जानेवारी १९२५ मध्ये झाली आणि २०२५ हे वर्ष शताब्दी वर्ष या नात्याने साजरे करण्यात आले. बुधवार १५ जानेवारी २०२५ रोजी या शताब्दी वर्षाचा समारोप, अत्यंत उत्साहाने संपन्न झाला. वेस्टिन या पंचतारांकित हॉटेलचे भव्य व आकर्षक सभागृह, प्रवेशद्वारापासून केलेली नेत्रदीपक सजावट, संपूर्ण महाराष्ट्रातून आलेल्या विद्युत कंत्राटदारांचा सक्रिय सहभाग आणि विद्युत क्षेत्रातील मान्यवरांची उपस्थिती, यामुळे हा कार्यक्रम दर्जेदार व कायम स्वरुपी स्मरणात राहील असा झाला. या कार्यक्रमासाठी विद्युत क्षेत्रातील पॅनासोनीक, एल एण्ड टी, लेग्रॅण्ड, जीएम मोड्यूलर, ३एम, सुजीत इन्डस्ट्रीज, आर आर काबेल, पॉलिकॅब, ग्रेटव्हाईट, के-लाईट अशा आघाडीच्या कंपन्यांनी आपले प्रायोजकत्व दिले होते. त्याचबरोबर मेको, सुप्रिम क्रिएशन, वाशी इन्टीग्रेटेड सोल्यूशन्स, आयएमसेफ, पॉवरटेक, श्री इंजिनिअरींग, कीट्रॉनिक्स, रोटोप्लास्ट या कंपन्यांचाही सहभाग होता.

समारोपाचा कार्यक्रम, अतिशय भव्य पद्धतीने आणि देखण्या स्वरूपात साजरा करण्यात आला. या प्रसंगी संस्थेच्या ज्येष्ठ सदस्यांचा, शाल, पुष्पगुच्छ व सन्मानचिन्ह देऊन सन्मान करण्यात आला. यामध्ये सर्वश्री, सुकेतु जव्हेरी, प्रवीणचंद्र जोशी, चंद्रकांत कपाडिया, चंद्रकांत भांड, विठ्ठल जव्हेरी, राजकुमार चोप्रा, चंद्रकांत ब्रीद, झुंबरलाल रुणवाल, शैलेश डॉक्टर, मधुकर ब्राह्मणकर, मोहन खानोलकर, अनिल गचके, माणिकचंद शर्मा, व्ही. पी. जॉन, सतीश काझी आणि शिवशंकर पांडे यांचा समावेश होता.

याप्रसंगी बोलताना श्री. मदन दोडेजा म्हणाले की, ''संघटनेला

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१०० वर्षे पूर्ण होत आहेत, ही ग्रेट अचिव्हमेंट आहे. आपण भाग्यवान आहोत, आपल्या देशात व्यवसायाच्या नवनवीन संधी उपलब्ध होत आहेत. परंतु या संधीचं सोनं करण्यासाठी आपणास वेगळा मार्ग चोखाळावा लागेल. परिवर्तन करावे लागेल. कामाची भूक आणि जिज्ञासा हवी. ऍडव्हेंचरचे वेंचर करायला हवे. सौर क्षेत्रात गेल्या दहा वर्षांपेक्षा आठ महिन्यात खूप काम झाले आहे. कितीही काम केलं तरी, पुढील दहा वर्षे पुरेल एवढी कामे नक्कीच आहेत. या क्षेत्रातील प्रशिक्षण देण्यासाठी आम्ही वेगवेगळ्या २७ ठिकाणी ट्रेनिंग सेंटर्सची उभारणी केली आहे''.

याप्रसंगी बोलताना श्री. श्रीगोपाल काबरा म्हणाले की, ''इकॅमचे माझ्यावर खूप प्रेम आहे. इकॅमच्या धुरीणांनी मला संधी दिली. आजचे संचालक मंडळही मला संधी देत आहे. त्याबद्दल त्यांचा शतशः ऋणी आहे. आज विद्युत क्षेत्रात खूप चुकीची कामे होत आहेत. लोक पैशाच्या मागे लागले आहेत. बेईमानीने व्यवसाय करून, पैसा कमावून दान देण्यापेक्षा, कमी नफ्यावर काम करून, देशाप्रती निष्ठा ठेवावी. अनेक आंतरराष्ट्रीय कंपन्या, भारतात व्यवसाय करण्यास धजावत नाहीत. जो खरेपणाने काम करतो त्याला कष्ट घ्यावेच लागतात. फक्त पैशांनी संपन्नता येत नाही, तर आरोग्य आणि मनःशांतीने संपन्नता येते. मुला बाळांसाठी पैसे सोडून जाऊ नका, त्याऐवजी त्यांना चांगले संस्कार आणि आशीर्वाद देऊन जा. विद्युत ठेकेदारांनी आपला ब्रँड तयार करावा. इलेक्ट्रिकल कॉन्ट्रॅक्टर न म्हणता, इलेक्ट्रिकल सोल्युशन प्रोव्हायडर, असे म्हणायला हवे.'' त्यांनी पुढे असेही आवाहन केले की, कंत्राटदारांनी विद्युत सामानाच्या गुणवत्तेबद्दल अत्यंत जागृत राहावे आणि समाजाला विद्युत सुरक्षा पुरवावी.

असे प्रतिपादन त्यांनी केले.

यानंतर समारोपाचे भाषण करताना प्रभारी अध्यक्ष श्री. उमेश रेखे यांनी पूर्ण वर्षाचा आढावा घेतला आणि पुढील काळात संघटनेला मजबूत करून व नवनवे तंत्रज्ञान आत्मसात करून सभासदांनी आपला उत्कर्ष साधावा, असे आवाहन केले. पुढे बोलताना ते म्हणाले की, ''संघटनेच्या शताब्दी महोत्सव समारोपाच्या वेळी, मला अध्यक्षपदाचा मान मिळाला हे माझे भाग्य समजतो. त्याबद्दल सर्वांचे आभार. आपल्या पूर्वजांनी संघटनेचा जो मजबूत पाया रचला आणि त्यानंतरच्या पिढ्यांनी संघटनेला ताकद दिली, यामुळेच आजचा क्षण आपल्या आयुष्यात आला आहे. कै. सुनील भुरे यांच्या संकल्पनेनुसार, आपण इकॅमला राष्ट्रीय स्तरावर नेण्याचा प्रयत्न करणार आहोत. विद्युत सुरक्षा हा विषय शालेय अभ्यासक्रमात सहभागी करण्यासाठी प्रयत्न करणार आहोत. यासाठी सर्वांचे सहकार्य अपेक्षित आहे.''

आयईसीटी या संस्थेच्या मासिकाचे संपादन व प्रकाशन करणाऱ्या, कॅम्पेन मास्टर्सच्या सतीश सिन्नरकर यांनी आपल्या २५ वर्षांच्या संपादकीय सेवेबद्दल कृतज्ञता व्यक्त केली. पंचवीस वर्षांपूर्वी श्री. शैलेश डॉक्टर आणि कै. उदय चित्रे यांनी संधी दिली त्यामुळे हे शक्य झाले, असेही पुढे सांगितले.

संस्थेचे महासचिव श्री. देवांग ठाकूर यांनी, हा दिवस आपल्या आयुष्यातील आनंदाचा व भाग्याचा असून सुवर्ण अक्षरांनी लिहून ठेवावा लागेल. असे उद्गार काढले. आपली संघटना आर्थिक दृष्टीने स्वतंत्र असून, येथे तरुण रक्ताला नेहमीच वाव देण्यात येतो आणि संघटनेचे काम करत असताना आपण सामाजिक भानही ठेवतो.

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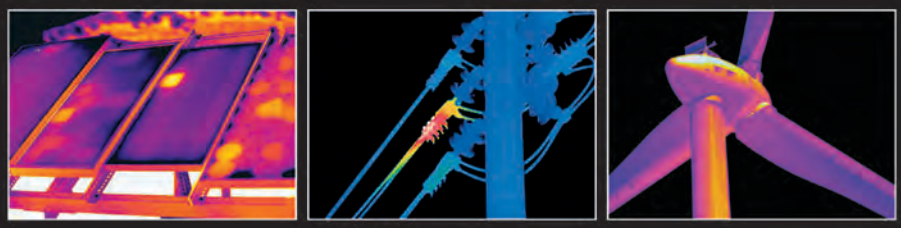

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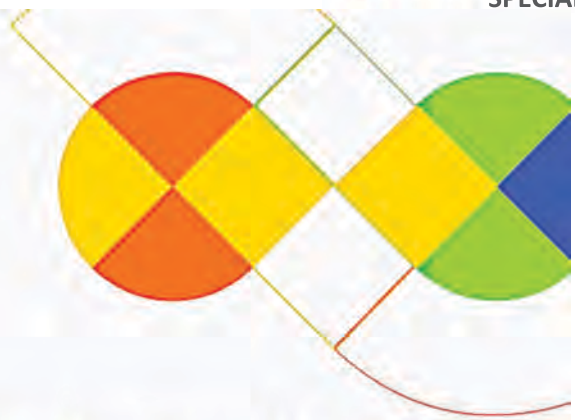

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Events that shaped Indian businesses in 2024

Unprecedented bribery charges, farewells, separation, failed union, monumental mergers and record-breaking IPOs, along with a healthy dose of online happenings in the form of spat and lessons in customer care, corporate India saw it all in 2024. In between the cycle of quarterly results and the chase for growth amid dynamic market conditions, India's industry leaders reinforced their belief in the country as the best-placed nation in the world for future growth. Even as new-age technologies such as AI, and machine learning remained the buzzword, the good old manufacturing got a thumbs up with "a new manufacturing golden age for India" on the horizon that has the potential to transform the country's economy, as envisaged by Tata Sons chairman N Chandrasekaran.

The year will be remembered for two mega-mergers - Tata Group merged two airlines under its fold - Air India and Vistara - to form a single, full-service airline and left the sky with just two players.

The year also recorded listings and companies ranging from Bajaj Housing Finance, and Hyundai to Ola Electric coming out with initial public offerings (IPOs).

But the biggest news was infrastructure king Gautam Adani and aides being hit with an indictment in a US court in an alleged $265 million bribery scheme to win lucrative renewable energy contracts.

The allegations, which the Adani group denied as baseless and vowed to seek all possible legal recourse to counter, were the second crisis that it faced in as many years.

In 2023, US short-seller Hindenburg Research alleged accounting and financial fraud at Adani Group, charges that the group denied.

It wiped out nearly USD 150 billion in market value of the group's listed entities.

Mukesh Ambani's Viacom18 and Disney+ Hotstar merged to create one of the largest content-streaming powerhouses in India worth over Rs 70,000 crore.

Just as most costs recovered, Hindenburg in August 2024 cited whistleblower documents to allege that SEBI chairperson Madhabi Puri Buch had a stake in obscure offshore entities used in the Adani money siphoning scandal. As Buch and Sebi denied any wrongdoing and the government appeared unwilling to become a party, the stock recovered but was again hit by the US court indictment in November.

While most of the years go down with happy memories, 2024 will be different as one of India's most revered industrialists, Ratan Tata died on October 9 at the age of 86 years. The death of the former chief of the over $165 billion Tata conglomerate, who perhaps enjoyed a unique status -- a corporate titan considered a 'secular living saint' with a reputation for decency and integrity -- left a void hard to be filled.

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Events that shaped Indian businesses in 2024

A little over a month later, **Shashikant Ruia**, a first-generation entrepreneur who co-founded the metals-to-technology conglomerate Essar with his brother Ravi, left the world at the age of 80 after a prolonged illness.

In a reminder about the fickleness of life, the founder of Drums Food International, the firm behind the popular Greek yoghurt brand Epigamia, **Rohan Mirchandani**, aged just 42, died due to cardiac arrest in December.

The year 2024 also saw a new beginning for the 127-year-old Godrej Group, with the founding family reaching an amicable agreement to split the conglomerate.

The Godrej family agreed to split their empire with Adi Godrej (82) and his brother Nadir (73) keeping Godrej Industries, which has five listed firms, while cousins Jamshyd (75) and Smita Godrej Crishna (74) getting unlisted Godrej & Boyce and its affiliates to be run under Godrej Enterprises Group and a land bank, including prime property in Mumbai.

In contrast, a proposed USD 10 billion merger between Culver Max Entertainment, formerly known as Sony Pictures Networks India, with Zee Entertainment collapsed in January, over two years after the partners announced their plans to come together, due to disagreement over who would lead the merged entity and failure to meet closing conditions. Bitter legal battles at various courts followed but in August the two parties agreed to settle their dispute and withdrew all claims against each other.

Opposite to what their rivals did, Walt Disney Co and Reliance Industries completed the merger of their media operations in India in November after announcing their plan in February.

The JV is one the largest media and entertainment companies in India with a combined revenue of approximately Rs 26,000 crore, housing two streaming services and 120 television channels.

Meanwhile, in the cement industry, it was about acquisitions and the battle for supremacy between Adani Group's Ambuja Cement and Aditya Birla Group's flagship UltraTech Cement.

Ambuja Cement agreed to acquire CK Birla group firm Orient Cement in October in a Rs 8,100 crore deal, with an offer to buy 46.8 per cent of its founders including chairman CK Birla, and certain public shareholders for Rs 3,791 crore, triggering an open offer for an additional 26 per cent stake in Orient.

While Adani Group snapped up Penna Cement for Rs 10,422 crore in June last year and acquired Sanghi Industries Ltd for Rs 5,185 crore in December 2023, Aditya Birla Group's UltraTech Cement had in July 2024 bought India Cements for Rs 3,945 crore.

Away from the brick-and-mortar, India's tech entrepreneur and Ola founder, Bhavish Aggarwal got entangled in a war of words on social media platform X with stand-up comedian Kunal Kamra, who took up consumer complaints over after sales and service quality of the company's electric scooters. Subsequently, the Central Consumer Protection Authority issued a show cause notice to Ola Electric in October related to 10,644 complaints and in December further sought additional details over the company's claims to have resolved the issues.

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Events that shaped Indian businesses in 2024

Unlike Aggarwal, **Mahindra Group Chairman Anand Mahindra's** response to stinging criticism of the group's vehicles on social media, taking it as a fuel of "hunger to succeed" won the hearts of netizens, even with fellow industrialist Harsh Goenka terming it a 'masterclass' in customer care.

Amid the action both offline and online, industry leaders reinforced their belief that India is the place to be in for future growth.

At the beginning of 2024, **Aditya Birla Group chairman Kumar Mangalam Birla** remarked that the economy's vibrant energy was "looking like a wow" and the country is striding forward with unwavering optimism even as large pockets of the world remain engulfed in pessimism.

"This is the dynamism and energy of a young country and ancient civilization that has found its voice and footing," he noted.

Similarly, auto industry stalwart and **Maruti Suzuki India Chairman RC Bhargava** said there is no other country in the world better placed than India in terms of future growth.

"I can't see any country in the world today which has better prospects for the future than India has," Bhargava stated at an event.

Just as the year was about to end, **N Chandrasekaran** announced that with global supply chains continuing to shift in India's favour as the world's largest businesses strike a new balance between resilience and efficiency, manufacturing has the potential to transform the economy.

In his New Year message to employees of the Tata Group, he termed it "a new manufacturing golden age for India" and said he was looking ahead to 2025 "with a sense of hope and optimism".

CERC releases draft CERC (Cross Border Trade of Electricity) (Second Amendment) Regulations, 2024

The Central Electricity Regulatory Commission (CERC) has issued the draft CERC (Cross Border Trade of Electricity) (Second Amendment) Regulations, 2024, under the Electricity Act, 2003.

The draft introduces key amendments to the 2019 regulations to streamline processes and align with general network access (GNA) principles for cross-border electricity trade. The amendments replace “long-term access” with GNA and introduce temporary general network access for short-term access needs. Key definitions such as “cross border transmission link” and “dedicated transmission system” have been refined for clarity and operational efficiency. The regulations emphasise compliance with cybersecurity frameworks and updated communication standards to enhance grid reliability. They also include provisions for application and access bank guarantees to ensure accountability in connectivity and GNA approvals. Additionally, the amendments prioritise pro-rata curtailment for access prioritisation and effective grid congestion management.

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In 2025 India Stands at a Crossroads – Will Government Rise to the Challenge?

Sucheta Dalal
Courtesy : Moneylife

It is perhaps fitting that we are starting 2025, which marks the end of the first quarter of the 21st century, with serious introspection, triggered by the passing of former prime minister (PM) Manmohan Singh in India and President Jimmy Carter in the United States, at the age of 91 and 100, respectively.

There is an uncanny similarity between the two leaders. Both were known for their innate decency and honesty and their departure has led to a wave of nostalgia about the decline in politics, public service and public discourse after their time. But let us stick to India for the moment.

Amid the immediate eulogies about Dr Singh's long years of public service, no one wanted to point out that his second term as the PM had ended in policy paralysis as he presided over, what was then considered, a highly corrupt coalition government, with all partners of the United Progressive Alliance (UPA) seemingly bent on enriching themselves at the country's cost. The allegations weren't untrue. A huge chunk of bad loans written off by banks on account of infrastructure and realty companies after 2014 stemmed from dubious lending and ever-greening in that period. Both sectors also took advantage of the pump-priming and liquidity infusion that was needed in the wake of the global financial crisis of 2008, but continued far too long, leading to high inflation in 2011. Scores of the high-profile companies of those days have, since, collapsed, leaving banks, home-owners and sub-contractors to bear the brunt.

But all that is forgotten in the wave of nostalgia that harks back to 1990-91, when India was forced to open up and liberalise its economy to avoid bankruptcy. It has been correctly argued that the then PM, PV Narasimha Rao provided Dr Singh, his finance minister, the political cover to carry out structural changes. However, opposition to economic liberalisation came from three powerful groups that had a lot to lose—communist parties, old-school industrialists of the Bombay Club, and a cabal of Bombay-based stockbrokers. Only a person with Dr Singh's background, erudition and high ethical standards could have pulled it off amid a massive securities scam and a controversial power policy virtually dictated by Enron Inc.

As we begin 2025, the nostalgia for leaders like Dr Singh refocuses attention on issues that truly matter. The orchestrated drumbeat about reform, development and a 'Viksit Bharat' often masks the challenges that are holding India back. For instance, India's economic growth slowed to 5.4% in the July-September quarter, a two-year low. According to media reports, the finance ministry attributes this to the Reserve Bank of India's (RBI's) tight monetary policy. This performance, coupled with a weak rupee, has drawn unfavourable comparisons with the UPA-2 era.

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feedback and growing frustration over quality of life and corruption -- especially coming from someone who is otherwise a vocal government supporter, like TV Mohandas Pai, formerly of Infosys Ltd. Last week, he tagged the PM and various ministers in an X post which said, “India needs urgent reforms to improve quality of life in her cities and towns, high corruption, bad infra hurting citizens. Budget 25-26 should provide huge funding for our cities.”

Leading banker and industry stalwart Uday Kotak, once a go-to person for the National Democratic Alliance (NDA), has also made 10 bold suggestions for ''India at 77 in an X post. First on his list is to 'go for growth' – a clear reference to the economic slowdown and high unemployment. The list itself seems a plea to give India's 1.4bn (billion) people and its entrepreneurs a chance to 'flower and grow' by getting 'enterprise and the animal spirits firing'. In order to achieve this, he wants the government to: eliminate current account deficit, continue steady fiscal consolidation, shun protectionism, respect free and fair markets, avoid over-regulation and micro-management across sectors.

Another blunt suggestion is to 'walk the talk' on pollution. This is a telling comment on the 'Swachh Bharat Abhiyan', led and launched by the PM in October 2014, with the aim of ''achieving the vision of clean India by 2019. Mr Kotak is perhaps the first high-profile businessmen to publicly acknowledge the embarrassment of India having the 'most polluted cities in the world'.

In 2025, the government will no longer be able to use its media cell to silence citizens who want clarity and consistency in policy, reduced bureaucratic red tape, greater accountability to create a conducive environment for growth and quality of life, in terms of civic amenities, poor roads, public transport, adequate healthcare, or a good education system. As more Indians travel abroad and witness the low cost and high quality of infrastructure, especially across Asian countries that were once as poor as us, the debate about higher taxes not translating into tangible improvements is bound to intensify in 2025.

It will also focus attention on India's pathetic failure to exploit the outstanding tourism potential of Incredible India that could drive economic growth and create jobs. While countries across Asia and Europe are working on policies to attract Indian tourists, Indian tourist destinations, such as Goa, are suffering from a decline in tourist arrivals due to high costs, poor infrastructure as well as hygiene and safety issues.

Middle Class Concerns

A chorus of complaints is rising among the middle class that higher taxes are not leading to any tangible improvements for citizens. This is likely to be amplified in this year, with a greater demand to reduce the tax burdens on essentials; improve basic amenities like roads, sanitation, water-supply, healthcare, education and public services; make government officials more accountable; and crackdown on corruption.

On the financial front, middle class and affluent investors who surged to the capital market after the COVID pandemic of 2020 may face a new concern. After a relentless rally of five years and a huge revival of initial public offerings (IPOs) the market has turned tumultuous. The bulk of retail investors in today's market have never witnessed a market decline, depend on the government to ensure a stable economic environment with strict enforcement and oversight to prevent corporate malpractices.

In the circumstances, the government's unwillingness to examine allegations of conflict of interest against Madhabi Puri Buch, chairperson of the Securities and Exchange Board of India (SEBI), has cast a shadow over the regulatory process and the independence of the market regulator. It has also enhanced the recurring concern over favouritism and how government policies have disproportionately benefited the Adani group. Both these concerns will spill over into 2025 and continue to make media headlines.

As India steps into 2025, it stands at a crossroads. The aspirations of its 1.4bn people are clear: economic growth that is inclusive and equitable, governance that is transparent and accountable, and infrastructure that matches global standards. Nostalgia for past leadership serves as a reminder of the values of decency, honesty and vision that should guide the nation's future. Whether the government can rise to meet these expectations remains to be seen, but the demand for change is unmistakable.

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गुंतवणुकीचा प्रवाह स्थिर करणारे क्षेत्र

–डॉ. अजित जोशी

शेअर बाजारात गुंतवणूक करताना सर्वांनाच या गुंतवणुकीची गुंतागुंत उलगडायला वेळ आणि कसब असेल, असं सांगता येत नाही. म्हणूनच अशा सल्ल्यांची गणिते जर समजून घेता आली तर मग तो स्वीकारावा का नाही हे आपलं आपल्याला ठरवता येईल. या स्तंभात फक्त एखाद्या कंपनीत गुंतवणूक करण्याचा सल्ला देणे एवढेच उद्दिष्ट नसेल तर या सल्ल्यामागे काय कारण आहेत त्याचा वेध घेतला जाईल.

सध्या शेअरबाजार एका नाजूक सकठड्यावर आहे. गेल्या काही काळात सुमारे १० टक्के घसरण झालेला निर्देशांक सध्या दोन्ही बाजूला हेलकावे खातो आहे. अर्थव्यवस्थेच्या मूलभूत उत्तम स्थितीबद्दल बहुतेकांना खात्री असली, तरी कुंठित आर्थिक प्रगती आणि जागतिक बाजारातील निराशा यामुळे भारतीय बाजार कुठल्या दिशेला जाईल, ते ठामपणे सांगणं कठीण आहे. म्हणूनच असे काही रेशोज किंवा गुणोत्तराचे संच निवडावे, की ज्यात कंपनीची मूलभूत स्थिती मजबूत आहे की नाही हे तपासून पाहता येईल. त्यामुळे भविष्यात बाजाराने मोठे धक्के खाल्ले तरीसुद्धा या कंपनीला तुलनेत मोठा तोटा होणार नाही आणि बाजार वर गेला तर मात्र फायदा होईल.

या दृष्टीने असं पाहिलं, की गेल्या पाच वर्षांत एका शेअरमागे कमावलेलं उत्पन्न हे सरासरी १५ टक्क्यांनी वाढतं आहे का (EPS १५%)? त्याचप्रमाणे नुकत्याच लागलेल्या निकालात आपण गुंतवलेल्या रकमेच्या तुलनेत भागदारांना १५ टक्क्यांहून जास्त फायदा झाला का (ROE १५%)? शिवाय कंपनीचे एकूण कर्ज हे भांडवलाच्या तुलनेत ३० टक्क्यांपेक्षा कमी आहे का (Debt Equity ३०%)? सरते शेवटी एकूण क्षेत्राच्या संदर्भात आपल्या एका समभागापोटी मिळालेल्या उत्पन्नाच्या तुलनेत किंमत पुरेशी वाढलेली नाही असं दिसून येतं का (PE Industry PE)?

मात्र, हे सारे निकष लावत असताना एखाद्या क्षेत्रावर लक्ष देणं हे महत्त्वाचं आहे. त्यादृष्टीने आपण आज एक क्षेत्र घेऊ ट्रान्सफॉर्मर्स. वीज प्रवाहाचे नियमन आणि विजेचे वाटप या दृष्टीने या क्षेत्राचे महत्त्व आहे. त्याच्या या विशिष्ट कामामुळे अर्थातच ऊर्जा आणि त्यासोबत मोठ्या प्रमाणावर सतत ऊर्जा लागते अशा दूरसंचार (टेलिकॉम), खाण, तेल व वायू, संरक्षण, डेटा सेंटर वगैरे वेगवेगळ्या क्षेत्रांमध्ये ट्रान्सफॉर्मर्सची आवश्यकता असते. त्यामुळे मुख्यत्वे सरकारी खर्चासोबतच खासगी क्षेत्रातला खर्चही या उद्योगाला चालना देतो. गेल्या काही वर्षांत भारतात मोठ्या प्रमाणावर होणारी गुंतवणूक ही पायाभूत, दळणवळण वगैरे क्षेत्रांत आणि सरकारी आशीर्वादाने होत असलेली आहे आणि त्यामुळे ट्रान्सफॉर्मर क्षेत्राला घवघवीत नसलं तरी स्थिर आणि वाढतं भविष्य आहे असं म्हणता येईल.

या पार्श्वभूमीवर, या क्षेत्रातल्या काही कंपन्यांचा विचार आपण करू या. सीजी पॉवर अँड इंडस्ट्रियल सोल्युशन्स, एबीबी यासारख्या बड्या कंपन्या या क्षेत्रात आहेतच; पण त्याचबरोबर छोट्या पातळीवर पाहायला गेलं तर सिलचर टेक्नॉलॉजी, व्होल्टॅम्प ट्रान्सफॉर्मर्स, ट्रान्सफॉर्मर्स अँड रेक्टिफायर्स (इंडिया) लिमिटेड (टीआरआयएल) किंवा भारत बिजली अशा कंपन्या दिसून येतात. या प्रत्येक कंपनीत काही ना काही कारणासाठी क्षमता आहे. जोखीम पत्करायची असेल तर समाधानकारक परफॉर्मन्स नसलेल्या आणि त्यामुळे घसरलेल्या भारत बिजलीकडे पाहता येईल.

याउलट टीआरआयएल उत्तम वाढ दाखवलेली असली तरी किंमतही एव्हाना तेवढी चढलेलीच आहे. व्होल्टॅम्प आणि सिलचर या कंपन्यांच्या बाबतीत मात्र आपल्या कामगिरीच्या तुलनेत अजूनही किंमतीला चढायला वाव आहे. त्यातही व्होल्टॅम्पच्या तुलनेत (नफ्यात २४% वाढ) सिलचरची कामगिरी (नफ्यात ३४% वाढ) जास्त उजवी आहे. मात्र गेल्या काही काळात सिलचरच्या किंमतीतही (प्राइस टू अर्निंग्ज अर्थात PE ५९.६३) व्होल्टॅम्पच्या तुलनेत (PE ३३.४) जास्त वाढ दिसलेली आहे.

सगळ्या गोष्टी लक्षात घेता एकूण ट्रान्सफॉर्मर क्षेत्र आणि त्यातही या दोन कंपन्यांचे शेअर्स बाजाराची दिशा स्पष्ट होईपर्यंत घेऊन ठेवण्यास उपयुक्त राहतील. मात्र अजून सावधगिरी बाळगायची असल्यास याच क्षेत्रातल्या मगाशी उल्लेख केलेल्या मोठ्या कंपन्यांकडेही पाहता येईल.

एखाद्या क्षेत्राची कामगिरी आणि गुणोत्तरांचे संच यांच्या आधारे ही माहिती दिली गेली आहे. वाचकांनी गुंतवणूक करण्यापूर्वी अधिक सविस्तर अभ्यास करावा.

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डॉ. जितेंद्रकुमार राठौर

आजच्या जगात, विजेशिवाय जगण्याची कल्पना करणे अशक्य आहे. २००३ च्या वीज कायद्यानुसार प्रत्येकाला वीज उपलब्ध असायला हवी. विकसित राष्ट्राकडे वाटचाल करताना, आम्ही अद्याप शून्य विद्युत अपघात असण्याचे उद्दिष्ट गाठलेले नाही . वीज अदृश्य आहे, ज्यामुळे केवळ निरीक्षणाने चालु लाईन आणि डेड लाईनमध्ये फरक करणे अशक्य होते. अपुऱ्या जागरुकतेमुळे मालमत्तेची हानी, मानवी हानी आणि प्राणी मृत्यू आणि गैर-प्राणघातक विद्युत अपघात होत आहे. अनियोजित आणि अनावधानाने किंवा दोन्ही कारणीभूत असलेल्या घडलेल्या अप्रिय घटनांना अपघात म्हणतात. दुर्घटना अनपेक्षित, अवांछित, आणि कधीकधी अनियंत्रित आहे

नॅशनल क्राईम रेकॉर्ड ब्युरोने असा अहवाल दिला आहे की लोकांच्या विजेचा शॉक लागून होणाऱ्या जीवघेण्या विद्युत अपघातांची संख्या चिंताजनकपणे जास्त आहे आणि वाढत आहे. तपासणीत मानवी त्रुटी, पॉवर युटिलिटीमधील कर्मचाऱ्यांचे विद्युत अपघात कमी करण्यात एचआरएमची भूमिका आणि बाहेरील व्यक्तींना होणाऱ्या अपघातांचे प्रमाण कमी करण्यासाठी योग्य जनजागृती मोहिमेची आवश्यक आहे.

विजेच्या वापरासाठी सुरक्षा मार्गदर्शक तत्त्वे पुन्हा सांगण्याची वेळ आली आहे. ते कशामुळे आवश्यक आहे? कशामुळे संरक्षण आवश्यक आहे? अपघात दर आणि सुरक्षितता यांच्यात असलेल्या व्यस्त संबंधामुळे, अपघातात काय सामील आहे? अपघात सूचित करतो की सुरक्षा प्रोटोकॉलचे पालन केले जात नाही. मनुष्य आणि प्राणी दोघेही या उप-अंतर्दृष्टीमुळे प्रभावित होतात, ज्याचे वर्गीकरण घातक किंवा गैर-घातक म्हणून केले जाते. कंत्राटदार ''आउटसोर्सर'' नियुक्त करतो. अपघात थांबवण्यासाठी आगाऊ कोणती कृती करणे आवश्यक आहे? शिवाय, कसे? कोणत्या कारणास्तव विद्युत सुरक्षा इतकी महत्त्वाची आहे?

मागील अभ्यासाचे विश्लेषण आणि अंतर

औद्योगिक सुरक्षितता आणि अपघातांवर विशेषत: वीज उद्योगातील कामगारांबाबत फारसे संशोधन झालेले नाही, असे साहित्य पुनरावलोकनातून उघड झाल्यानंतर उत्पादन क्षेत्राच्या सध्याच्या सुरक्षा प्रक्रियेद्वारे अनिवार्य सुरक्षा नियम आणि नियम लागू केले जात आहेत. संभाव्य जोखमींचे निरीक्षण करणे आणि कर्मचाऱ्यांचे वर्तन व्यवस्थापित करणे ही त्यांची मुख्य उद्दिष्टे आहेत जेणेकरून सुरक्षा प्रोटोकॉल पाळले जातील.

यांत्रिक आणि औद्योगिक अपघातांच्या सुरक्षिततेबाबत अनेक संशोधकांनी शिफारसी जारी केल्या आहेत. तरीही, खराब व्यवस्थापित विद्युत उपकरणे किंवा पॉवर युटिलिटी इन्फ्रास्ट्रक्चर, तसेच पॉवर युटिलिटीजशी जोडलेल्या अपघातांमुळे बाहेरील अपघातांची कारणे शोधण्यासाठी कोणताही पद्धतशीर अभ्यास केला गेला नाही. ज्यामध्ये निरपराध लोकांनाही अशा विद्युत शॉकच्या घटना कशा घडू शकतात?

HRM आणि अपघात यांच्यातील संबंध पूर्णपणे समजून घेण्यासाठी पुढील अभ्यास आवश्यक आहे. त्याची प्रत्यक्ष अंमलबजावणी किंवा त्यादरम्यान निर्माण होणाऱ्या समस्याही कव्हर केल्या जात नाहीत. अपेक्षित परिणाम देणाऱ्या क्रियेबाबत जेव्हा गृहीतक मांडले जाते, तेव्हा त्याचे नीट स्पष्टीकरण दिले जात नाही. उदाहरणार्थ, व्यापक प्रशिक्षण सुचवले आहे, परंतु मानवी त्रुटी- चुक कशी कमी करावी याबद्दल नाही.

अभ्यास करण्याची कारणे

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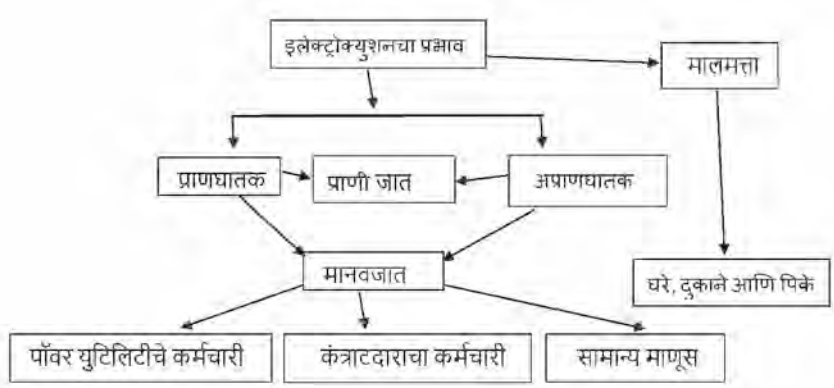

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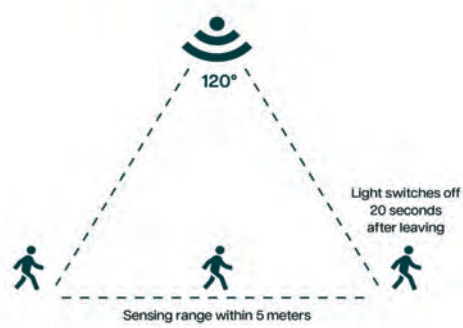

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अभ्यासचे ध्येय

१) शून्य अपघात अनुभवणे.

२) अपघातमुक्त वातावरण निर्माण करण्यासाठी सर्व प्राधिकरणांशी सहकार्य करणे.

३) प्रभावी जनजागृती मोहीम आखणे.

४) अपघाताचे प्रमाण कमी करण्यासाठी सार्वजनिक आणि उपयुक्ततेने केलेल्या प्रतिबंधात्मक आणि दंडात्मक उपायांची तपासणी करणे.

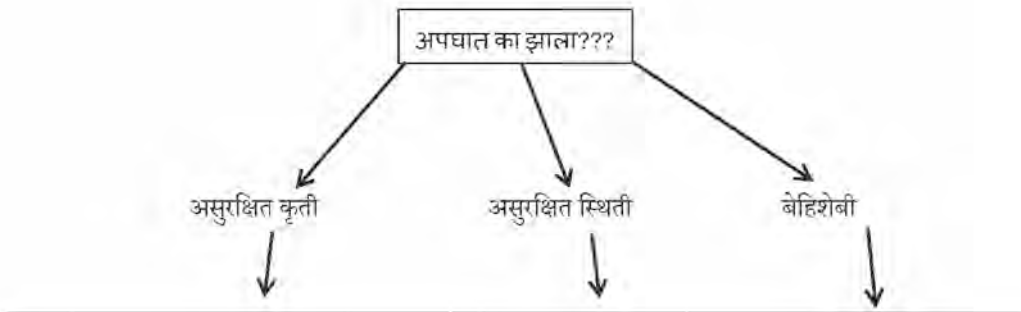
५) घडलेल्या उल्लेखनीय अपघातांची संख्या निश्चित करणे.

६) सुरक्षेची खात्री करताना अपघात टाळण्यास किंवा त्यांची वारंवारता कमी करण्यास मदत करणाऱ्या उपायांसाठी सूचना देणे.

अपघातांची कारणे

अपघातांची कारणे प्रामुख्याने असुरक्षित कृती, असुरक्षित परिस्थीती असतात आणि बेहिशेबी.

पुढील स्पष्टीकरण खालीलप्रमाणे वर्गीकृत केले आहेत.



असुरक्षित सराव	सूचना/मार्गदर्शक नाही	भूकंप
निष्काळजीपणा	ज्ञानाचा/ कौशल्याचा अभाव	वादळ
अतिआत्मविश्वास	PPE/सुरक्षा साधनांचा अभाव	पूर
घाईघाईने अनियोजित काम	सदोष उपकरणे	नैसर्गिक आपत्ती

(चित्र: अपघाताची कारणे)

अपघातांचा आढावा

अपघातांचा सखोल आढावा घेतल्यास पुढील गोष्टी समोर येतात. प्रत्येक अपघातामागे सुरक्षा नियमांचे उल्लंघन, विद्युत काम हाताळणाऱ्या अनधिकृत व्यक्ती, विहित सुरक्षा उपकरणे न वापरणे आणि योग्य स्पष्ट सूचना न मिळणे, चुकीच्या/अस्पष्ट सूचनांचा मुद्दा आहे.अतिआत्मविश्वास आणि अज्ञान दोन्ही घातक आहेत. वीज वाहिन्यांच्या दुहेरी फीडिंग व्यवस्थेकडे दुर्लक्ष करणे. प्रत्येक ठिकाणी अपघाताला कारणीभूत ठरणारे एक वेगळे कारण असल्याने, कोणतीही दोन ठिकाणे समान उपाय वापरू शकत नाहीत. काही बाबतीत, वर्तनाचा अभ्यास– आणि गरजेवर आधारित सुरक्षा प्रशिक्षण फायदेशीर ठरेल. अपघातांची प्राथमिक कारणे असुरक्षित वर्तन, धोकादायक परिस्थिती आणि वादळ, भूकंप, पूर इत्यादीसारख्या अनियंत्रित घटना आहेत. अतिआत्मविश्वास, अव्यवस्थित काम, निष्काळजीपणा आणि सुरक्षित कार्यपद्धतीचा अवमान ही असुरक्षित कृतीची वैशिष्ट्ये आहेत. असुरक्षित परिस्थितींमध्ये सदोष उपकरणे, ज्ञान किंवा अनुभवाचा अभाव, धोकादायक उपकरणे, सुरक्षा पुरवठ्याची कमतरता आणि कार्य सूचनांचा अभाव यासारख्या गोष्टींचा समावेश होतो. दस्तऐवजांमध्ये कंत्राटदारांना कामावर ठेवण्यासाठी काही विशिष्ट सुरक्षा आवश्यकतांची माहिती पाहिजे, आउटसोर्सिंगसाठी ऑपरेटर किंवा कामगार नियुक्त करताना, असुरक्षित अटींचे पालन केले पाहिजे. सर्वोत्तम कर्मचारी ते आहेत ज्यांना प्रशिक्षण आणि कौशल्य प्राप्त झाले आहे. विद्युत निरीक्षकांनी अधिकृतता दिली पाहिजे. सामान्य बाहेरील लोकांच्या अपघाताच्या कारणांमध्ये ओव्हरहेड पॉवर लाईन्सच्या खाली केलेले काम किंवा अनधिकृत इमारत जोडणे– बांधणे यांचा समावेश होतो. सुरक्षेसाठी ओव्हरहेड कंडक्टरमध्ये पाईप्स बसवले जातात हा जीवघेना अतिआत्मविश्वास असतो. ओव्हरहेड लाईन शिफ्ट करण्यास सक्षम नाही. जागेचे निरीक्षण न करता बिल्डरला एनओसी जारी केली जाते. कृषी प्रतिष्ठान वैशिष्ट्यपूर्ण नाहीत. सदोष असलेले स्टार्टर वापरले जातात आणि जमिनीवर ठेवले जातात. सुचविलेल्या मार्गदर्शक तत्त्वानुसार, डमी लाइन वेगळे ठेवणे आवश्यक आहे. ग्राहकांच्या स्थापनेतील दोष आणि विद्युत संरचनेतील खर्चात कपात करणे, जंगली प्राण्यांना दूर ठेवण्यासाठी शेतांभोवती बांधलेल्या कुंपणाला अनधिकृत वीज पुरवठ्याची उदाहरणे आहेत.

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शेतीमध्ये स्टार्टर जमिनीवर ठेवला जातो.

अपघातांचे विश्लेषण

विविध अपघातांचे बारकाईने परीक्षण करून आणि त्यातील काही अपघातांची बारकाईने तपासणी करून वेळीच साधी खबरदारी घेतली असती तर काही अपघात टाळता आले असते, असे आढळून आले आहे. खाली सूचीबद्ध केलेली खबरदारी उपयुक्त आणि मुख्यतः उपयुक्त आहे. अभ्यासाने खालील भयावह निष्कर्ष काढले. शिवाय, विद्युत कामाच्या जवळ काम करताना योग्य ती खबरदारी न घेतल्याने सामान्य लोक विद्युत अपघातात सामील झाले आहेत. इलेक्ट्रिकल इंस्टॉलेशनच्या जवळ काम करण्याची परिस्थिती हाताळताना, एखाद्याला विजेच्या तीव्रतेची जाणीव नसते किंवा चुकीचे ज्ञान असू शकते.

असे आढळून आले आहे की ग्राहकांना AFDD, RCCB, आणि ELCB सारख्या ट्रिपिंग सर्किट्सच्या वापराबाबत जागरूक केल्यास अपघात कमी होऊ शकतात. इलेक्ट्रिकल इंस्टॉलेशन्सजवळ काम करताना, युटिलिटी आणि इतर स्थानिक विभागांमधील समन्वय आवश्यक आहे. सुरक्षिततेबाबत कधीही तडजोड होता कामा नये; सर्व स्थानिक विभागांनी सामान्य सुरक्षा नियम आणि नियमांचा अवलंब करणे आणि त्यांचे पालन करणे आवश्यक आहे.

मार्गदर्शक सल्ला आणि सूचना

आउटसोर्स कामगारांसाठी रोटेशन शेड्यूल लागू करणे आवश्यक आहे कारण कमी पगारामुळे अप्रामाणिक वर्तन होते. कंपनीतून काढून टाकल्यानंतर काहि गुप्तपणे आणि माहितीशिवाय इलेक्ट्रिकल नेटवर्क बदलतात. कोणत्याही अनधिकृत बांधकामाला कायदेशीररीत्या पुरेशी नोटीस पाठवली जाणे आवश्यक आहे.

सावध जनजागृती मोहिमांना सर्वोच्च प्राधान्य देणे अत्यावश्यक आहे. लोक आणि कर्मचारी या दोघांच्याही विचारांमध्ये भिती खोलवर रुजलेला असावा, ज्यामध्ये असुरक्षित काम विरोधात घेतलेल्या कठोर उपाययोजना आणि असुरक्षित कामाच्या परिस्थितींविरुद्ध घेतलेल्या भूमिकांवर लक्ष केंद्रित केले पाहिजे. ओव्हरहेड लाईन्सवर काम करताना कामगारांसाठी डिस्चार्ज रॉड आवश्यक आहेत. जर कामगार सुरक्षितता साधने वापरत नसतील तर, सिस्टम लॉक करण्याचा मार्ग तयार करणे आवश्यक आहे. आउटसोर्सिंग साठी सुरक्षा साधने कसे प्रदान केले जावे हे स्पष्ट नाही. कामगारांनी आवश्यक प्रशिक्षण पूर्ण करण्यापूर्वी त्यांना करारबद्ध केले जाऊ शकत नाही.

सुरक्षित संस्कृतीसाठी ही सर्वांची जबाबदारी आहे आणि प्रत्येकाने प्रत्येक क्षणी सुरक्षिततेची काळजी घेतली पाहिजे. प्रशासनाने सुरक्षिततेसाठी नियोजन करावे. सुरक्षा अधिकाऱ्याने सुरक्षेच्या तरतुदी केल्या आहेत. पर्यवेक्षकाने सुरक्षेसाठी तयारी केली आहे आणि युनियन नेत्याने सुरक्षेच्या संरक्षणाबद्दल बोलले पाहिजे आणि फ्रंटलाइन कामगार किंवा काम करणाऱ्या व्यक्तीने केवळ सुरक्षिततेसाठी सरावाचे पालन केले पाहिजे.

सर्वसमावेशक सुरक्षित कार्य प्रक्रियेसाठी यंत्रणा विकसित करणे आवश्यक आहे. अपघात प्रकरणांच्या तपासणी आणि विश्लेषणामुळे असा निष्कर्ष निघाला आहे की, विहित कार्यपद्धती न पाळल्यास अपघातांवर आमचे नियंत्रण नसते. या परिस्थितीत, कृतीचा सर्वोत्तम मार्ग कोणता असेल?

कामकाजाच्या प्रक्रियेमध्ये चुकीच्या पद्धती लागू केल्या गेल्या आहेत, म्हणजे, उंचीवर काम करण्यासाठी सुरक्षा पट्टा किंवा सुरक्षा झोलाचा वापर केला जात नाही. सहकारी काम करणाऱ्या भागीदारांकडे लक्ष देत नाहीत

अपघात टाळता येतात आणि त्यावर नियंत्रण ठेवता येते. ज्या अनपेक्षित घटनांचे नियोजन केले नव्हते त्यामुळे विद्युत अपघात होऊ शकतात. तांत्रिक त्रुटी सहजपणे दूर केल्या जातात आणि पुनरावृत्ती टाळता येते. असे असले तरी, मानवी चुका-संबंधित दुर्घटना आणि मानवतेच्या समतोल नसलेल्या भावना केवळ सकारात्मक वातावरण वाढवून आणि सकारात्मक दृष्टीकोन स्वीकारून सुधारल्या जाऊ शकतात. शॉर्टकट आणि चुकीच्या पद्धतींमुळे अपघातात वाढ होते.

कंपनीतील प्रत्येक कर्मचाऱ्याने सुरक्षित आणि उत्पादक कामाचे वातावरण तयार करण्यासाठी सक्रियपणे भाग घेणे आवश्यक आहे आणि व्यवस्थापनाने या प्रयत्नांना संपूर्णपणे समर्थन देणे आवश्यक आहे. हे आपल्या प्रत्येकाचे कर्तव्य आहे. सर्वसमावेशक अपघात प्रतिबंधक कार्यक्रमाची अंमलबजावणी करणे ज्यामध्ये बाहेरील व्यक्तींचा सल्ला, सुरक्षित वीज वापर आणि सुरक्षितता मार्गदर्शक तत्त्वे समाविष्ट आहेत. सुरक्षिततेच्या बाबतीत, स्थानिक सरकार आणि पॉवर युटिलिटी कंपनी एकत्र काम करणे आवश्यक आहे.

अपघात टाळण्यासाठी आवश्यक पद्धतींचा अवलंब करावा.

अपघात रोखणे आणि नियंत्रण करणे शक्य आहे. विद्युत अपघात ही एक अनपेक्षित परिस्थिती आहे अपघाताचे स्वरूप त्याच्या स्थानानुसार बदलू शकते. अपघात रोखणे आवश्यक आहे. प्रत्येकाने स्वतःच्या सुरक्षेची जबाबदारी घेतली आणि योग्य नियोजन केले तर समाजातील सामाजिक, आर्थिक, कायदेशीर आणि मानवी पैलूंवर होणारे नकारात्मक परिणाम किंवा कमी दूर होतील. त्यांच्या अननुभवामुळे, तरुण कामगार त्यांच्या कामात बेपर्वाई आणि अतिआत्मविश्वास दाखवतात. त्यांचा असा विश्वास आहे की त्यांच्या अनुभवाला संरक्षणाची आवश्यकता नाही.

प्रतिबंधात्मक उपाय करून विद्युत शॉक टाळा.

धोके दूर करण्याला प्राधान्य देऊन, सुरक्षित बाजूने जाणे, आणि नंतर घडल्यानंतर लगेचच दोषपूर्ण विभाग वेगळे करण्यासाठी तंत्रज्ञानाचा वापर करून विद्युत शॉकमुळे होणारे अपघात टाळले जातात. संस्थात्मक निर्णय आता आवश्यक आहेत कारण आम्हाला माहित आहे की व्यक्तींचे रक्षण करण्यासाठी स्व-संरक्षण हा शेवटचा पर्याय आहे. सर्वोच्च प्राधान्य क्रमांक ५ निर्मूलन ते सर्वात कमी प्राधान्य क्रमांक १ स्व-संरक्षणासाठी साधने पर्यंत कमी होते.

निर्मूलन: धोकादायक असुरक्षित परिस्थितीचे त्वरित उच्चाटन.

स्विचिंग: शक्य तितक्या सुरक्षित स्थानांसाठी असुरक्षित परिस्थितीची देवाणघेवाण करा.

तांत्रिक व्यवस्थापन: बिघाड होताच फीडर ट्रिप करण्यासाठी, संवेदनशील संरक्षण यंत्रणा आणि कार्यक्षम अर्थिंग आवश्यक आहे.

प्रशासकीय व्यवस्थापन: निर्णायक कृती म्हणजे व्यवस्थापन आणि पर्यवेक्षणाने कोणताही विलंब न करता घेतलेल्या कृती.

स्व-संरक्षणासाठी साधने: विद्युत लाईन्स आणि उपकरणांच्या जवळ काम करणाऱ्या कोणीही आवश्यक आहेत

वैयक्तिक संरक्षणात्मक उपकरणे घालणे.

सुरक्षेबाबत उपकरणे/तंत्रज्ञानाकडे पाहण्याचा समग्र दृष्टीकोन खालील आकृतीत वर्णन केला आहे. हे सिद्ध होते की तांत्रिक तपशील, उपकरणांची देखभाल आणि स्थापना यामुळे तांत्रिक संरक्षण होते. खालील तक्त्यामध्ये नमूद केल्यानुसार खबरदारी घेतली गेली तर नक्कीच आपण विद्युत अपघात कमी करू शकतो.

अपघात टाळण्यासाठी खबरदारीचे उपाय करण्यासाठी सुरक्षा टेबल.

१) काम पूर्ण होण्यापूर्वी पडताळणी

२) कामाशी संबंधित सुरक्षा उपकरणांची उपलब्धता

३) ऑपरेशन्ससाठी सुरक्षित पद्धती

४) पुरेशी लॉकिंग यंत्रणा

५) प्रशिक्षण पुनरावृत्ती

६) योग्य प्रकारची सुरक्षा उपकरणे.

७) कोणतेही काम सुरू करण्यापूर्वी, मग ते आणीबाणीचे असो

वा पूर्ण आराखडा दुरुस्ती, विभागीय किंवा बाह्य कर्मचारी.

८) लहान त्रुटी त्वरित दुरुस्त करा.

९) कडक सूचना

१०) सुरक्षा उपकरणे वापरणे

११) सुरक्षेचे पालन न करणाऱ्यांवर कारवाई

१२) डिफॉल्टरची नावे प्रसिद्ध केली आहेत

१३) जे सुरक्षितपणे काम करतात त्यांना पुरस्कृत - कौतुक करा.

१४) शक्तिशाली जागरूकता तंत्र

विद्युत शॉकमुळे झालेल्या अपघाताचा थेट संबंध कंपनीच्या सार्वजनिक प्रतिमेशी आहे. अपघात कमी झाल्यास कंपनीची प्रतिमा सुधारेल. सार्वजनिक प्रतिमा म्हणजे संपूर्ण विश्वास, आत्मविश्वास, समज आणि आपुलकीची भावना. सार्वजनिक प्रतिमा बाजारात हस्तांतरित होऊ शकत नाही आणि खरेदी-पाठलाग करू शकत नाही. संस्थेला हा अमूर्त फायदा आहे. सेवा क्षेत्रातील उद्योगाच्या क्षेत्रात, सार्वजनिक प्रतिमा प्रतिष्ठित असणे आवश्यक आहे. कंपनीने पुरवलेल्या सेवा ग्राहकांच्या गरजेनुसार आणि इच्छेनुसार असतात. प्रभावी जागरूकता आणि अधिक माहिती तळाच्या पातळीपर्यंत अपघातांवर नियंत्रण ठेवू शकते आणि यामुळे इलेक्ट्रिक शॉर्ट सर्किट आणि आग देखील नियंत्रित होऊ शकते. हे ''ब्लेम कल्चर ते सेफ कल्चर'' कडे दृष्टिकोन हस्तांतरित करण्यात मदत करते.

लेखकाचा परिचय

डॉ जितेंद्रकुमार राठौर – त्यांनी पीएचडी (व्यवस्थापन अभ्यास), बीई (इलेक्ट्रॉनिक्स आणि टेलिकम्युनिकेशन), एलएलबी, एमबीए (मानव संसाधन व्यवस्थापन), ईएमबीए (ग्राहक संबंध व्यवस्थापन), पीजीडीएम (ऊर्जा व्यवस्थापन), सर्टिफाइड एनर्जी मैनेजर पूर्ण केले आहेत.

ऊर्जा संवर्धन आणि व्यवस्थापनातील उत्कृष्ट आणि बेंचमार्किंग कार्यासाठी महाराष्ट्र सरकारच्या महाऊर्जा तर्फे त्यांना चार वेळा राज्यस्तरीय पुरस्काराने सन्मानित करण्यात आले आहे. विविध पुरस्कारांनी त्यांचे कौतुक झाले आहे.त्यांनी ३०० हून अधिक प्राणघातक आणि अप्राणघातक विद्युत अपघातांचा तपास केला आहे. त्यांनी विविध प्लॅटफॉर्मवर सुरक्षा जागरूकता पसरवण्यासाठी २०० हून अधिक कार्यशाळा आयोजित केल्या आहेत. त्यांनी विविध सबस्टेशन आणि इलेक्ट्रिकल इन्फ्रास्ट्रक्चरचे सेफ्टी ऑडिट केले आहे. त्यांनी ऊर्जा क्षेत्रातील समस्यांवर विविध राष्ट्रीय आणि आंतरराष्ट्रीय परिषदांमध्ये त्यांचे संशोधन पेपर सादर केले आहेत. कोविड लॉकडाऊन दरम्यान त्यांनी स्टेस मॅनेजमेंट आणि आनंदी जीवनाचा आनंद कसा घ्यावा यावर अनेक ऑनलाइन सत्रे आयोजित केली आहेत. सध्या अतिरिक्त कार्यकारी अभियंता, प्रमुख सुरक्षा व्यवस्थापन संघ नाशिक, प्रशिक्षण आणि सुरक्षा, महावितरण, नाशिक म्हणून कार्यरत आहेत.

तुम्ही माझ्याशी संपर्क साधू शकता:

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NTPC announces results for 1,200 MW wind-solar hybrid auction

NTPC Limited has announced the results of its auction for 1,200 MW of inter-state transmission system-connected wind-solar hybrid power projects (Hybrid 02), with an additional greenshoe option of up to 600 MW.

JSP Green (Jindal Renewables) secured 350 MW at a tariff of Rs 3.38 per kWh. Adyant Enersol (Datta Infra), Green Prairie Energy IV (EverGreen Power), and AMPIN Energy Utility were awarded 150 MW, 200 MW, and 150 MW, respectively, at a tariff of Rs 3.44 per kWh. Adani Renewable Energy Holding Twelve (Adani Green) won 350 MW at Rs 3.44 per kWh under the bucket-filling method. The tender, floated in August 2024, stipulated a minimum project size of 50 MW with increments in multiples of 10 MW thereafter. The maximum capacity allotted to a single bidder was capped at 600 MW, excluding the greenshoe option.

Power Mech Projects secures Rs 2.94 billion contract for Korba thermal project from APL

Power Mech Projects Limited has secured a Rs 2.94 billion contract from Adani Power Limited (APL) for the overhauling and performance guarantee testing of steam generators, steam turbine generators, and their auxiliaries at the 2×660 MW Korba Phase-II thermal power project.

The scope of work includes overhauling services, condition assessment, erection, testing, commissioning, and manpower support for performance guarantee testing. The project will be executed in two phases. Additionally, the contract includes an incentive of Rs 12.5 million per unit for achieving timely synchronisation.

सापत्नतेमुळे बेरोजगार विद्युत अभियंते त्रस्त

मागण्यांकडे दुर्लक्ष; न्यायालयात जाण्याचा इशारा

सु. बे. स्थापत्य अभियंत्यांना तीन कोटी रुपयांची विनानिविदा कामे देण्याचा निर्णय घेतला आहे. मात्र, विद्युत अभियंत्यांना या सवलतीमधून वगळले आहे. स्थापत्यप्रमाणे सर्व सवलती २५०० विद्युत अभियंत्यांना मिळाव्यात, अशी आमची मागणी आहे. न्यायासाठी न्यायालयातही जाणार आहोत.

– गणेश ढोकळे पाटील, अध्यक्ष, महाराष्ट्र इलेक्ट्रिक इंजिनीअर्स असोसिएशन

नवी मुंबई : राज्यातील सुशिक्षित बेरोजगार (सु.बे.) स्थापत्य अभियंत्यांना शासनाकडून झुकते माप दिले जात आहे. त्यांच्यावर सवलतींचा वर्षाव केला जात आहे. दुसरीकडे सु. बे. विद्युत अभियंत्यांना सावत्र वागणूक दिली जात असून, त्यांच्या मागण्यांकडे सातत्याने दुर्लक्ष केले जात असल्याने त्यांनी न्यायालयात जाऊन दाद मागण्याचा इशारा दिला आहे. राज्यातील बेरोजगार अभियंत्यांची संख्याही दिवसेंदिवस वाढत चालली आहे. परिश्रम करून अभियांत्रिकी पदवी मिळविलेल्या अनेकांना नोकरी मिळत नाही. सद्यःस्थितीमध्ये राज्यात २५०० पेक्षा जास्त सु. बे. विद्युत अभियंते आहेत. ते छोटी-मोठी कंत्राटे मिळवून स्वयंरोजगार मिळवत आहेत. त्यांना शासनाने सवलत द्यावी यासाठी महाराष्ट्र इलेक्ट्रिकल इंजिनीअर्स असोसिएशनचे अध्यक्ष गणेश ढोकळे पाटील यांनी वेळोवेळी पत्रव्यवहार केला आहे.

शासनाने स्थापत्य अभियंत्यांना दीड कोटीची नोंदणी मर्यादा निश्चित केली आहे. परंतु, विद्युत अभियंत्यांना २५ लाख एवढीच नोंदणी मर्यादा आहे. स्थापत्य अभियंत्यांना विनानिविदा ३ कोटींची कामे घेता येतात; तर विद्युत अभियंत्यांना अवघी ५० लाखांपर्यंतच कामे घेता येतात. विद्युत अभियंत्यांनाही स्थापत्य प्रमाणे सवलती द्याव्यात, अशी संघटनेची मागणी आहे. शासनाने सार्वजनिक बांधकाम विभागातील विद्युत मुख्य अभियंता हे पद रद्द करून सर्व विभाग स्थापत्यच्या अधिपत्याखाली आणला आहे.

स्थापत्य व विद्युत अभियंत्यांच्या सवलतीमधील फरक

विषय	स्थापत्य सवलत	विद्युत सवलत	विद्युतची मागणी
नोंदणी	१.५ कोटी	२५ लाख	१.५ कोटी
विना स्पर्धा कामे	३ कोटी	५० लाख	३ कोटी
स्वतंत्र कामे	३० लाख	१० लाख	३० लाख

Root Cause Analysis of Electrocution & Electrical Fire

Nowadays, modern society is highly dependent on electrical power supply. To live & make our life comfortable, we use number of appliances/gadgets at our residence/office. Every day we get up with the news of electrocution or electrical fires in residential or commercial buildings or public location or distribution transformer or substation. This forces us to ponder over the reasons or causes of such accidents that lead to loss of lives as well as assets or properties. This article provides root cause analysis of different reasons of electrocution or fire hazards for all locations...

Today's modern society is highly dependent on electrical power supply. To live & make our life comfortable, we use number of appliances or gadgets at our residence or office.

Electrocution, Electrical fire and Lightning kill 15,000 people a year. Also, 75,000 (approx.) people suffer because of these deaths as there is loss of property and assets, dreams of many people associated with deceased shatter.

Around 1 lakh people died due to electrocution in the last decade, as per NCRB data (please refer table 1).

Table 1: NCRB Data of Deaths Due to Lightning Electrocution and SC Fire 2020-222

NCRB Death Data (Lightin, Electrocution & Fire Due to Short Circuit)						
Discription	**2020**	**2021**	**2022**	**% of Total (2020,21,22)**		
Total Death	374397	297530	430504	100	100	100
Lighting	2862	2880	2887	0.76	0.72	0.67
Electrocution	13446	12529	12918	3.59	3.15	3.00
Fire Due Elect SC	1943	1808	1567	0.52	0.45	0.36


HOLIDAY DREAM TURNS INTO A NIGHTMARE

Photos: Rajesh Mehta

THE VICTIM

Sakshi Ahuja (35), a teacher at Lovely Public School, Laxmi Nagar; she also an architect, as per her family

➢ She is survived by her two kids, aged 7 and 9 years, and husband, who is an engineer in a Japanese firm

WHAT HAPPENED

➢ Sakshi, her children and sister reach New Delhi Railway Station at 5.30am on Sunday to catch Vande Bharat Express

➢ Initial probe suggests that Sakshi grabbed the pole to avoid going in water and got electrocuted

➢ Family said there was waterlogging on the station premises and as soon as she stepped in a puddle, she got electrocuted

➢ As soon as the cops were informed, a team was rushed to the spot where Sakshi was found lying unconscious

➢ She was taken to hospital by her family members and drivers, was declared dead on arrival

➢ A case has been registered under IPC sections of causing death due to negligence (304A) and negligent conduct pertaining to machinery (287)

➢ Notices will be sent to officials of the maintenance department of New Delhi Railway Station to join the investigation into the incident

New Delhi Railway Station

Sakshi's family members

WHO IS RESPONSIBLE

Railways says | Leak of current from the cable to the pole due to insulation failure

Police say | A few wires were protruding out from the electric pole when the incident took place

Fig. 1: Electrocution and Electrical Fire Accidents...

The news of electric shock or electric fire killing people gives pain and forces everyone to find the solution, but in a day or two we again forget and wait for another accident to happen. (Refer figure 1).

There are too many tales that different parts of the country have to tell each day without fail (many cases are even not reported or recorded).

Keeping the figure for the injured aside, the numbers for the electrocution deaths in the country tell a story of their own. According to the National Crime Records Bureau, around one lakh people lost their lives because of electrocution in the last decade alone. The annual average of fatalities rose to 12,500 per year or 30 fatalities every day.

Calling the 30 electrocution deaths per day in India 'accidents' is something that is not justified as it tends to insulate all stake holder from accountabilities.

Main Causes of Electrocution & Electrical Fire Hazard

Electrocution & Electrical Fires in an Electrical Installation may be broadly caused by:

- Over currents (overloads and short circuits)
- Harmonics
- Earth fault
- Electric arcs in cables and loose Connections
- Failure of protection device or Wrong selection of protection device

- Wrong selection of cables or wires
- Mismatch of illumination fittings rating and lamps used
- Use of extension cord for heaters or any other heavy loads
- Use of outlived (outdated) or damaged equipment
- Over voltages (Lightning) & arcing ground
- Consumer has become prosumer
- Inadequate design for earthing or grounding
- Improper or No verification and testing (commissioning or periodical)

Role of Adequate Earthing or Grounding

Grounding or earthing means making a connection to the general mass of earth. The use of grounding is so widespread in an electric system that at practically every point in the system, from the generators to the consumers' equipment, earth connections are made.

There are two types grounding (Refer figure 2):

- Neutral Grounding
- General (Equipment) Grounding

The objectives of General Grounding system include:

- To provide a low resistance return path for fault current, which further protects both working staff and equipment installed in the premises (Refer figure 3).
- To prevent dangerous GPR with respect to remote ground during fault condition.
- To provide a low resistance path for power system transients such as lightning and over voltages in the system.
- To provide uniform potential bonding /zone of conductive objects within substation to the grounding system to avoid development of any dangerous potential between objects (and earth).
- To prevent building up of electrostatic charge and discharge within the substation, which may result in sparks.
- To allow sufficient current to flow safely for satisfactory operation of protection system.

The main objective of grounding electrical systems is to provide a suitably low resistance path for the discharge of fault current, which ultimately provides safety to working personnel and costly installed equipment by providing sufficient current to safety devices.

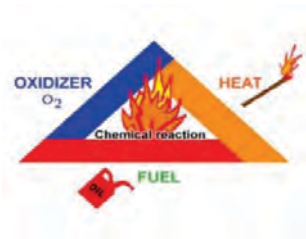
Basic of Short Circuit in the Electrical System

Electrical fires very often take place in residential sector. This is because most of the people do not account for the rating of the appliances while placing or connecting them. Being an individual, most of us are not aware about the parameters we need to consider while purchasing the product. The only thing that people look for is the cost effectiveness, which in turn leads to extreme situation resulting in electrical fires. Major reason for electrical fire in LV system is Short Ciurciting i.e., flowing of current through unintended path.

A short circuit is an abnormal connection between two nodes of an electric circuit intended to be at different voltages. This results in an electric current limited only by the equivalent resistance of the rest of the network, which can cause circuit damage, overheating, fire or explosion This high current generates high heat and presence of fuel or any other flammable materials may result in the fire hazard as governed by fire triangle

Fig. 5: Fire Triangle… Fig. 6: Fire Due to Insulation Failure…

Short circuit happens mainly due to degradation of



insulation. As the wire gets old, the insulation gets degraded, due to which there is a chance of short circuiting (figure 6) & this may lead to fire.

Main Causes of Electrocution and Electrical Fire – Different Locations

Electrocution and fire hazards pose significant risks to individuals and properties in various settings, including homes, commercial buildings, public places, public processions and substations. These hazards can result in devastating consequences, including loss of life, injuries, and extensive property damage. Understanding the causes behind these incidents is crucial for implementing preventive measures and ensuring safety in these environments. In this section, we will explore the primary causes of electrocution and fire in each of these settings.

Electrical Safety at Home & Commercial Shops

Electricity is not something to play around with – negligence and carelessness lead to both electrocution and fire at our homes. Homes are where individuals spend a significant portion of their time, making them susceptible to electrical hazards if proper precautions are not taken.

Commercial buildings house various electrical systems to support operations, making them susceptible to electrical hazards if not adequately maintained. Several factors that contribute to the risk of electrocution and fire in residential as well as commercial places are given the table 2 below:

Electrical Safety at Public Gathering & Processions

Public processions and gatherings hold significant cultural, religious, and social importance in India, often involving large crowds congregating on streets. However, amidst the fervor and celebration, safety concerns often take a backseat, leading to tragic incidents like electrocution & fire.

Causes of Electrocution

- **Improper Wiring:** Inadequate or faulty wiring setups are common during public events due to hasty installations or lack of expertise. These setups may include temporary electrical connections that are not insulated properly, increasing the likelihood of

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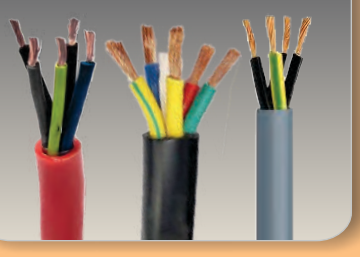

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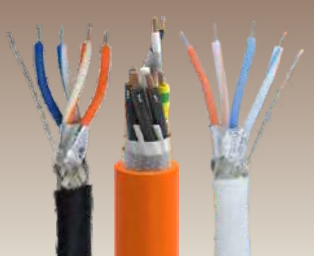

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electrocution if they come into contact with water or damp surfaces.

- **Overloaded Circuits:** The demand for electricity surges during festivals and processions due to extensive lighting arrangements, sound systems, and other electrical paraphernalia. Overloading circuits beyond their capacity raises the risk of short circuits and subsequent electrocution hazards.
- **Poor Maintenance:** Existing electrical infrastructure often receives minimal maintenance, exacerbating risks during public gatherings. Aging cables, corroded connections, and neglected equipment pose significant threats when subjected to the additional strain of large-scale events.
- **Unauthorized Installations:** In the rush to set up for festivities, unauthorized installations by unqualified personnel are common. These makeshift arrangements bypass safety protocols, heightening the probability of accidents such as electrocution.
- **High-Tension Wires:** High-tension wires, also known as high-voltage power lines, carry electricity over long distances at high voltages. These wires are typically installed on tall transmission towers or poles to ensure clearance from the ground and surrounding structures. However, during public processions, temporary structures such as stages, pandals (decorative tents), or banners may inadvertently come into contact with these wires, leading to catastrophic consequences. (Refer figure 9)

Causes of Electrocution Due to High-Tension Wires

- **Inadequate Clearance:** Temporary structures erected for public processions often lack proper planning and supervision, resulting in insufficient clearance between the structures and overhead high-tension wires. Failure to maintain adequate distance increases the risk of accidental contact, especially when structures sway due to wind or crowd movement.
- **Ignorance and Negligence:** Organizers and participants may lack awareness about the dangers posed by high-tension wires or fail to recognize the potential hazards associated with erecting structures near them. Ignorance coupled with negligence in adhering to safety guidelines exacerbates the risk of

electrocution incidents.

- **Lack of Coordination:** Coordination between event organizers, local authorities, and power distribution companies is often inadequate, leading to haphazard planning and implementation of safety measures. Failure to coordinate activities such as route planning, structure placement, and crowd management increases the likelihood of accidents involving high-tension wires.
- **Encroachment and Unauthorized Construction:** Encroachment on public spaces and unauthorized construction near high-tension wire corridors is a common phenomenon in many Indian cities and towns. Informal settlements, temporary shelters, and makeshift structures often encroach upon the safety buffer zones around high-tension wires, heightening the risk of electrocution during public processions.

Electrocution due to contact with high-tension wires during public processions represents a preventable tragedy that underscores the need for concerted action and collective responsibility. By raising awareness, enforcing regulations, conducting pre-event inspections, integrating safety into structural planning, and enhancing emergency response preparedness, India can mitigate the risks associated with high-tension wires and ensure the safety and well-being of its citizens during festive celebrations. Only proactive measures and collaborative efforts can help in getting rid of danger of electrocution from India's public gatherings, allowing communities to celebrate their cultural heritage in safety and solidarity.

Electrical Safety at Industrial Location, Generating Station & Substations

Industries, generating station and substations are critical components of electrical networks, but they also pose significant risks if safety measures are not strictly enforced (Refer figure 10). Causes of electrocution and fire in substations include:

- **High Voltage Exposure:** Industries & substations contain high-voltage equipment that poses a severe risk of electrocution to untrained personnel or trespassers who come into contact with live components.
- **Equipment Failure:** Malfunctions or breakdowns of transformers, circuit breakers, and other substation equipment can result in electrical arcs, sparks, and fires.
- **Lack of Proper Enclosure:** Unprotected or poorly enclosed panels or substations may expose electrical components to environmental factors such as moisture, debris, and wildlife, increasing the risk of failures and fires.
- **Inadequate Security Measures:** Substations that lack sufficient security measures are vulnerable to unauthorized access, which can lead to tampering, theft, or vandalism that compromises safety.
- **Insufficient Training:** Workers at factories or substations must receive comprehensive training on electrical safety protocols and emergency procedures to mitigate risks effectively.

Seven Golden Rules to ensure safety for industrial locations and substation or generating station are given below in the table 3.

Electrocution and Fire Hazards Due to Contact with Overhead Power Lines or Snapping & Failure of Distribution Transformer

India's rapid urbanization and industrialization have led to an exponential increase in demand for electricity. As a result, the country has witnessed a significant expansion in its power network infrastructure, including overhead power lines and distribution transformers. However, this growth comes with inherent risks, particularly concerning electrocution and fire hazards due to the snapping of overhead power lines and malfunctioning distribution transformers.

To be continued...

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विश्लेषण : औष्णिक विद्युत प्रकल्पातील राख व्यवस्थापनाचा मुद्दा चर्चेत का आला?

महानिर्मितीच्या परळी औष्णिक विद्युत केंद्रातून निघणाऱ्या राखेतून चालणाऱ्या कोट्यवधींच्या अर्थकारणावरून तेथे अनेक माफिया तयार झाले आहेत.

राज्यात महानिर्मितीच्या प्रकल्पांची निर्मिती क्षमता किती?

महानिर्मितीचे राज्यातील कोराडी, खापरखेडा, चंद्रपूर, नाशिक, भुसावळ, परळी, पारस येथे एकूण सात औष्णिक वीजनिर्मिती प्रकल्प आहेत. तर राज्यातील विविध भागांत जलविद्युत, सौरऊर्जा, वायू, गॅसवर आधारित प्रकल्पही आहेत. महानिर्मितीची स्थापित वीजनिर्मिती क्षमता १३,२२०.०२ मेगावॉट आहे. यामध्ये औष्णिक वीजनिर्मिती प्रकल्पातील विद्युात निर्मिती जवळपास ७२ टक्के म्हणजे ९५४० मेगावॉट आहे. येथे कोळशाद्वारे वीज तयार केली जाते.

प्रकल्पनिहाय कोळशाचा वापर किती?

महानिर्मितीच्या कोराडी प्रकल्पात २१० मेगावॉटचा १ संच, ६६० मेगावॉटचे तीन वीजनिर्मिती संच असून येथे २०२३- २४ या आर्थिक वर्षात ६९.५ लाख मेट्रिक टन कोळशाचा वापर झाला. खापरखेडा केंद्रात २१० मेगावॉटचे ४ संच, ५०० मेगावॉटचा एक संच असून येथे वर्षाला ९६.६ लाख मेट्रिक टन, चंद्रपूरला २१० मेगावॉटचे दोन संच, ५०० मेगावॉटचे पाच संच असून येथे १२९.५ लाख मेट्रिक टन, नाशिकला २१० मेगावॉटचे तीन संच असून तेथे २४.९ लाख मेट्रिक टन, भुसावळला २५० मेगावॉटचा एक संच, ५०० मेगावॉटचे दोन संच असून येथे ६०.९ लाख मेट्रिक टन, परळी केंद्रात २५० मेगावॉटचे तीन संच असून येथे २१.६ लाख मेट्रिक टन, पारस केंद्रात २५० मेगावॉटचे दोन संच असून येथे २७.१ लाख मेट्रिक टन कोळशाचा वापर झाला. साधारण एवढाच वापर प्रत्येक वर्षी प्रकल्पात होतो.

सर्वाधिक राख निर्मिती कोणत्या प्रकल्पात?

महानिर्मितीची सर्वाधिक वीजनिर्मिती कोराडी, खापरखेडा, या तीन औष्णिक वीजनिर्मिती प्रकल्पात होते. येथील प्रकल्पांत कोळशाचा सर्वाधिक वापर होत असून वीज निर्मितीदरम्यान प्रतिटन

कोळशाच्या वजनाच्या तुलनेत ३० ते ४० टक्के राख तयार होते. २०२३-२४ या वर्षात नाशिकला सर्वच वीजनिर्मिती संचातून १०.१ लाख मेट्रिक टन, भुसावळला २२.८ लाख मेट्रिक टन, परळीला १२.१ लाख मेट्रिक टन, पारस केंद्रात १०.६ लाख मेट्रिक टन, कोराडीला २६.७ लाख मेट्रिक टन, खापरखेडाला ३५.८ लाख मेट्रिक टन, चंद्रपूरला ४८.९ लाख मेट्रिक टन राख तयार झाली. प्रत्येक वर्षी साधारण एवढीच राख तयार होते.

राखेचा वापर कोणत्या कामासाठी?

औष्णिक विद्युत केंद्रातून निघणाऱ्या राखेचा वापर सिमेंट उद्योग, सिमेंट उत्पादने असलेल्या रेडी मिक्स व काँक्रीट विटा, टाइल्स, सिमेंट शिट्स, रस्तेबांधणी, उड्डाण पूल बांधकाम, धरण बांधकाम, सखल भाग भरणे, खाणीतील रिक्त जागा भरणे, मृदा तपासून कृषी क्षेत्रात नियंत्रित वापर, सागरी किनारपट्टी संरक्षणात वापर, बांधकाम क्षेत्राशी संबंधित विविध कामांत मोठ्या प्रमाणात केला जातो.

राखेला सर्वाधिक मागणी कुठल्या भागात आहे?

राज्यात महानिर्मितीच्या नाशिक, भुसावळ, परळी, पारस औष्णिक वीजनिर्मिती प्रकल्पातील राखेला सर्वाधिक मागणी आहे. येथे एकीकडे वीजनिर्मिती क्षमता कमी असल्याने कमी कोळसा वापरला जातो. त्यामुळे कमी राख निर्मिती होते. दुसरीकडे या प्रकल्पाजवळ पुणे, नाशिक ही मोठी औद्योगिक शहरे जवळ असल्याने येथे पायाभूत सुविधांच्या कामासाठी सर्वाधिक राखेची मागणी आहे. याउलट नागपुरातील कोराडी, खापरखेडा व चंद्रपुरातील प्रकल्पात वीजनिर्मिती क्षमता जास्त असल्याने जास्त कोळसा वापरला जातो व सर्वाधिक राख तयार होते. सोबत विदर्भात एनटीपीसीसह इतरही वीजनिर्मिती प्रकल्प असल्याने त्यातूनही मोठ्या प्रमाणात राख निघते. मात्र या भागात राखेला कमी मागणी आहे. त्यामुळे राखेची साठवणूक वाढली आहे.

राख व्यवस्थापनाची महानिर्मिती पद्धत काय?

महानिर्मितीने केंद्र सरकारच्या २०२१ रोजीच्या परिपत्रकानुसार राखेवर स्वतंत्र धोरण तयार केले आहे. त्यानुसार सर्वाधिक राखेची मागणी असलेल्या वीज केंद्राचा 'अ' गटात (नाशिक, भुसावळ, परळी, पारस) तर कमी मागणी असलेल्या केंद्रांचा ब गटात (कोराडी, खापरखेडा, चंद्रपूर) समावेश करण्यात आला आहे. अ गटातील प्रकल्पातील राखेचा लिलाव केला जातो व त्या माध्यमातून राखेची विल्हेवाट लावली जाते. ब गटातील प्रकल्पातील राखेची उचल कमी होत नसल्याने ती राष्ट्रीय महामार्ग प्राधिकरण, सार्वजनिक बांधकाम विभाग व तत्सम यंत्रणांना राख दिली जाते व त्यासाठी प्रतिटन १२५ रुपये याप्रमाणे अर्थसाहाय्य केले जाते, अशी माहिती महानिर्मितीचे कार्यकारी अभियंता कार्यालयाने दिली.

देशातील कानाकोपऱ्यात दिसणाऱ्या विजेच्या ट्रान्सफॉर्मरचे महत्त्व काय? कसे करते काम?

देशाच्या कानाकोपऱ्यात प्रत्येक राज्यात, लहान गाव-गावात, रस्ते-खेड्यापाड्यात सर्वत्र इलेक्ट्रिक ट्रान्सफॉर्मर दिसतात.

मुंबई : देशाच्या कानाकोपऱ्यात प्रत्येक राज्यात, लहान गाव-गावात, रस्ते-खेड्यापाड्यात सर्वत्र इलेक्ट्रिक ट्रान्सफॉर्मर दिसतात. हे ट्रान्सफॉर्मर्स आपल्या घर, ऑफिस तसेच इतर सर्व ठिकाणी वीज पोहोचवण्यासाठी खूप गरजेचे असतात. जर तुमच्या आजूबाजूला ट्रान्सफॉर्मर नसतील तर तुमच्या घरातील सर्व विद्युत उपकरणं चालूच होणार नाही. इतकंच नाही तर तुमच्या घरातील विद्युत उपकरणांना आगही लागू शकते. पण या ट्रान्सफॉर्मरचे ते कसे काम करते? याची आम्ही तुम्हाला माहिती देणार आहोत.

ट्रान्सफॉर्मर म्हणजे काय?

ट्रान्सफॉर्मर हे विद्युत उपकरण आहे. विजेचा दाब कमी-जास्त करणे, सामान्यपणे वीज पुरवठा करणे हे ट्रान्सफॉर्मरचे मुख्य काम असते. ट्रान्सफॉर्मर हे आवश्यकतेनुसार वीज पुरवठा करण्याचे काम करतो. एखाद्या परिसरातील लोकांना अधिक व्होल्टेज ऊर्जा आवश्यक असल्यास तिथे अधिक व्होल्टेज वीज पुरवठा केला जातो. तर ज्या ठिकाणी कमी व्होल्ट उर्जा आवश्यक असेल, तर त्या भागात कमी व्होल्टेजने वीज पुरवठा केला जातो.

ट्रान्सफॉर्मरचे नेमकं काम काय?

अनेकदा ट्रान्सफॉर्मर स्वतः वीजनिर्मिती करते, असा गैरसमज असतो. पण तसे नाही. ट्रान्सफॉर्मर्स हे आपल्या घरात वीज पोहोचवण्याचे एक साधन आहे. ट्रान्सफॉर्मर विजेच्या आवश्यकतेनुसार कमीत कमी किंवा जास्तीत जास्त विजेचा पुरवठा केला जातो.

ट्रान्सफॉर्मर्सचे अनेक प्रकार

विद्युत इलेक्ट्रिकल ट्रान्सफॉर्मर्स म्युच्युअल इंडेक्शनच्या तत्त्वावर कार्य करतात. ट्रान्सफॉर्मर्सचे अनेक बरेच प्रकार आहेत. त्यांचे प्रामुख्याने ३ भिन्न रुप असतात. ट्रान्सफॉर्मर हे आऊटपुट व्होल्टेज, कोर स्ट्रक्चर आणि फेजच्या संख्येच्या आधारावर विभागण्यात आले आहेत. आउटपुट व्होल्टेज अंतर्गत स्टेप-अप आणि स्टेप-डाउन असे दोन प्रकारचे ट्रान्सफॉर्मर्स येतात. तसेच कोरच्या संरचनेवर कोर टाईप आणि शेल टाईप असे दोन प्रकारचे आहेत. तर फेजच्या संख्येच्या आधारे अवलंबून असलेले ट्रान्सफॉर्मर हे प्रामुख्याने सिंगल फेज आणि थ्री फेजचे असतात.

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- 32GB Micro SD card for storage
- Lan and USB host communication
- 4.3 inch color touch screen LCD / 480 X 272
- Size: F18mm x 128mm

CAT III 600V

USB LAN

3 PHASE MULTI-POWER SYSTEM :

- 1P / 2W (1P + NEUTRAL 1P IT NO NEUTRAL)
- 1P / 3W (1P Split Phase)
- 3P / 3W (3P DELTA)
- 3P / 4W (3P WYE)

INPUT :

- 4 current input channels + 4 voltage input channels

MEASUREMENT :

- **VOLTAGE / ACV (Vrms, Vpk) :**
  Range : 5 ~ 600Vrms
  Accuracy (L1 / A, L2 / B, L3 / C) : ± 0.2% ± 2 counts
  PT ratio : 1 to 10000, variable
- **CURRENT / ACA (Irms, Ipk) :**
  Range : 6000A, with SY-6000A current probe
  Accuracy : ± 0.2% ± 5 counts
  CT ratio : 1 to 10000, variable
- **FREQUENCY RANGE :** 42.5 - 57.5Hz (50Hz nominal) ;
  51 - 69Hz (60Hz nominal)
- **HARMONIC NUMBER :** 1 - 51th
- **POWER :** Active power (P), Reactive power(Q),
  Apparent power(S), Power Factor (PF), cosΦ (DPF)
- **ENERGY :** Active energy (EP), Reactive energy (EQ),
  Apparent energy(ES)
- **TRANSIENT EVENT :** Dips / swell

OPTIONAL CURRENT PROBE :
ST08-5A, CTC0080-50A, CTC0130-100A,
SY-1500A, PY-3000A, SY-6000A

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ईव्ही कारवर लवकरच संक्रांत; सोलर कार मार्केट खाऊन टाकणार, सौर ऊर्जेवरील Vayve Eva चा फर्स्ट लूक पाहिलात का?

India First Solar Car Vayve Eva : EV वाहनांचा लवकरच गेम ओव्हर होण्याची शक्यता आहे. भारताची पहिली Solar Car बाजारात येणार आहे. अवघ्या ४५ मिनिटांत ही कार फूल चार्ज होईल. भारतासारख्या सूर्य देवतेचा आशिर्वाद असलेल्या देशात ही कार गेमचेंजर ठरणाार आहे.

भारतात सध्या ऑटोमोबाईल क्षेत्रात मोठे बदल होऊ घातले आहे. पेट्रोल-डिझेल वाहनांना पर्याय शोधण्यात येत आहे. पर्यावरणपूरक पर्यायांवर संशोधन सुरू आहे. हायड्रोजन, इथेनॉल, ईव्ही वाहनांचा पर्याय समोर येऊ लागला आहे. आशात इलेक्ट्रिक वाहनांची संख्या हळूहळू वाढत आहेत. पण तरीही काही अडचणी आहेत. त्यावर मात करण्यासाठी भारताची पहिली Solar Car बाजारात येणार आहे. अवघ्या ४५ मिनिटांत ही कार फूल चार्ज होईल. भारतासारख्या सूर्य देवतेचा आशिर्वाद असलेल्या देशात ही कार गेमचेंजर ठरणाार आहे. या कल्पनेला चालना मिळाली तर EV वाहनांचा लवकरच गेम ओव्हर होण्याची शक्यता आहे.

Vayve Eva दिल्ली एक्स्पोमध्ये

Vayve Mobility ने नवीन आयडियाची कल्पना लढवली. इलेक्ट्रिक वाहनातच सौर ऊर्जेच्या वाहनाचा पर्याय समोर आणला आहे. नवी दिल्ली येथील भारत मोबिलिटी ग्लोबल एक्स्पोमध्ये ही कार विविध बदलांसह देशासमोर येईल. १७ ते २२ जानेवारी दरम्यान हा एक्स्पो होणार आहे. यापूर्वी ऑटो एक्स्पो २०२३ मध्ये ईव्हाने लाखो चाहत्यांना सुखद धक्का दिल होता. ही एक कॉम्पॅक्ट आणि पर्यावरणपूरक कार आहे.

शहरी भागातील वाहतूक अडथळ्यांची शर्यत, कमी जागा, अरूंद रस्ते, वाहनतळाची समस्या, पेट्रोल-डिझेलची वाढलेली किंमत, ईव्ही वाहनांच्या चार्जिंगची अडचण या सर्व अडचणी, या सर्व अडचणींचा विचार ही कार तयार करताना करण्यात आला आहे. कारचे हे कॉम्पॅक्ट व्हर्जन अनेकांचा प्रवासाचा खर्च वाचवणार आहे. या कारविषयी सध्या माध्यमात जितकी चर्चा सुरू आहे. त्यापेक्षा सोशल मीडियावर तिची लोकप्रियता अधिक आहे.

एक चार्जिंगमध्ये २५० किमीचा टप्पा

ही कार एका चार्जिंगमध्ये २५० किमीचा टप्पा पूर्ण करेल. तर एका वर्षात ती ३००० किमी धावेल. सौर ऊर्जेवर ही कार चार्ज होईल. या कारमध्ये अत्याधुनिक तंत्रज्ञानाचा वापर करण्यात आला आहे. सुपरफास्ट चार्जिंग हे या कारचे वैशिष्ट्ये आहे.

अवघ्या ४५ मिनिटांत ही कार फूल चार्ज होईल. भारतासारख्या सूर्य देवतेचा आशिर्वाद असलेल्या देशात ही कार गेमचेंजर ठरणाार आहे. पाच मिनिटांत ही कार ५० किमीने धावेल. या कारचा टॉप स्पीड ७० किमी प्रति तास असल्याचा दावा करण्यात येत आहे. या कारसाठी प्रति किलोमीटर ०.५ पैसे खर्च अपेक्षित असल्याचा दावा करण्यात येतो. आधुनिक ग्राहकांच्या अपेक्षेवर ही कार खरी उतरेल असा विश्वास वयवे ईव्हाचे सीईओ आणि सहसंस्थापक यांनी व्यक्त केला आहे.

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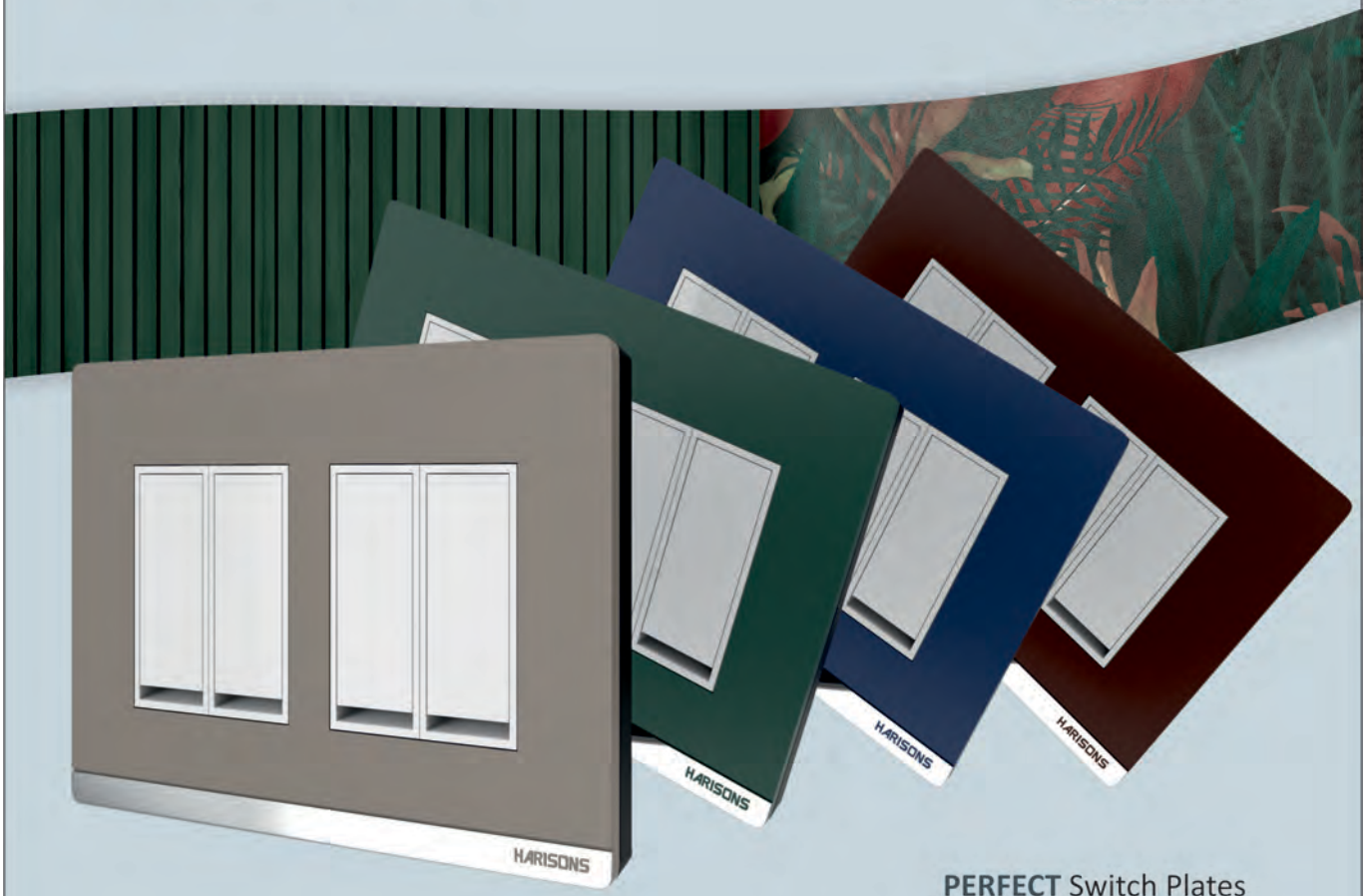

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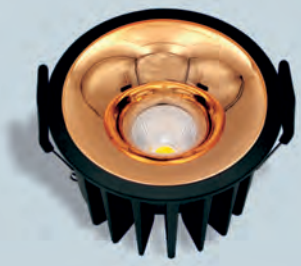

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NTPC Green Energy And RVUNL Form JV NTPC Rajasthan Green Energy

NTPC Green Energy will hold 74,000 equity shares of the JV at a face value of Rs 10 each.

NTPC Green Energy Ltd. and Rajasthan Rajya Vidyut Utpadan Nigam Ltd.—a Rajasthan government undertaking—have jointly incorporated NTPC Rajasthan Green Energy Ltd.

NTPC Green Energy will hold 74%, while Rajasthan Rajya Vidyut Utpadan Nigam will acquire a 26% stake in the joint venture, according to an exchange filing on Wednesday.

The JV will assist in developing, operating and maintaining renewable energy parks, including solar, wind, and hybrid energy projects, with or without storage, having a total capacity of up to 25 gigawatts. Also, it will help in developing a green hydrogen plant with up to one million tonnes of capacity through a suitable model.

Additionally, NTPC Green Energy will hold 74,000 equity shares of the JV at a face value of Rs 10 each, the filing said.

On Jan. 4, the company won a 1000-megawatt power project under the Uttar Pradesh Power Corp.'s solar PV power project auction.

Earlier in December, NTPC Renewable Energy Ltd., a wholly owned subsidiary of NTPC Green Energy Ltd., won the bid in the e-reverse auction conducted by the Solar Energy Corp. for the development of 2,000-megawatt solar power projects.

The auction was held on Dec. 9 and includes the establishment of energy storage systems with a total capacity of 1,000 MW and 4,000 MW hours.

Power generation capacity for next 2 years to be reassessed

Synopsis The government plans to reassess power generation capacity through FY26 and FY27, considering energy storage systems to address peak power demands. With projected peak demands during solar hours likely to be met comfortably, there will be challenges for non-solar peak demand, necessitating additional capacities in thermal, nuclear, and storage systems. The government is initiating a fresh exercise to review available power generation capacity for the next two scal years including battery energy storage systems, people familiar with the development told ET. The move is aimed at ensuring readiness to meet rising peak power demand.

As per the latest Electric Power Survey, the projected peak demand for FY26 is 270 GW and 249 GW for solar and nonsolar hours respectively. In FY27, peak demand for solar hours may reach 288 GW and non-solar hours at 265 GW. The power ministry now wants the generation capacity to be mapped out and has asked the Central Electricity Authority to reassess available capacity for the next two scal years based on latest capacity additions, said one of the persons cited above.

Assessment of capacities is likely to be based on letters of award for energy storage projects and capacity expected under viability gap funding scheme that will add to the available resources, the person said.

So far, from anticipated capacity additions so far through the conventional and non-conventional sources, it is likely that the projected peak demand during solar hours may be met comfortably in both the years, but challenges will remain for non-solar peak demand.

Apart from adding capacities in the thermal and nuclear energy space, and use of otherwise idle gas-based power plants, the Centre has been working to push for battery energy storage systems and pumped storage systems for availability during peak hours.

Many of the contracts offered by renewable energy implementing agencies now have a component of storage.

India's energy storage market grew 1.7 times in 2024, reaching a total pipeline capacity of 114 GWh of storage-linked projects, according to Debmalya Sen, India Lead -Energy, World Economic Forum (WEF).

Sen said 20 GWh of the pipeline is battery energy storage system (BESS), and 91 GWh is pumped storage projects (PSP).

EWEC Issues Request for Proposals for 1,500MW Zarraf Solar PV Project in Abu Dhabi

The Emirates Water and Electricity Company (EWEC) has issued a Request for Proposals (RFP) to qualified companies for the development of the Zarraf Solar PV Independent Power Producer (IPP) project, located in the Al Zarraf area of the Al Dhafra Region.

The project, which will have a 1,500MW (AC) power generation capacity, is expected to power approximately 160,000 homes and reduce CO2 emissions by up to 2.4 million metric tonnes annually. This marks a significant milestone in the UAE's energy transition, contributing 5 percent of EWEC's forecasted 36 percent reduction in power emissions intensity by 2030. The Zarraf Solar PV project will become EWEC and Abu Dhabi's fifth utility-scale solar PV initiative, as part of the company's strategy to increase Abu Dhabi's solar power capacity to at least 10GW (AC) by 2030.

Othman Al Ali, CEO of EWEC, emphasized the importance of the project, stating, “Zarraf Solar PV is a further example of EWEC's sharp focus on commissioning world-leading projects as a strategic pillar in our plans to decarbonize the energy sector in Abu Dhabi and the UAE. Solar power generation accelerates the UAE's energy transition, and we look forward to receiving proposals and moving forward with development.”

By 2035, EWEC forecasts at least 18GW of solar PV in operation, supporting the Abu Dhabi Department of Energy's Clean Energy Strategic Target 2035, aiming to meet 60 percent of the emirate's power demand through renewable and clean energy sources.

The RFP is being issued to 16 companies and consortiums who have successfully qualified following the Expression of Interest (EOI) stage in October 2024. The developers will be responsible for the entire project lifecycle, including development, financing, construction, operation, maintenance, and ownership of the plant.

The successful developer will hold up to 40 percent of the project's equity, with the remaining shares held by the Abu Dhabi Government. The developer will enter into a long-term Power Purchase Agreement (PPA) with EWEC, structured as an energy purchase agreement. Responses to the RFP are due by Q2 2025, after which EWEC will hold a public event to announce the successful bidders.

Coal-fired power plants get another extension to meet sulphur dioxide emission norms amid air pollution crisis

NEW DELHI: With many polluting thermal power plants missing the third deadline to implement emission standards for Sulphur Dioxide (SO2) notified in 2015, the environment ministry has given them a fourth extension by stretching the timeline by three more years to install pollution control equipment. Giving relief to defaulters, the ministry has extended the deadline for thermal power plants (TPP) located within 10 km radius of the national capital region (NCR) or cities having million plus population from Dec 31, 2024 to Dec 31, 2027. All these power plants were expected to install Flue Gas Desulphurisation (FGD) equipment to meet the SO2 standards by the previous deadline but many of them failed to do it. The FGD is a process of removing sulphur compounds from the exhaust emissions of fossil-fueled power stations. According to a fresh notification issued last week, the deadline for TPP located within 10 km radius of 'critical polluted areas' (non-attainment cities) has been extended from Dec 31, 2025 to Dec 31, 2028and for those located in other areas from Dec 31, 2026 to Dec 31, 2029. On the other hand, the TPPs which may opt to retire by Dec 31, 2030 will be exempted from the compliance. Earlier, their deadline for retirement was Dec 31, 2027.

The coal-fired thermal power plants are required to comply with the SO2 emission norms within these stipulated timelines, failing which environmental compensation for non-compliance will be imposed on the thermal power plants accordingly. Since SO2 is a significant air pollutant with direct and indirect effects on human health, the ministry had in 2015 notified the rules to make it mandatory for the TPPs to achieve the target for emission standards and install FGD by Dec, 2017. The deadline has since been extended four times for one or the other reasons, including once due to Covid-19 pandemic. SO2 is a precursor to the formation of the hazardous fine particulate matter (PM2.5), which has been linked to many health issues, including respiratory and cardiovascular diseases. Reports suggest that India was the largest emitter of SO2 globally in 2022, accounting for over 20% of the world's anthropogenic emissions. According to an analysis done by a policy think tank, Centre for Research on Energy and Clean Air (CREA), only less than 8% of the total coal-fired power plants electricity generation capacity has installed FGD to control SO2 emissions and the progress on installing the equipment has been slower than anticipated, with delays evident across multiple stages, since 2019. The power ministry had in August last year informed the Lok Sabha that the FGD was being installed in 537 units in coal-based TPP across the country. By July 2024, only 39 units had installed the FGD whereas the remaining units were at different stages, including contract and tendering process, of installing the critical equipment.

Referring to the delay in installing the required equipment to meet SO2 emission norms, the ministry had said since FGD technology was new in the country, there were limited vendors with limited capacity to supply and install FGD components. “Vendors' capacity for FGD installation is about 16-20 GW (33 to 39 units) in the country and time taken for installation is about 44 to 48 months. A sudden surge of demand has arisen, as all thermal generating units are to comply with SO2 emission norms within a short period which created huge gap between demand and supply of FGD equipment,” it said. Though India's manufacturing capability of FGD components has increased, it still depends on the imports from other countries. “Further, a huge foreign exchange for importing technology, equipment and skilled manpower from other countries is also required,” said the ministry. It had further informed the Lok Sabha that the installation of FGD systems had also faced difficulties in terms of conceptualization, design challenges etc. “Standardisation could not be done as different sites have different requirements like space constraints, lay-out and orientation etc.,” said the ministry in its response to a Parliament Question.

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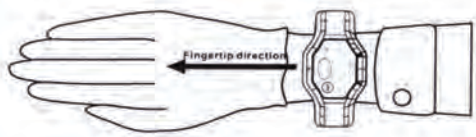
WRIST HIGH VOLTAGE ALARM MODEL - KM-HVW-289

Wrist Type High Voltage Approach Electric Alarm provides a safe, practical & convenient new type high voltage alarm device for close-electric operator. After the operator wearing this alarm, when close to the high voltage charged body for a certain distance, according to the corresponding safe distance of voltage level, the alarm will make out the sound & light alarm to remind the electrical workers to pay attention to safety & avoid high voltage electric shock accidents.

NEW

IP54



FEATURE :

- **Function :** Approach Electric Alarm
- **Alarm Voltage range :**
  1kV ~ 220kV (High voltage alarm)
- **Alarm distance error :** ± 10cm
  (23°C ±1°C, 80%RH, under base condition)
- **Working Frequency :** 50Hz / 60Hz
- **Electricity Testing Mode :** Non-contact mode
- **Detection Mode :** Automatic trigger
- **Alarm Mode :** Indicator : LED light visibility under 8000LX visible light.
  Buzzer : above 60dB (60cm apart)
- **Protection Level :** IP54

WRIST TYPE DETECTOR MODEL - KM-HVW-289-H2

NEW

IP65

KM-HVW-289-H2 of near electrical appliances to provide a safe, practical and convenient new voltage alarm device. With near-power alarm. After wearing the operator of the alarm, when approaching a certain distance from the live body, the alarm will send a sound and light alarm according to the corresponding safety distance to remind the electrical staff to pay attention to safety and avoid high-voltage electric shock accidents.

FEATURE :

- **Function :** Near-power alarm, Voltage detection
- **Alarm voltage range :** 230V ~ 500kV
- **Detection mode :** Non-contact
- **Starting mode :** Auto-start
- **Type of alarm :** Sound & light reminder
- **IP grade :** IP65
- **Insulation** : Between the instrument line and the housing ≥ 100MΩ
- **Structure :** Case insulation
- **Power dissipation :** < 5mA
- **Suitable for safety regulations :** IEC61010-1 CAT III 600V, IEC61010-031,IEC61326, class of pollution 2

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Shri Chandmal Golia.CMD
Kusam Electrical Industries Ltd.

"Some of our Products are qualified under the "Made in India" Policy of the Government. We intend to add more and more Instruments in this Policy. "

Shri Chandmal Golia is the senior most pillar of electrical Industry. He has created a brand name Kusam Meco which is a front runner of the industry. His Special interview is taken on the eve of Elecrama 2025. Here are some excerpts for the readers of IECT.

Q.1) KUSAM-MECO is known for various important Products and Services for the Power and Energy Sector. Please give details of your prime Products.

Ans. KUSAM-MECO is a 40 years old Company in the field of Digital Electronic Test & Measuring Instruments. KUSAM-MECO pioneered the use of Digital Multimeters & Clampmeters way back in 1986 when most of the Multimeters & Clampmeters used were Analog Instruments. Since then there is no looking back & slowly slowly added more more & more Digital Instruments in the range offerings. Today we have more than 450 Products in our range.

In recent years Government of India have given more importance to generation of power from Renewable Sources such as Wind & Sunlight. To cater to the demand we have Digital Clampmeters & Digital Multimeters to measure AC & DC Current up to 2000 Amps & Voltages up to 2000V DC. Besides, we also have Solar Power Meters. Also we have Thermo Anemometers for Wind Parameter Measurement. For Traditional Sources of Energy we have Multifunction Power Meters, Digital Transducers, Volt, Amp, Watt, Watt Hour Power Factor, Frequency Meters for monitoring the Electrical Parameters.

Q.2) Your focus has been on R&D in Electronics. Please explain.

Ans. Our Company strives to offer the latest Products in the field of Test & Measuring Instruments using the latest technologies available in the World, so that the Customers can enjoy the benefit of the new technologies.

Q.3) What do you expect from Elecrama ? What new Products are you introducing ?

Ans. ELECRAMA is the biggest Show for Electrical & Electronic Products in India. It attracts the largest number of Visitors to witness the latest Technology & Product offering in India. People come to this Exhibition from all corners of India. We will be displaying many new Products : Multifunction Installation Testers, Video Infrared Thermometers, Solar Clampmeters & Multimeters, Multifunction Power Meters, New Range of Process Calibrators, Accoustic P. D. Meter, High Resolution Thermal Imagers, New 'UL' listed AC/DC Power Clampmeters with Bluetooth, new 'UL' listed Digital Multimeters with Bluetooth, other 'UL' listed Digital Multimeters & Clampmeters, new range of Environment Testing Instruments, Non Contact H. V. Detectors up to 800 KV, Discharge Rods up to 800 KV, etc.

Q.4) How do you ensure safety in your Products ? And Energy Conservation ?

Ans. We have a full range of 'UL' Multimeters & Clampmeters which have highest safety unlike 'CE' listed Products. They have high surge protection ranging from 6 KV ~ 12 KV thereby ensuring safety

to the Instrument & also to the User. All 'UL' listed Products are made from Fire Retardant Polycarbonate Casing unlike 'CE' Products which are made from ABS Material. All 'UL' Multimeters have strong Holster ensuring that no damage will occur even it falls from a height of 1 or 2 metres.

All 'UL' Digital Multimeters are fitted with HRC fuses which ensures safety of the Digital Multimeters. They are made of Splash Proof Construction. Even in the other Instruments & Products, they are checked at Independent Laboratories for ensuring high safety standards are met.

Q.5) You are exporting to many Countries. Any plans for expansion in the near future ?

Ans. Our Products are exported to Middle East & South East Asia. We are increasing our efforts to gain more Business in these Areas.

Q.6) How you look Make In India Products and how it help in your Business ?

Ans. Some of our Products are qualified under the ''Made in India'' Policy of the Government.
We intend to add more and more Instruments in this Policy. This is very much helpful in qualifying for Government Tenders.

Q.7) Any suggestions to Government Policy.

Ans. The Government should try to simplify all Laws so that even the Common Man can understand them & then abide by the Laws. Due to the very complicated language used in making the Laws, even Professionals are also not able to decipher them correctly, sometimes leading to Litigations.

Q.8) IECT represents Electrical Contractors. What can be done to improve the interaction with the Contracting Fraternity ?

Ans. IECT should organise more Exhibitions, so that the interaction between the Contractors & Suppliers / Manufacturers is increased & the Contractors are updated with the latest trends in the Electrical Industry. The IECT Publication must also review more Products which are useful for the Contractors' Fraternity

Q.9) What advice would you give to the young Businessmen ?

Ans. There is no Substitute for Hard & Honest Work.

Q.10) Please share your Hobbies, Travelling, Art, Culture, Social Work, etc.

Ans. My Hobbies include Reading & Social Work.

Fortifying Mumbai's Skyline: Enhancing Electrical Fire Safety in High-Rise Buildings

Mumbai's ever-expanding skyline symbolizes the city's relentless march toward urbanization and progress. Mumbai's high-rise developments dominate the national landscape, with the city accounting for 77% of India's tall buildings. Globally, Mumbai ranks 17th in the number of high-rise buildings, underscoring its importance as a key player in vertical urban development. This trend is not just a response to land constraints but also reflects a broader urbanization movement, with developers and policymakers working together to create modern, sustainable housing solutions.

With high-rise buildings becoming the norm, safety in these vertical marvels has become a pressing concern. Among the most critical challenges is ensuring electrical fire safety, a matter of life and death for residents and a necessity for protecting property and critical infrastructure.

Mumbai Fire Brigade data reveals that electrical faults are responsible for over 70% of the city's fire incidents annually, making it the leading cause of urban fires. The dense population in high-rise buildings magnifies the risk, where a single electrical fire can jeopardize hundreds of lives and cause irreparable damage. In the first seven months of 2024, a total of 3,197 fire incidents were reported, leading to eight fatalities and 112 injuries, with electrical faults accounting for 70% of these cases.

Fire incidents caused by electrical faults in Mumbai during 2019-22

2019-22
Total fire incidents: 17,527
Caused by electrical faults: 12,117

Source: Free Press Journal

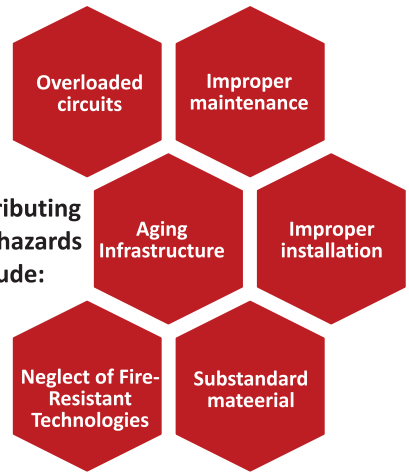
Enhancing Safety with Innovative Solutions

Addressing these challenges requires a blend of **advanced technology, strict regulations, and community awareness**. Some of the actionable measures include:

1. Fire-Resistant Cables

Employing high-quality, fire-rated cables like Polycab's IGNIS range ensures that electrical systems maintain integrity during fires. These cables reduce flame propagation, emit low smoke, and are halogen-free, minimizing toxic gas release and enhancing visibility for rescue operations.

Key factors contributing to electrical fire hazards in high-rises include:



2. Adherence to Standards

Compliance with the National Building Code (NBC) of India and Central Electricity Authority (CEA) guidelines is vital. Routine inspections of electrical systems should be mandated to ensure adherence to safety norms.

3. Smart Electrical Systems

IoT-enabled electrical systems can detect faults in real-time and prevent overloading. Smart meters and automated cut-offs reduce human error and enhance safety, a feature increasingly incorporated in newer developments.

4. Proper Grounding and Bonding

Ground Fault Circuit Interrupters (GFCIs) and Residual Current Devices (RCDs) must be installed to prevent short circuits and electrical shocks.

5. Emergency Preparedness Systems

High-rises should integrate reliable fire detection and

suppression systems, including water sprinklers, alarm hooters, and smoke detectors. Fire-resistant cables like Polycab's IGNIS support these systems by maintaining operational integrity during emergencies.

A Focus on Materials and Installation

The quality of materials used in electrical systems can mean the difference between a contained incident and a catastrophic disaster. Fire-retardant Low Smoke Zero Halogen (LSZH) cables, like those offered by Polycab, are specifically designed to:

- Resist catching fire.
- Emit minimal smoke, ensuring better visibility during evacuations.
- Produce no harmful gases, aiding fire-fighting efforts.

These features are crucial for environments like hospitals, malls, and residential high-rises, where safe evacuation depends on the reliability of electrical systems under duress.

Recommendations

The rising incidents of electrical fires in Mumbai's high-rises call for a concerted effort among government agencies, builders, developers, and residents. Collaboration is key to creating a resilient urban environment where fire hazards are mitigated effectively, and occupants feel secure. Key recommendations are:

- **Formulating Robust Regulations**: Agencies like the Municipal Corporation of Greater Mumbai (MCGM) and the Central Electricity Authority (CEA) need to establish and periodically update fire safety codes, ensuring they align with global best practices.
- **Mandating Regular Inspections**: Regular audits of electrical systems in high-rises can help detect vulnerabilities. The Mumbai Fire Brigade plays a critical role in inspecting and certifying compliance with safety standards.
- **Promoting Technology Adoption**: Government incentives for adopting advanced fire safety technologies, such as IoT-enabled fire detection systems and fire-resistant cables, can encourage widespread implementation.
- **Public Awareness Campaigns**: Awareness initiatives can educate residents and property managers about fire safety protocols and government mandates. Campaigns like Electrical Safety Week serve as platforms for community engagement.

The Path Forward

Mumbai's growth as a global metropolis depends on the safety of its infrastructure. By adopting advanced materials, like Polycab's fire-survival cables, and integrating smart technologies, the city can mitigate the risk of electrical fires. Collaboration among stakeholders is key to building a resilient skyline where safety is integral, not optional.

This proactive approach will not only protect lives but also ensure that Mumbai continues to rise—safely and sustainably.

SJVN announces winners for 5.8 MW rooftop solar projects

SJVN Limited has declared the results of its tender for 5,830 kW of grid-connected rooftop solar projects under the PM Surya Ghar scheme.

Teerth Gopicon secured 5,705 kW, while Reliance Industries won 125 kW. The projects will be installed on Union Government buildings across seven states, including Delhi, Madhya Pradesh, Uttar Pradesh, Haryana, Gujarat, Maharashtra, and Rajasthan. The tender, issued in September 2024, was finalised in four months. The projects will be developed under the Renewable Energy Service Company model using a tariff-based competitive bidding process. SJVN has specified a timeline of six months from the signing of the power purchase agreement for project completion. The awarded companies must comply with the guidelines set by the Ministry of New and Renewable Energy for system design and execution.

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Prevent Critical Failures and Achieve Significant Cost Savings with Early-Stage Partial Discharge and Air Leak Detection

The FLIR Si2 acoustic imaging camera identifies 50% more critical PD issues and provides market-leading leak detection performance for next-level predictive maintenance.

In the utility industry, where up to 85% of electrical failures, are related to partial discharge (PD), early detection is essential to prevent costly power outages and hazardous accidents. The FLIR Si2 acoustic imaging camera is engineered to detect, locate, classify, and assess PD faults from up to 200 meters away, identifying issues 30 times smaller and recognizing 50% more critical issues than previously possible. This advanced detection capability, combined with on-camera severity assessment, provides immediate in-the-field decision support, enabling precise maintenance planning that enhances grid reliability and minimizes unexpected downtimes in critical infrastructure.

The FLIR Si2 also enables early-stage detection of pressurized gas leaks. By pinpointing even the smallest leaks, the Si2 helps prevent costly energy losses, mitigate potential safety hazards, and optimize system performance, particularly in critical infrastructure like substations and transmission lines. This early detection not only reduces operational costs but also ensures compliance with stringent industry regulations, enhances grid reliability by preventing unexpected downtimes, and supports sustainability initiatives by minimizing waste and reducing the overall carbon footprint of utility operations. the decision support provided by the FLIR Si2 acoustic camera, a plan was immediately put in place to replace various chains and bearings.

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Elegante - Emergency Way Finding Signage Solutions

Prolite Autoglo Ltd. is world renowned in the field of egress route and escape related products. Awarded 'The Most Innovative Product Company', in a Fire India show Prolite now makes its 'Elegante' entry in the Way Finding segment.

Prolite's Elegante series of products can be described as the world's first self-contained Emergency way finding lighting solution ideally suited for Airports, Railway stations, Metro stations, Resorts, housing complexes, Ports or even normal roadsides where people require directions in darkness or poorly lit conditions. Conventional way finding solutions are dependent on normal power supply and do not work when the power fails. But Elegante, which is also the thinnest range of signages (just 50mm in thickness) will work when the power fails and provide help in a desperate situation.

Elegante signs can be customized to any size as per the requirement and come in four broadly different types, viz. single sided fixed fascia, double sided fixed fascia, single sided openable fascia and double-sided openable fascia. The openable models allow for easy maintenance without dislodging the product from its existing location.

ELEGANTE SERIES-SO WHAT'S NEW?

Prolite's R&D department is always on the ball to serve and save people. With changing times, safety requirements also change. Innovation is all about understanding the limits of existing systems and making efforts to push the safety envelope further. If, for example, an airplane is about to land on the runaway and the mains supply fails, the Elegante way finding sign will grow bright and clear as it will be the only source of illumination independent of conventional power.

The same would apply to a railway station or a metro station or any place where power failure could cause temporary blindness to one and all in the vicinity. Another quality that makes Elegante unique, is its compact nature. With a width of just 50mm, it is easily maneuverable and adds to the beauty and ambience of the environment as compared to bulky and heavy conventional signs. Elegante can be manufactured to sizes as suited to the purpose and is not confined in that sense. The double sided and single sided openable models allow for easy maintenance without disturbing the placement of the sign. The battery back up can be suited to specific needs and promises long hours of illumination adding convenience to dependability and quality as a positive attribute of this product.

India's ambitious goal of achieving net-zero emissions by 2070 requires reliable and comprehensive energy data.

This data is crucial for tracking progress, identifying areas for improvement, and making informed policy decisions. Key Challenges in Achieving Net-Zero Emissions

Energy Sector Transformation : Rapidly scaling up renewable energy sources, such as solar and wind power, while ensuring effective grid integration and storage solutionsTransportation Decarbonization : Promoting electric vehicles, expanding charging infrastructure, and encouraging sustainable transportation modes [2].

Industrial Sector Transition : Adopting sustainable practices, transitioning to circular economy models, and deploying low-carbon technologies. Agriculture and Land Use Management : Implementing sustainable agriculture practices, afforestation programs, and climate-smart farming techniques.

The Importance of Robust Energy Data Tracking Progress : Accurate energy data enables tracking of progress toward net-zero emissions and identification of areas requiring improvement.

Informed Policy Decisions : Reliable energy data informs policy decisions, ensuring that initiatives are effective and targeted. Investment and Financing : Robust energy data attracts investment and financing for clean energy projects, supporting India's net-zero transition.

To overcome the challenges in achieving net-zero emissions, India must prioritize the development of robust energy data systems. This will enable the country to track progress, make informed policy decisions, and attract investment and financing for clean energy projects.

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"KUSAM-MECO" CLAMP GROUND RESISTANCE TESTER MODEL – KM 1690 / KM 1790

TESTER"KUSAM-MECO" has introduced 2 new Clamp on Earth Resistance Testers Models KM 1690 & KM 1790. These Earth Resistance Testers uses latest technology meticulously developed by the technical team. It uses a brand new generation of LCD, Black screen backlight display & microprocessor technology to measure the ground resistance through inductive method. It is safe & fast. Widely used in Telecommunication, Electricity Transmission Line Towers, Meteorology, Computer Rooms, Oil Fields, Gas Stations, Factory Grounding Networks & so on. Clamp on Ground Earth Resistance tester is microprocessor controlled & accurately detects ground resistance. It uses fast filtering technique to minimise interference. It can store 300 groups of data. The Resistance & Current are displayed on the same screen simultaneously (Model KM 1790). The Earth Resistance range is 0.01Ω to 1200Ω (Resolution 0.001Ω). The Current range (Model KM 1790) is 0-20 Amps. The clamp opening accepts cables & strips of the 55X32mm. MODEL – KM 1690 / KM 1790

The display is 4 digit LCD display, black screen design of size 46 x 29mm. As special feature is automatic identifying interference signal "NOISE" symbol indication when the interference current is large. It also has 'ALARM' setting function which triggers when the measured value exceeds alarm setting value. It has auto power function after 5 minutes of inactivity. It also has Low Battery Indication reminding timely change when battery voltage is low. The instrument is supplied with a standard Ring, Batteries, User Manual, Carrying case.

For More Details Contact :

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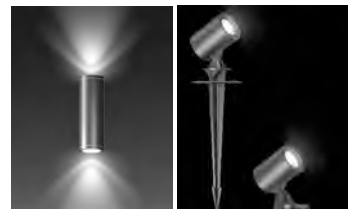

"Established in 1977, K-lite is renowned for its extensive range of high-quality architectural luminaires and poles that cater to diverse applications and design preferences."

Since its inception, K-lite through it manufacturing units in focusses on the production of sustainable and efficient LED luminaires. K-lite's products meet stringent quality standards while embodying elegant aesthetics.

K-lite's landscape products are designed to withstand various environmental challenges such as wind, water, direct sunlight, rain, and dust. Each outdoor luminaire boasts high IP (ingress protection) and IK ratings, ensuring robustness and durability suitable for outdoor and landscape applications.

The Range offered by K-lite is comprehensive and versatile. It includes Linear Wall Washers, Up-Down Lighters, LED Strips/Neon Flex, Promenade Lighting, Bollards, Underwater Lighting, Post Top Luminaires, Bulkheads, Pathfinders, IP67 Linear Profiles, Polar Lighting, and a newly introduced series of Facade Lighting.

K-lite's commitment to innovation and quality, shines through in every product, blending functional efficiency with aesthetic appeal. Each luminaire in the landscape range is meticulously crafted to enhance outdoor spaces, offering not only illumination but also enhancing the visual appeal of architectural environments. Whether illuminating pathways, accentuating building facades, or creating ambiance in public spaces, K-lite's luminaires deliver reliability and elegance, making them the preferred choice for architects, landscape designers, and developers aiming to transform outdoor spaces with lighting solutions that integrates form and function seamlessly.

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Director-IIT Jodhpur TECHPARK

It is always a pleasure talking to industry leaders and getting guidance from them. Mr. Anil Saboo ji has been associated with IECT since last ten years. As a founder of Electrolites, he has earned steady growth and success. He is also known as an innovator, mentor and a philanthropist. Our representative had a long discussion with him on the occasion of Elecrama 2025. A few excerpts are presented here for the readers of IECT.

- Satish Sinnarkar, Editor

Elektrolites is known for various important products and services for the power and energy sector. Please give details of your prime products.

Elektrolites specializes in advanced solutions for the power and energy sector, offering a diverse range of products such as Lightning Arresters, Disconnectors upto 400 Kv , Auto Reclosers, Fault Passage Indicators, Load Break Switch, Railway Switches, and Smart Grid Solutions upto 66 kv for effective Distribution system . These products are designed with cutting-edge technology to enhance energy efficiency, ensure operational safety, and support automation in modern power infrastructure. With a strong focus on innovation, many of our offerings incorporate IoT and AI-based technologies for seamless integration, fault detection, and real-time monitoring. All our products meet international safety and quality standards, making them reliable and future-ready. Elektrolites is committed to delivering energy-efficient and customized solutions to clients globally, driving sustainable growth and resilience in the power sector.

Your focus has been on R&D in electronics. Please explain.

At Elektrolites, innovation is at the core of everything we do. Our R&D team consistently works to enhance product performance, develop new technologies, incorporating IOT and AI to keep our solutions at the forefront of the industry.

We focus on creating & incorporating advanced electronic solutions, including IoT-enabled devices , while integrating future-ready technologies like AI, ML, and advanced sensors in future ready products .

These innovations enable automation, predictive maintenance, and improved fault management, ensuring operational efficiency, reliability, and safety. By addressing critical challenges such as renewable energy integration and legacy system modernization, our commitment to R&D drives sustainable and efficient progress in the power sector.

What do you expect from Elecrama? What new products are you introducing?

Elecrama serves as a premier global platform for showcasing our innovative solutions, engaging with industry leaders, and fostering strategic collaborations. It offers us the opportunity to demonstrate our

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***2006-2024** - Retained number 1 position with ABB for L.V. drives and Automation products.*

commitment to driving technological advancements in the power and energy sector.

In 2025 ,we are introducing Smart Grid Solutions & Advanced Lightning Protection Systems and our foreign collaborators from Germany, Australia & Sweden shall be also present at Stall . These solutions focus on enhancing operational safety, improving energy efficiency, and integrating advanced digital technologies for real-time monitoring and control.

Our participation in Elecrama 2025 shall be recreating opportunities for introducing Best technology & sustainable solutions available in world for impactful introduction in India

How do you ensure safety in your products? And energy conservation?

Safety is integral to our designs and development at Elektrolites. Each product undergoes rigorous testing and adheres to international safety standards to ensure reliability and protection in critical applications. In addition to safety, energy conservation is a key focus. Our products are designed with energy-efficient technologies, incorporating low-loss components, optimized power usage, and renewable energy integration where applicable. By combining robust safety measures with sustainable practices, we deliver solutions that prioritize both operational security and environmental responsibility.

You are exporting to many countries. Any plans for expansion in the near future?

Yes, we are actively planning to expand our footprint in emerging markets in Africa, Southeast Asia, and Latin America. Our focus is on forging strategic partnerships, introducing customized solutions, and building localized support networks to cater to these regions effectively. Currently we are exporting in Indonesia, Bangladesh, Sri Lanka, Myanmar, Ghana, Nigeria, Uganda, Kenya, South Africa, Thailand, Oman, Nepal, Zambia, and others.

How do you view Make in India products, and how does it help your business?

"Make in India" aligns perfectly with our philosophy. By manufacturing locally, we reduce costs, enhance quality control, and support the domestic economy. It also strengthens our ability to compete globally by leveraging India's skilled workforce and advanced manufacturing capabilities.

Any suggestions for government policy?

The Government of India has already launched many schemes but these are to be enhanced . We recommend the government to incentivize R&D and innovation through grants and tax benefits.

Simplifying the approval process for infrastructure projects and strengthening support for renewable energy initiatives will also drive growth in the power sector to meet our future demand till 2030 .

IECT represents electrical contractors. What can be done to improve the interaction with the contracting fraternity?

To enhance interaction, we suggest organizing more knowledge-sharing workshops, training programs, and interactive forums between manufacturers and contractors. This will foster a better understanding of product applications, technological advancements, and industry best practices.

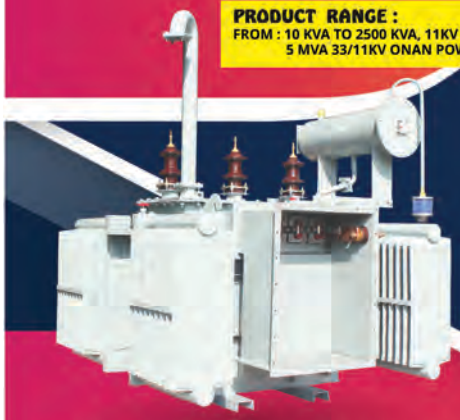
What advice would you give to young businessmen?

Success comes from a combination of hard work, ethical practices, and a willingness to embrace new ideas. I suggest staying focused on innovation and quality. Build strong relationships with clients and employees, and always remain adaptable to industry changes. Be aware of Digitalisation and Automation and also implement the same for efficiency work and profitability.

Please share your hobbies, traveling, art, culture, social work, etc.

I enjoy traveling, which offers me the opportunity to explore diverse cultures and gain fresh perspectives. I am also passionate about art and its ability to convey powerful messages. In addition, I am actively engaged in social work, particularly in education and industry development initiatives. As Founder Trustee of Jagriti NGO at JAIPUR, we serve society by transforming the lives of underprivileged children and connecting them to the mainstream of society by providing quality education free of cost to more than 4500 children.

MSME units have also inspired me to take up additional responsibilities with renowned industrial councils,



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"KUSAM-MECO" AUTORANGING TRUE RMS DIGITAL MULTIMETER WITH DATA LOGGING & PC INTERFACE MODEL KM 891

KUSAM-MECO has introduced a most advanced TRMS Digital Multimeter Model KM 891 having 60,000 Counts with data logging function & PC interface. It has 21 Functions & 63 Ranges. This new Digital Multimeter has 21 function packed in 1 instrument so that the user does not have to carry many instruments. The basic DC voltage accuracy is 0.03%. The instrument is water proof & dust proof with IP 65 rating. It has safety compliance CAT III 1000V & CAT IV 600V. It can capture trends and Data record / read back 20,000 records. For the safety of the instrument & the user in case of wrong test lead input, the instrument gives alarm & buzzer to warn the user. It also has date & time function. It has measuring functions

AC current, AC + DC Current, AC Voltage, AC + DC Voltage, DC Current, Resistance, Capacitance, Frequency, Temperature measurement function. A very special function in the instrument is Conductance measurement. Additionally, it has the function of duty cycle, Diode Test, continuity Test and Pulse width. It has dBV and dbM. To conserve the battery power the meter will switch off, if any switch or button is not operated for 15 minutes. It can also display Maximum & Minimum & Relative value. Peak detection of the input value is also available in this instrument. It also has the function of Data Hold, Comparison instrument. It complies with Safety Standards IEC/EN 61010-1, EN6101-2-30 & pollution degree 2. The functions are displayed on the LCD screen graphically. Optional, facility of Bluetooth is available.

A software CD & USB cable is supplied along with the instrument, in addition to a pair of test leads. Two K-type thermocouple probe, one temperature connector, Carrying Case & Operational Manual are also supplied.

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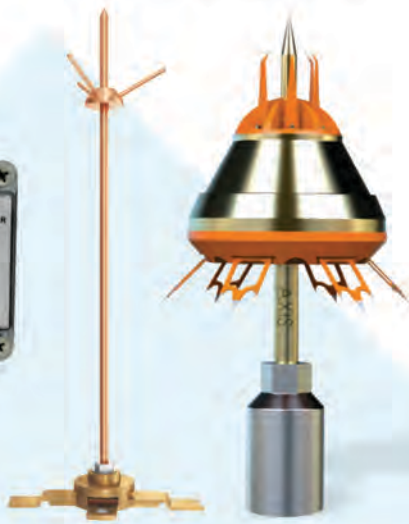

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Challenges in Pumped Storage for Sustainable Power Systems

Pumped storage hydropower (PSH) is a crucial component in the transition to sustainable power systems, providing energy storage and grid stability.

However, several challenges hinder its widespread adoption.

Technical Challenges

1. Geotechnical Challenges : The construction of PSH plants requires careful consideration of geological factors, such as terrain stability and water leakage

2. Efficiency and Performance : PSH plants face efficiency challenges due to factors like turbine design, pump efficiency, and grid stability

3. Scalability and Flexibility : PSH plants need to be scalable and flexible to accommodate varying energy demand and supply

Economic and Regulatory Challenges

1. High Upfront Costs : The initial investment required for PSH plants is substantial, making them less competitive with other forms of energy storage.

2. Regulatory Frameworks*: The lack of supportive regulatory frameworks and policies hinders the development of PSH plants.

3. Market and Investment Barriers*: PSH projects face market and investment barriers, including limited access to financing and uncertainty around revenue streams

Sustainability Challenges

1. Environmental Impacts : PSH plants can have environmental impacts, such as altering ecosystems and affecting aquatic life.

2. Social Impacts : The construction of PSH plants can have social impacts, including displacement of communities and effects on local livelihoods.

3. Integration with Renewable Energy Sources : PSH plants need to be integrated with renewable energy sources to ensure a sustainable energy mix.

Addressing these challenges will be crucial to unlocking the potential of PSH technology and creating sustainable power systems.

L&T's Power Transmission and Distribution Vertical Bags New Orders in India, Middle East

Infrastructure major Larsen & Toubro Limited's Power Transmission and Distribution (PT&D) business secured large orders, both domestically and internationally, to build grid elements.

The company won an order to implement an advanced distribution management system in West Bengal.

As per an exchange filing by the company, this technology makes power distribution smarter by combining Outage Management System and Distribution Management System functionalities. Through real time monitoring and control of medium and low voltage networks, the reliability of the network will be enhanced with quick isolation of faults and faster restoration.

It has also secured an order for a key 380kV substation in Saudi Arabia, which will facilitate evacuation of solar generation. The L&T's PT&D division has also bagged orders for establishing a set of EHV substations, including a 400/132kV substation in Dubai.

For Q3 FY25, L&T's order inflow stood at INR 44,400 crore. As of September 2024, L&T's order backlog stood at INR 5.1 lakh crore

NTPC Renewable Energy Bags 1GW Solar Power Project

NTPC Renewable Energy Limited (NTPCREL) has secured a 1,000 MW solar power project from Uttar Pradesh Power Corporation Ltd (UPPCL), at a tariff of INR 2.56/kWh, as per a regulatory filing.

According to the filing, the letter of award from UPPCL is awaited.

The auction, aimed at the selection of solar power developers for setting up 2 GW ISTS-connected solar PV power projects in India under tariff-based competitive bidding was carried out on January 3.

Gridlock Ahead? Transformer Shortage and the Renewable Energy Challenge

Transformers play a vital role in energy distribution systems by converting high-voltage electricity from transmission lines into low-voltage electricity for consumer use. Thus any supply disruptions in the supply of this essential component, coupled with resultant rising prices in the global transformer market, can significantly affecting utilities. Over the past three years, this situation has been an understated risk that threatens energy accessibility, reliability, and affordability, posing challenges to both consumers and energy providers.

Several factors influence the demand for transformers, making long-term forecasting difficult. These include load growth driven by the electrification of buildings and transportation, the rising frequency and severity of extreme weather events, and the need to upgrade aging electrical infrastructure. Additionally, factors like new renewable energy projects, expanding electrification, the growth of EV charging networks, and the establishment of new data centers contribute to fluctuating demand. During periods of supplyside inefficiencies, demand tends to surge naturally.

The demand for transformers has increased substantially worldwide amid the shortage of supply. The wait time to get a new transformer has doubled from 50 weeks in 2021 to nearly two years now, according to a report from Wood MacKenzie released in 2024.

The wait for specialised large power transformers (LPTs), which boost voltage from power plants to transmission lines, has stretched to an astonishing four years. Supply-side constraints have driven costs skyward, with prices soaring by 60 to 80 percent since the start of 2020. In India, the situation is equally dire with wait times for 220-kilovolt transformers having risen from the earlier 8 months to over a year, underscoring the strain on this critical sector.

Why is there a Shortage? The transformer shortage is a result of market forces stemming from electricity demand and material supply chains. For example, transformer cores are generally made of grain-oriented electrical steel, or GOES. GOES is an important component for electric motors and EV chargers. The expansion of these adjacent industries intensified the demand for GOES and diverted much of the supply.

As per one Fortune Business Insights report, updated in December 2024, the Grain Oriented Electrical Steel market size was valued at USD 12.40 billion in 2023 and is projected to grow from USD 13.11 billion in 2024 to USD 20.48 billion by 2032, exhibiting a CAGR of 5.7 percent during the forecast period. Notably, the market size in the US is projected to grow significantly, reaching an estimated value of USD 1.54 billion by 2032, driven by the increasing demand for electric vehicles in the North American nation. By 2024, GOES prices doubled since 2020 driven by a significant market deficit and key manufacturers curtailing production due to manufacturers expecting a drop in demand during pandemic. For some US manufacturers, the demand skyrocketed by as much as 70 percent over the last two years. Further, the global demand for LPTs with voltages over 100 kV has grown more than 47 percent since 2020. Industry experts expect it to increase further 30 percent by 2030.

After a boom in transformer manufacturing about 20 years ago, the industry is now facing a slowdown. Manufacturers often take decades to break even, leaving many hesitant to invest in expanding production. Companies that gained technological expertise and financial capital in the 1980s are currently benefiting from full production schedules and higher margins due to surging global demand. However, this profitability reduces their incentive to scale up, potentially leading to financial instability if market dynamics shift.

Despite these challenges, some manufacturers have announced plans to build new facilities in countries like Australia, China, Colombia, Finland, Germany, Mexico, the United States, and Vietnam. While these expansions are promising, they may fall short of alleviating the ongoing transformer shortage, which is quite pronounced compared to the demand. In the US, only around 20 percent of transformer demand can be met by domestic supply.

Dearth of Transformers: A Bad News for RE Sector AC-DC conversion is crucial for the RE industry because

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many technologies, including the electrolyzers that create hydrogen fuel, EV charging stations, and energy storage, that aim to be a part of the cleaner energy future need transformers for DC power.

Step-up transformers are used to convert low-voltage electrical generation into high-voltage electricity for long-distance transmission. They are needed to integrate wind and solar farms onto the power grid by adjusting voltages, improving efficiency, and enhancing grid reliability

The supply side crunch of transformers directly affects the renewable energy projects. Wood MacKenzie reports that a quarter of the world's renewableenergy projects may be delayed while awaiting transformers to connect them to local grids. For instance, the increased wait time for 220-kilovolt transformers could potentially affect nearly 150 GW of new solar development in India alone

The current transformer shortage is likely to affect beyond current times. European Green Deal, for instance, planned for a substantial build-out of Europe's transmission network by 2030 to accelerate electrification. This target now risks getting derailed if the transformer industry doesn't ease the wait time.

In addition to the RE sector, the shortage of transformers also impacts other sectors which need them for integration in the grid, such as utilities, homeowners, businesses, rail systems, EV charging stations.

Impact on India's Renewable Segment
Transformers play a pivotal role in integrating renewable energy into the grid, ensuring efficient power transmission and grid stability. With India targeting 500 GW of renewable energy by 2030, the demand for transformers has surged, making their availability a critical factor for meeting these goals. However, a significant shortage of transformers now threatens to derail the momentum of India's renewable energy transition.

The shortage of Cold-Rolled Grain-Oriented (CRGO) steel, a critical material for manufacturing transformers, is a key factor contributing to the transformer supply gap. Domestic production in India meets just 10-12 percent of the total demand, leaving the country heavily dependent on imports. In FY2024, India required 400,000 tonnes of CRGO steel but produced only 50,000 tonnes locally, relying on imports for 239,200 tonnes from countries such as Japan, South Korea, China, and Russia. This dependency is further complicated by delays in import certifications and expiring licenses issued by the Bureau of Indian Standards (BIS), creating uncertainty and disruptions in the power sector. Also India needs alloy steel like stainless steel or CRGO steel for its expanding aerospace, automotive, and energy industries.

The rapid growth of EV charging networks, data centres, and the push for smart grids further drives the demand for advanced transformers capable of meeting modern grid requirements. The transformer shortage has significant implications for India's renewable energy goals. Delayed project timelines risk deterring investors and slowing the progress of solar, wind, and energy storage projects. Moreover, the intermittent nature of renewable energy sources demands transformers with advanced monitoring and control systems to maintain grid stability. Without a steady supply of these critical components, the dependability and efficiency of the power infrastructure could be compromised.

Efforts are underway to address the shortage. Key players in the Indian transformer industry, including BHEL, Siemens India, and Voltamp Transformers, are ramping up production. Some manufacturers are also investing in new facilities. However, these measures may not be enough to bridge the demand-supply gap in the short term. Experts emphasize the need for robust policies to promote local manufacturing of both transformers and CRGO steel. The recent government policy measures and the growing energy industry is expected to ease the pressure a little 2025 onwards with India Power Transformer Market expected to register a CAGR of greater than 3 percent between 2025 and 2030, as per Mordor Intelligence report.

India's renewable energy ambitions are closely tied to ensuring the availability of transformers and other essential components. To achieve its climate commitments and meet the growing energy needs of the country, immediate steps to strengthen domestic production and streamline supply chains are crucial. Without decisive action, the transformer shortage could jeopardise India's ability to realise its ambitious energy transition goals.

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Vedanta Aluminium Unveils Two New Products for Power Industry

Vedanta Aluminium, India's largest aluminium producer and the world's largest aluminium wire rod manufacturer, introduced two high-quality products for the power and transmission industry at 'PowerEdge 2024'. The first, the AL59 Ingot, offers superior electrical conductivity, making it ideal for remelting. The second product is the Electrical Conductor (EC) grade Wire Rod, designed for winding strip applications with a balance of strength, conductivity, workability, and formability. Both products are engineered for high-precision use, making them perfect for fine drawing, conforming, and enamelling in transformer and motor winding applications.

PowerEdge 2024, an industry-focused event that attracted leading companies from the power and transmission sectors, sector experts and policymakers. The event also featured expert-led sessions on the future roadmap of the sector and the role of aluminium in its transformation. It served as a platform for industry players to identify new areas of collaboration.

India's electricity demand grew by 7% in 2023, with an expected average annual growth rate of 6% through 2026. To ensure a reliable, affordable, and uninterrupted power supply, it is crucial to develop an efficient and robust infrastructure that optimally utilizes electricity from generation stations to load centers. Vedanta Aluminium's wire rods, with their superior conductivity and design flexibility, have become crucial in the energy sector, driving efficiency and sustainability.

Speaking about the remarkable performance of the platform, John Slaven, CEO, Vedanta Aluminium, said, “PowerEdge 2024 highlighted the vital role aluminium plays in enabling the energy sector's transformation, and our new product offerings are a testament to this vision. We reaffirm our commitment to driving efficiency and sustainability in the power industry. By leveraging our expertise, cutting-edge technology, and an in-depth understanding of our customers' unique requirements, we aim to help them achieve greater efficiency, develop innovative product applications, and meet their sustainability goals in a highly competitive global landscape.”

Vedanta Aluminium works closely with customers across industries to cater to their specific and dynamic needs. With a production capacity of 650 kilo tonnes (KT) in wire rod production, the company offers a wide range of top-quality EC-grade wire rods, alloy wire rods, and flip coils for the electrical industry. These products are manufactured using best-in-class technologies from Southwire (USA) and Continuus-Properzi (Italy), ensuring high precision and quality. This scale and range of production make Vedanta Aluminium the largest producer of wire rods globally (ex-China). These products are supplied to customers in over 60 countries for high-end applications, attesting to their high production quality and global demand.

TESCO Launches Nighthawk DirectConnect

Nighthawk DirectConnect delivers seamless, secure LTE connectivity for effortless AMI integration...

The Eastern Specialty Company (TESCO), a leader in innovative metering solutions, has introduced the Nighthawk DirectConnect, a game-changing product designed to address the most pressing challenges faced by utility companies today. As utilities continue to modernize and expand their infrastructure, Nighthawk DirectConnect sets a new standard for reliability, security, and interoperability in metering technology.

Nighthawk DirectConnect can be configured for use on virtually any system, ensuring that utilities can maintain consistent, accurate data across their networks without the need for extensive upgrades or additional software. The product simplifies the setup process with a true plug-and-play design. Simply plug it in, and it works seamlessly with your existing systems—no extra software needed.

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Greaves Engineering Launches the new CPCB IV+ Compliant Gensets

Greaves Engineering, the engineering division of Greaves Cotton Limited (GCL), has introduced its range of new CPCB IV+ Compliant Gensets, adhering to the latest standard set by the Central Pollution Control Board (CPCB). With a focus on addressing growing consumer demand for high performance, reliable, and sustainable power solutions, Greaves Engineering is offering CPCB IV+ compliant gensets across its diverse product portfolio, ranging from 5 kVA to 500 kVA in the < 800kW segment.

CPCB IV+ compliant gensets produce approximately 90% less NOx and particulate matter (PM), thereby reducing greenhouse gas emissions, making this range a significant milestone in the company's pursuit of powering India sustainably in the < 800 kW segment. Greaves also offers gensets from 1010 kVA up to 2500 kVA.

With an extensive product portfolio ranging from compact models tailored for residential use, to heavy duty units designed for commercial and industrial applications, Greaves Engineering helps power India's progress across sectors such as Malls, Manufacturing, Realty – Residential & Commercial, Infrastructure, Railways, Airports, Hospitals, BFSI, Educational institutions, Petrol stations, Data centres, Sports facilities, Government facilities, Warehousing, Temples & more.

Building on its fuel agnostic strategy, Greaves Engineering is also ready with gensets that use biodiesel and ethanol.

Sterlite Grid 32 Announces Closure of INR 2450 Crore Listed NCDs for Mumbai Urja Marg

The Mumbai Urja Transmission Limited (MUML) project has the potential to carry more than 2000 MW additional power to Mumbai and Navi Mumbai.

Sterlite Grid 32 Limited (SGL32), a subsidiary of Sterlite Power Transmission Limited (SPTL) and a leading power transmission developer, has successfully refinanced its Mumbai Urja Transmission Limited (MUML) project by way of listed Non-Convertible Debentures (NCD) worth INR 2450 crore.

The infrastructure business of SPTL was demerged into Sterlite Grid 5 Limited (SGL5) on October 8, 2024. SGL5 recently entered into a joint venture with GIC of Singapore, following which SGL5 will execute all its transmission projects in India through SGL32.

This is the first Listed NCD issuance of SGL32 after its JV with GIC of Singapore.

Speaking on the development, Mr. Pratik Agarwal, Director, Sterlite Grid 32 Ltd, said, "This precedent-setting transaction marks a significant achievement for the business, showcasing our ability to secure cost-efficient financing while maintaining strong investor confidence. The success of this transaction highlights our commitment to deliver value to our stakeholders and aligns with our vision of advancing India's green energy infrastructure.

"This initiative is not merely a financing success but a stepping-stone to our future financing strategy. This transaction has helped us diversify from its traditional sources of debt financing to debt capital market financing. The JV now has access to a stronger alternative source of funds," he added.

The JV platform won the MUML project in June 2020, through Tariff Based Competitive Bidding (TBCB) to execute the green energy corridor project on BOOM (build, own, operate, maintain) basis for a period of 35 years.

The MUML project has established a transmission system covering western region strengthening Scheme-XIX (WRSS-XIX) and northeastern region strengthening Scheme-IX (NERSS-IX) spanning across Maharashtra, Gujarat, Assam and Arunachal Pradesh. It is critical for strengthening the transmission system in the Mumbai Metropolitan Region, with the potential to carry more than 2000 MW additional power to Mumbai and Navi Mumbai.

The closure of INR 2450 crore funding manifests confidence in India's rapidly expanding renewable power sector. MUML will play a critical role in this mega transmission project that will facilitate the evacuation of 20GW of renewable energy from the State of Rajasthan.

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BHEL Commissions Punatsangchhu-II Hydroelectric Project in Bhutan

Bharat Heavy Electricals Limited has successfully commissioned two units of the 6×170 MW Punatsangchhu-II Hydroelectric Project (PHEP-II). As part of a bilateral agreement between the Government of India and the Royal Government of Bhutan, the greenfield hydro project is located in the Wangdue district of Western Bhutan. With the commissioning of these two units, BHEL's contribution to the total installed capacity in Bhutan now stands at nearly 89 percent.

Bharat Heavy Electricals Limited has achieved another milestone in Bhutan with the successful commissioning of two units of the 6×170 MW Punatsangchhu-II Hydroelectric Project (PHEP-II).

Executed as part of a bilateral agreement between the Government of India and the Royal Government of Bhutan, PHEP-II is a greenfield hydro project located in the Wangdue district of Western Bhutan.

Significantly, the Francis Turbine installed in the project is designed to operate at a rated head of 241 meters – the highest for any Francis Type Hydro Turbine in Bhutan. On commissioning of all six units, the expected annual power generation will be 4,357 gigawatt-hours.

BHEL's scope in PHEP-II comprises design, manufacture, supply, installation and commissioning of Electro-Mechanical works for 6×170 MW Vertical Francis Turbines & matching Synchronous Generators, Control & Monitoring (SCADA) System, Generator Transformers, Shunt reactor, Busduct, Pothead yard along with associated auxiliaries.

The equipment has been supplied by BHEL's units at Bhopal, Jhansi, Rudrapur, Bengaluru, and its Transmission Business Group, while erection and commissioning on site was carried out by the company's Power Sector-Eastern Region division, Kolkata.

Unit 1 and 2 of the 6×170 MW PHEP-II were synchronised on December 16 and 17, 2024, respectively.

Apart from that, BHEL has executed major projects like 4×84 MW Chukha, 4×15 MW Kurichhu, 6×170 MW Tala and 4×180 MW Mangdechhu in Bhutan till date. With the commissioning of these two units at PHEP-II, BHEL's contribution to the total installed capacity in Bhutan now stands at nearly 89%. Further strengthening its footprint in the region, BHEL is currently executing an order for 6×200 MW Punatsangchhu-I HEP, in addition to PHEP-II in Bhutan.

BHEL is also executing the 4×225 MW Arun-3 HEP and 2×20 MW Rahughat HEP in Nepal. Notably, BHEL has successfully executed over 3.8 GW of Hydro Projects abroad with more than 2.8 GW Hydro Projects under execution.

Toshiba Rolls out New Microcontrollers for Motor Control

Toshiba Electronic Devices & Storage Corporation has added eight new products with 512KB/1MB flash memory capacity and four types of packages to the M4K Group of the TXZ+ Family Advanced Class 32-bit microcontrollers equipped with Cortex-M4 core with FPU.

Continuing advances in the functionality of motor applications supporting IoT is increasing demand for large program capacity and firmware over-the-air support.

The new products expand code flash memory capacity from the 256KB maximum of Toshiba's current product to 512KB/1MB, depending on the product, and RAM capacity from 24KB to 64KB. Other features, such as an Arm Cortex-M4 core running up to 160MHz, integrated code flash and 32KB data flash memory with 100K program/erase cycle endurance, have been maintained.

The microcontrollers also offer various interfaces and motor control options, such as advance-programmable motor driver (A-PMD), advanced encoder 32-bit (A-ENC32), advanced vector engine plus (A-VE+) and three units of high-speed, high-resolution 12-bit analog/digital converters.

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Polycab Launches Campaign on Importance of Electrical Safety

The first Infra Safety conclave held in Mumbai explored the transformative role of cabling solutions in shaping the future of real estate.

Infra Safety conclave in Mumbai

Polycab, India's largest manufacturer of wires and cables, has launched a campaign 'Infra Safety: Powering India's Electrical Future,' aimed at raising awareness about the critical importance of electrical safety, targeting both consumers and professionals to foster a deeper understanding of its role in safeguarding lives and infrastructure.

The first Infra Safety conclave focusing on electrical safety in real estate was recently held in Mumbai. It explored the transformative role of cabling solutions in shaping the future of real estate. The discussion focused on emphasizing the importance of adhering to high safety benchmarks through robust standards and certifications. It also highlighted emerging trends, such as green certifications and fire-retardant materials with low smoke emissions, as pivotal advancements driving safer and more sustainable real estate developments.

Underscoring the critical importance of electrical fire safety standards in high-rise buildings, Mr. Bhushan Sawhney, Executive President and Chief Business Officer of Polycab, cautioned that installing sub-standard products is as perilous as driving without airbags.

Polycab wanted to be a solutions provider, not just a supplier. The company offered training programs in multiple languages and invested in R&D to create safer and more eco-friendly products, he added.

Mr. Bharat Jaisinghani, Executive Director, Polycab, remarked on the scope for the use of Artificial Intelligence to revolutionize cable selection by providing precise recommendations tailored to specific applications, optimizing both performance and safety. These breakthroughs could redefine the approach to electrical infrastructure. Polycab, as a leader in electrical safety, has been at the forefront of these innovations, he added.

Noting that collaboration was key to creating infrastructure which not only powered progress but also safeguarded lives, Mr. Sawhney said prioritizing electrical safety would ensure that India's growth story was one of resilience, innovation, and shared prosperity.

Signify Rolls out Natureconnect Lighting at India Light Festival 2024

A view of the NatureConnect launching ceremony...

Signify has recently launched NatureConnect; an industry-first revolutionary product, designed to enhance well-being by bringing the benefits of natural light indoors. Inspired by biophilic design principles, NatureConnect mimics the natural rhythm of sunlight, promoting a healthier circadian rhythm, improved mood, enhanced focus, and better sleep quality.

Research indicates that people spend 90% of their overall time indoors, emphasizing the importance of creating healthy indoor environments. NatureConnect addresses this need by utilizing elements of nature in interior spaces to create healthy, engaging, and inspiring environments with a proven biophilic design principle. Recognizing the profound impact of light on our physical and mental well-being. Nature Connect's groundbreaking technology emulates the dynamic variations of sunlight throughout the day, helping to balance the body's circadian rhythm and improve overall health, energy levels, mood, productivity, quality of sleep and overall well-being.

Commenting on the launch Sumit Joshi, CEO & MD – Signify, Greater India, said, “We are proud to bring this industry-first innovation for our customers across India, NatureConnect is tailor-made to bring natural light indoors. Its revolutionary lighting system, developed through extensive research recreates the positive effects of natural light indoors, for professional spaces, hospitality, and the healthcare industry in India. By utilizing energy-efficient LEDs and smart controls, NatureConnect seamlessly adjusts to the changing light patterns throughout the day, enhancing overall well-being and improving productivity. At Signify, we believe in creating products that not only meet but exceed our consumer's expectations. And with this launch, we are confident that we will redefine the standards for indoor lighting.”

Indicationg the product's usefulness, Girish K Chawla, Head of Professional Business – Signify, Greater India, said, “Bringing in the right light and the right moment, NatureConnect offers the colours and dynamics of nature for a fully immersive experience.”

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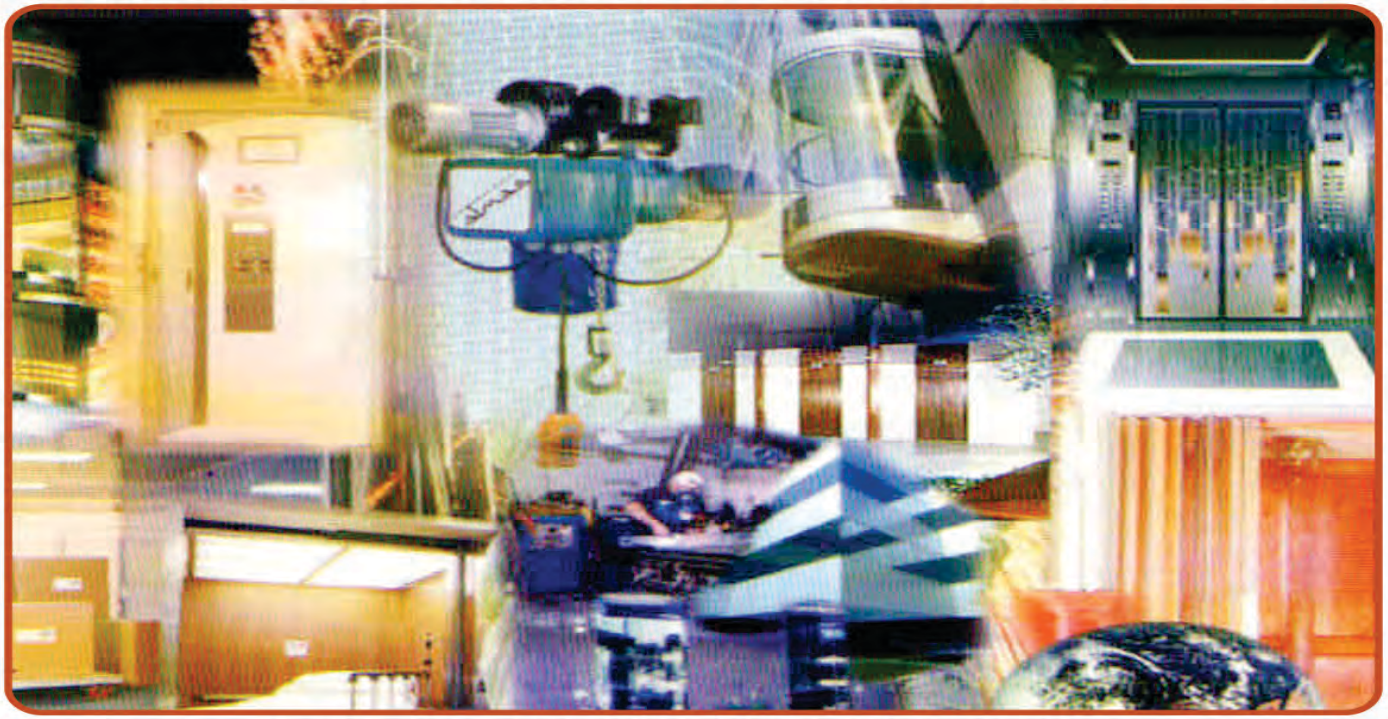

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Farasis Energy Rolls out Standard Electric Motorcycle Battery Globally

In Jakarta, Indonesia, Farasis Energy has recently highlighted its industry leadership at the opening of the "Asiabike Jakarta 2024", Southeast Asia's premier two-wheeler exhibition. The company, a global leader in lithium-ion battery technology, has debuted its 'Standard Electric Motorcycle Battery (7432, 7455)'.

Further emphasizing their dedication to enhancing electric mobility, Farasis Energy has forged a strategic partnership with Singapore's Moli Power. This alliance aims to significantly improve electric motorcycle charging infrastructure across Singapore and Southeast Asia, addressing challenges such as extended charging times and insufficient charging stations.

With 13 years of expertise in the electric motorcycle industry, Farasis Energy has consistently led the Chinese pouch lithium battery market within the battery swapping sector.

Their leading partners in China include Yugu, Zhi Zu, China Tower,and Mengniu. The new 'Standard Electric Motorcycle Battery' offers significant benefits including high energy density, which is 25% higher than the industry average, enabling a longer range.

LONGi Sets New World-Record for Silicon Solar Cell Efficiency, Launches New Module

The Hi-MO 9 is a solar module with capabilities of up to 660W, based on the 2nd generation Hybrid Passivated Back Contact (HPBC) solar cell technology…

LONGi Green Energy Technology Co., has broken another world-record for silicon solar cell efficiency. As certified by Germany's Institute for Solar Energy Research Hamelin (ISFH), new silicon Heterojunction Back-Contact (HBC) solar cells designed by LONGi have reached an efficiency of 27.30% under laboratory conditions.

The achievement has firmly established LONGi as a leader in crystalline silicon photovoltaics – the company is now the twin world-record holder both for efficiency in crystalline silicon solar cells and for efficiency in crystalline silicon-perovskite tandem solar cells. In November 2023, LONGi announced that the company had set an additional world record in the efficiency of crystalline silicon-perovskite tandem solar cells of 33.9%.

At a celebratory event held in Madrid, Spain, on the evening of the 7th of May, LONGi launched its all-new, flagship Hi-MO 9 module. The Hi-MO 9 is a solar module with capabilities of up to 660W, based on the 2nd generation Hybrid Passivated Back Contact (HPBC) solar cell technology and the TaiRay wafer, a silicon wafer launched by LONGi in March 2024, and the Hi-MO 9 module boasts a conversion efficiency up to 24.43%, built to excel in a range of tough environments (including lakes, mountains, and deserts).

Commenting on the new product, Dennis She, Vice President of LONGi Green Energy Technology Co., said, "Our new Hi-MO 9 module allows world-leading power generation and outmatches other technologies on the market in an equal land-use scenario. What's more, it retains this performance throughout its life, as the module is designed to the highest standards of reliability. Power plant owners can rest assured that a plant built from the Hi-MO 9 module will help them make the most efficient use of their land and get the most value out of sunlight."

BEE and TERI sign MoU to establish CoEET in Hyderabad

The Bureau of Energy Efficiency (BEE), under the Ministry of Power, and The Energy and Resources Institute (TERI) have signed a memorandum of understanding (MoU) to establish a Centre of Excellence for Energy Transition (CoEET) in Hyderabad.

The collaboration aims to promote research, innovation, and capacity-building in energy transition technologies and policies. The centre will focus on reducing greenhouse gas emissions, improving energy efficiency, and encouraging the adoption of low-carbon technologies across industries, micro, medium small scale enterprises, buildings, transport, power, and mining sectors. The centre will also advance energy-efficient technologies such as motors, heating, ventilation, and air conditioning systems, advanced boilers, and smart manufacturing while promoting circular economy practices and integrating artificial intelligency -based energy monitoring systems.

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Fuji Electric Launches HPnC Series Large-Capacity Industrial IGBT Modules for Expansion of the Use of Renewable Energy

Fuji Electric Co., Ltd. (FE) has launched the HPnC Series, a new series of large-capacity industrial IGBT* modules for applications including power converters for solar and wind power generation systems...

To achieve a decarbonized society, further expansion of the use of renewable energy sources such as solar and wind power is required, and reducing power generation costs has become an issue. IGBT modules are installed in power converters such as inverters and power conditioning systems (PCSs), and they play the role of changing frequencies and voltages by switching electricity on and off.

FE plans to release the HPnC Series large-capacity industrial IGBT* modules for applications including PCSs that perform power conversion in solar power generation systems and power converters for wind power generation systems. With increased rated current and voltage, these products improve the capacity and reduce the overall size of the power converters on which they are installed, thereby contributing to reducing power generation costs.

Features

Improves the capacity of power converters, contributing to reducing the number of units installed and expanding the installation area of solar panels

In addition to using the latest generation of IGBT chips, the module's internal terminal layout and chip layout have been optimized and high heat dissipation materials have been applied to increase the current density per unit area, thereby achieving an industry-leading rated current of 1800 A (approximately 80% increase compared to the company's previous products) while maintaining the size of the module. The number of power converters installed can be reduced by improving the capacity per unit. In solar power generation, they can also be used to expand the installation area of solar panels. These features contribute to improving power generation efficiency and reducing power generation costs.

The 2300 V breakdown voltage product supports 1500 VDC, contributing to reducing the number of parts in power converters

Power converters are being upgraded to support higher voltage (1500 VDC) in order to improve power conversion efficiency and connection with large-scale power generation systems. The rated voltage required for an IGBT module installed on a 1500-VDC power converter is 2000 V or higher. To accommodate this, generally, two IGBT modules with a rated voltage of 1200 V or 1700 V are connected in series. FE has optimized the breakdown voltage structure of the IGBT chip and the FWD* chip and now offers a lineup of IGBT modules with a rated voltage of 2300 V.

One module can support a 1500-VDC power converter, which makes it possible to reduce the number of IGBT modules installed and other components such as wiring in peripheral circuits, allowing for a smaller power converter footprint. This contributes to lower power generation costs.

RVUNL announces results for 500 MW/1,000 MWh BESS auction

Rajasthan Rajya Vidyut Utpadan Nigam Limited(RVUNL) has announced the results of its auction for 500 MW / 1,000 MWh standalone battery energy storage systems (BESS).

Solarworld Energy Solutions, Oriana Power, Rays Power Experts, and JSW Neo Energy secured capacities of 125 MW / 250 MWh, 50 MW / 100 MWh, 75 MW / 150 MWh, and 250 MW / 500 MWh, respectively. The tariffs for the awarded capacities range between Rs 221,000 and Rs 224,000 per MW per month. The tender, floated in September 2024, includes a greenshoe option for an additional 500 MW / 1,000 MWh capacity. Developers are eligible for viability gap funding (VGF) of Rs 2.7 million per MWh or 30 per cent of the project's capital cost, with the disbursement spread across five tranches. VGF for the greenshoe option will be finalised in the next phase.

The projects, scheduled for commissioning within 18 months of signing the battery energy storage purchase agreement, will connect to RVUNL's facilities, including Giral Lignite Power Project (Barmer), Suratgarh Thermal Power Station (Suratgarh), and substations in Sakatputa, Kota, and Heerapura, Jaipur.

'पंतप्रधान सूर्यघर योजने'मुळे होणार १.२ ट्रिलियन डॉलर्सची उलाढाल

''पंतप्रधान सूर्यघर मोफत वीजयोजने'मुळे (पीएम-एसजीएमबीवाय) भारतातील सौरऊर्जा क्षेत्रात १.२ ट्रिलियन रुपयांच्या विविध संधी निर्माण होतील,'' असे एसबीआय कॅपिटल मार्केट्सच्या अहवालात नमूद करण्यात आले आहे. पंतप्रधान नरेंद्र मोदी यांच्या या महत्त्वाकांक्षी योजनेमध्ये निवासी छतावरील सौरसंच स्थापनेला प्रोत्साहन देण्यावर लक्ष केंद्रित करण्यात येते. याद्वारे ३० गिगावॅट क्षमतेचे महत्त्वाकांक्षी लक्ष्य साध्य करण्याचे उद्दिष्ट ठेवण्यात आले आहे. योजनेच्या अंमलबजावणीसाठी मोठ्या प्रमाणात भांडवली खर्च अनुदान मिळते. त्यामुळे सर्वसामान्य नागरिकांना सौरऊर्जेचा अधिकाधिक वापर करण्यास प्रोत्साहन मिळते. या योजनेमुळे ज्यामध्ये मॉड्यूल, इन्व्हर्टर, माऊंटिंग उपकरणे आणि इलेक्ट्रिकल घटकांसह अन्य घटकांचे उत्पादनास गती मिळणार आहे. यामुळे संबंधित उत्पादकांना त्याचा लाभ होईल. याद्वारे अंदाजे १.२ ट्रिलियन रुपयांची उलाढाल शक्य आहे, असे अहवालात म्हटले आहे. १.२ ट्रिलियन रुपयांच्या संधीमध्ये, सौर मॉड्यूल्सचा वाटा सर्वाधिक असून तो ४८० अब्ज रुपये आहे. त्यानंतर इन्व्हर्टरचा वाटा २७५ अब्ज रुपये, इलेक्ट्रिकल घटकांचा वाटा २०० अब्ज रुपये आणि माऊंटिंग स्ट्रक्चर्सचा वाटा ९० अब्ज रुपये आहे.

अक्षय ऊर्जा उद्दिष्टांना चालना

केंद्र सरकारतर्फे या योजनेसाठी मोठे बळ पुरविण्यात येत आहे. त्यामुळे विशेषतः ज्या राज्यांमध्ये निवासी वीजदर जास्त आहेत, त्या राज्यांमध्ये नागरिकांकडून या योजनेचा लाभ घेण्याची संख्या जास्त असल्याचे दिसत आहे. त्याचप्रमाणे मॉड्यूल्स आणि ईपीसी सेवांच्या घटत्या किमतींमुळे निवासी, व्यावसायिक आणि औद्योगिक क्षेत्रातही या योजनेचा शिरकाव होत आहे, असेही अहवालामध्ये सांगण्यात आले आहे. ही योजना हरित ऊर्जेचे लोकशाहीकरण करण्यात आणि भारताच्या अक्षय ऊर्जा उद्दिष्टांना चालना देण्यात महत्त्वाची भूमिका बजावण्यास सज्ज आहे, असेही अहवालामध्ये नमूद करण्यात आले आहे.

सध्या पाच राज्ये सौरऊर्जेच्या वापरात आघाडीवर

सध्या, भारतातील सौर छतावरील क्षमतेपैकी ७० टक्के वाटा पाच राज्यांचा आहे. गुजरात ४ हजार, ८२२ मेगावॅटसह आघाडीवर आहे. त्यानंतर महाराष्ट्र (२ हजार, ८४७ मेगावॅट), राजस्थान (१ हजार, ४१५ मेगावॅट), केरळ (९६६ मेगावॅट) आणि तामिळनाडू (८७६ मेगावॅट) यांचा क्रमांक लागतो. सौरऊर्जेच्या वापरातील वाढ औद्योगिकीकरण, दरांमधील फरक, राज्यस्तरीय प्रोत्साहने आणि मीटरिंग धोरणे यांसारख्या घटकांशी जोडलेली आहे.

LED-Plus Sports Light Fitting

VL/LED/FDL

Description

FDL module can be two modules three,four and six module configuration and installed on the lamp pole, with all-round rotation and adjustment function WB830 case can provide remote installation for LED drive and control device

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Product characteristics:

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*High color rendering index (CRI > 80)
*Constant power output
*Instant start
*High Altitude Cross Wind Guidance System
*Power box separation
*Low wind speed region
*Full light-cut, cut off at 5 unites below the water level
*Segmented or DALI dimming
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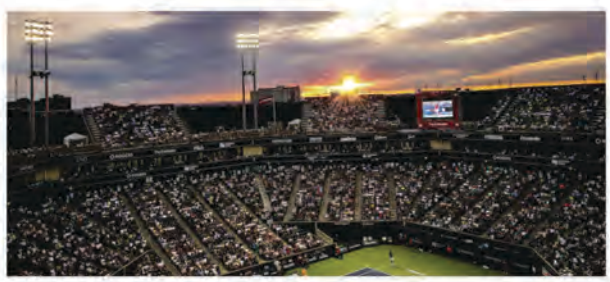
*100% recyclable

Application:

*Airport
*Port
*Logistics Centre
*Gymnasium
*Parking lot
*Road and Ring Road
*Shopping district
*Yard

Product advantages:

*High throughput density and efficiency LED
*Reducing energy costs and carbon emissions
*Improving safety and visual performance
*Minimize excessive lighting and save energy
*Suitable for high safety and safety critical lighting tasks
*L80 > 100,000 hours, Ta= 45 °C
*Flexible installation can save cost
*Allow installation on existing columns/high poles
*Minimizing overall costs
*Low glare, pure night sky
*Fully control and monitor each lamp
*Maintain high performance in harsh environments
*Fully compliant with WEEE and RoHS regulations



PARAMETERS

Input power	: 300W/450W/600W/900W/1350W
Overall lighting effect	:120lm/W
Color rendering index	: > 80

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इकॅम : विविध घडामोडी

पिंपरी चिंचवड विभाग

मा. खासदार, मावळ लोकसभा व केंद्रीय उर्जा स्थायी समिती अध्यक्ष मा. श्री. श्रीरंग अप्पा बारणे यांची ईकॅम पिंपरी चिंचवड विभागीय संचालकांची सदिच्छा भेट

Industry visit Konkan Region

ECAM Konkan Region members participated at in Industry visit to Automatic Electric Limited, Lonavala. It was quite a good learning experience regarding various electrical products, including transformers, dimmerstats, rectifiers, and almost all electrical measuring instruments. Members have also learnt about Energy Audit kit, demo of which was funtastic. Hope members enjoyed the factory visit.

डायरी भेट : जळगाव विभाग

जळगाव ईकॅम विभागातर्फे माननीय मुख्य अभियंता जळगाव झोन श्री मुलानी साहेब तसेच जळगाव सर्कल अधीक्षक अभियंता श्री महाजन साहेब तसेच जळगांव विद्युत निरीक्षक श्री अहिरे साहेब व सहाय्यक विद्युत निरीक्षक श्री शर्मा साहेब आणि जळगाव कार्यकारी अभियंता श्री महाजन साहेब यांना इकॅम संघटने कडून डायरी भेट करण्यात आली.

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इलेक्ट्रिकल कॉन्ट्रॅक्टर असोसिएशन ऑफ महाराष्ट्र ठाणे विभागामार्फत

संघटनेचे सर्व पदाधिकारी हे एन एस NSC सी टेंडर संदर्भात माननीय श्री श्रीनिवास गोपालकृष्ण चटलवार साहेब यांच्या सोबत भेट घेऊन आपल्या एनसीसी व ब्रेकडाऊन एच.टी/ल.टी/डी .टी. सी.टेंडर संदर्भात चर्चा करण्यात आली. सकारात्मक चर्चा झाली त्यावर विचार केला जाईल असेच त्यांनी आपणास शब्द दिला आहे.

यावेळी संघटनेचे चेअरमन मा. श्री निलेश सुभाष तिवरमकर, युवराज सुरवडे, संतोष डोनाकोंडा, रवी तिवारी, गोविंद पल्ले, व्यंकटेश वणाडा, रामलू आबटी, विलास सुरवडे , सागर डोनाकोंडा ,वासू देवखेडकर,किरण परब, संदेश खानविलकर, श्रीनिवास सागर यावेळी उपस्थित होते.

इक्कॅम संचालकांचर्फे निवेदन

इलेक्ट्रिकल कॉन्ट्रॅक्टर असोसिएशन ऑफ महाराष्ट्र संघटनेचे सर्व पदाधिकारी हे एन एस सी टेंडर संदर्भात माननीय श्री भादेकर साहेब त्याचबरोबर श्री पडवळकर साहेब यांच्या सोबतभेट घेऊन आपल्या एनसीसी टेंडर संदर्भात चर्चा करण्यात आली. सकारात्मक चर्चा झाली त्यावर विचार केला जाईल असेच त्यांनी आपणास शब्द दिला आहे. यावेळी संघटनेचे मा. श्री. सचिनजी फडतरे साहेब, श्री. शैलेंद्र (बंटी) गुजर साहेब, श्री. अर्जुन ससे साहेब, श्री. आबा (श्रीकांत) देवढे, श्री.अमोल कोळपकर, श्री. कल्पेश पटेल यावेळी उपस्थित होते.

जळगाव विभागातर्फे निवेदन

मुख्य कार्यालयाच्या सूचनेप्रमाणे NSC टेंडर प्रक्रिया रद्द करण्यासाठी आज जळगाव विभागाच्या वतीने अधीक्षक अभियंता, श्री महाजन साहेब महावितरण जळगांव यांना उपस्तितीत जळगांव कार्यकारिनी व ठेकेदार यांच्या तर्फे निवेदन देण्यात आले

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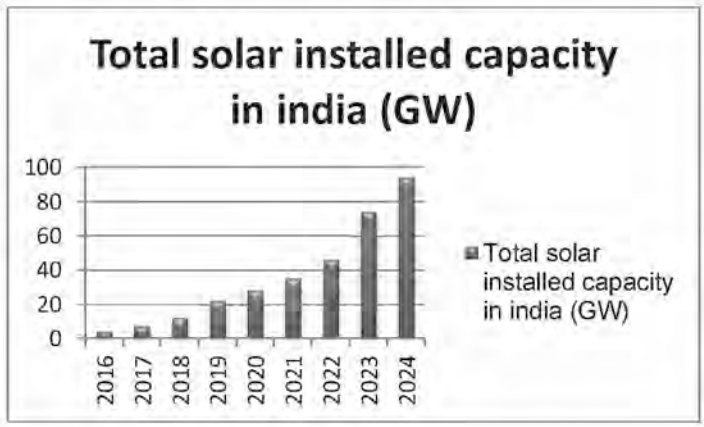
जगामध्ये हवामान बदलामध्ये वाढ आणि जीवाश्म इंधनाच्या साठ्यात घट होत आहे. यासाठी शाश्वत ऊर्जा उपायांची आवश्यकता आहे. सौरऊर्जा पारंपारिक उर्जा स्त्रोतांना अक्षय पर्याय प्रदान करते.

भारत हा जगातील तिसरा सर्वात मोठा ऊर्जा वापरणारा देश आहे. भारतीय सौरऊर्जा उद्योगाचा प्रचंड विस्तार होत आहे. २०२४ मध्ये, त्याची सौर क्षमता २०१० मध्ये १०-२० मेगावॅट (MW) वरून 94 गिगावॅट (GW) झाली.

भारताच्या शाश्वत ऊर्जा पॉवरहाऊसमध्ये परिवर्तन करण्यात सौर ऊर्जा आघाडीवर आहे. विपुल सूर्यप्रकाशामुळे, भारत या नूतनीकरणयोग्य संसाधनाचा वापर करण्यासाठी सज्ज आहे. भारत जीवाश्म इंधनावरील अवलंबित्व कमी करून आणि कार्बन उत्सर्जनात लक्षणीय घट करू शकतो. २०३० पर्यंत 500 GW नूतनीकरणक्षम ऊर्जा क्षमता साध्य करण्याचे सरकारचे महत्त्वाकांक्षी लक्ष्य आहे. त्यामुळे सौर तंत्रज्ञानाचा अवलंब करण्यास वेग आला आहे.



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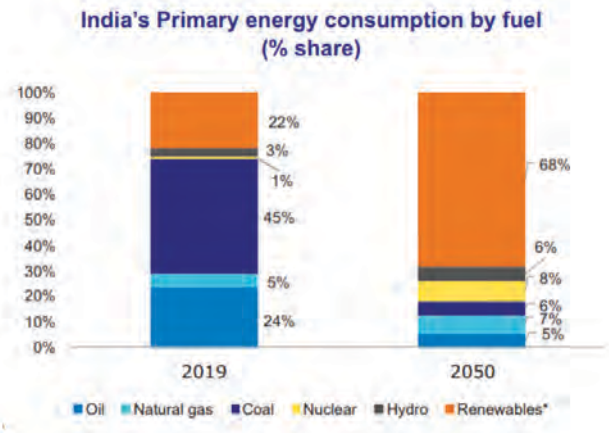
हे परिवर्तन निवासी, व्यावसायिक आणि औद्योगिक क्षेत्रांमध्ये सौर ऊर्जेच्या मागणीत वाढ झाल्यामुळे होत आहे. सौरऊर्जा पारंपारिक ऊर्जा स्रोतांना किफायतशीर, स्केलेबल आणि इको-फ्रेंडली पर्याय देते. यामुळे व्यवसाय आणि व्यावसायिकांसाठी फायदेशीर संधी निर्माण होत आहेत.



शिवाय, वित्तीय संस्था आणि बँका आकर्षक वित्तपुरवठा पर्यायांसह पुढे येत आहेत. आता सौर पायाभूत सुविधांमध्ये गुंतवणूक करणे पूर्वीपेक्षा सोपे झाले आहे. यामुळे रोजगार निर्मिती आणि आर्थिक वाढीला चालना पण मिळत आहे.

विद्युत कंत्राटदारांसाठी, सौर क्रांतीमध्ये सामील होण्याची ही योग्य वेळ आहे. आवश्यक कौशल्ये आत्मसात करून, तुम्ही या भरभराटीच्या उद्योगाच्या अत्याधुनिक क्षेत्रात स्वत:ला स्थान देऊ शकता.

पीएम सूर्यघर योजना

प्रधानमंत्री सूर्यघर योजना हा भारतभरातील निवासी कुटुंबांमध्ये सौरऊर्जेचा अवलंब करण्याच्या उद्देशाने राबविला जाणारा एक सरकारी उपक्रम आहे.

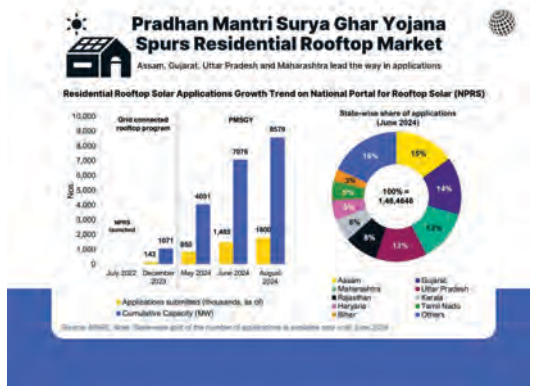
या योजनेनुसार घरमालकांना

स्वच्छ, नूतनीकरणक्षम ऊर्जा मिळते.

वीज बिल कमी होते.

आणि पारंपारिक उर्जा स्त्रोतांवर अवलंबून राहण्याऐवजी घराच्या छतावर सौर पॅनेल स्थापित करण्यासाठी प्रोत्साहित केले जाते.

३ kW पर्यंतच्या उर्जा निर्मिती स्थापनेसाठी ४०% पर्यंत सबसिडी आणि १० kW पर्यंतच्या क्षमतेसाठी अतिरिक्त प्रोत्साहन मिळते.



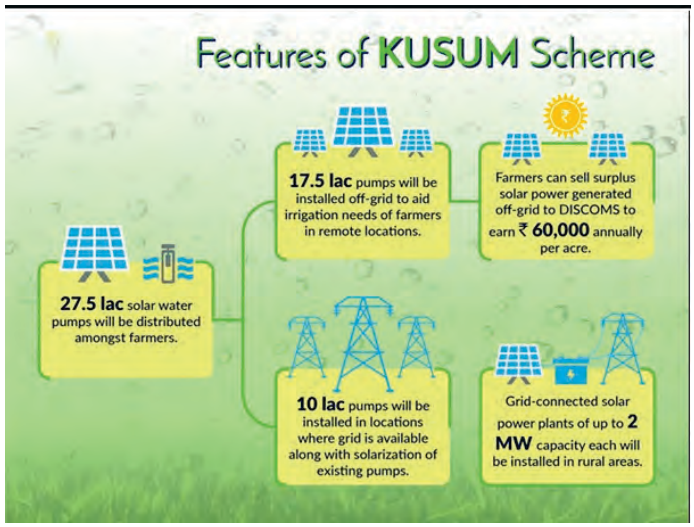
Residential Rooftop Solar Subsidy under PM Surya Ghar Muft Bijli Yojna

Average Monthly Electricity Consumption	Suitable Rooftop Solar Plant Capacity	Subsidy Support	
(kWh)	(kW)	(₹)	(~$)
0-150	1-2	30,000-60,000	361-722
150-300	2-3	60,000-78,000	722-939
>300	Above 3	78,000	939

Source: MNRE *Mercom India Research*

PM-KUSUM Scheme

कृषी क्षेत्रांसाठी, PM-KUSUM योजना (प्रधानमंत्री किसान ऊर्जा सुरक्षा एवम उत्थान महाभियान) असून सौर पंप आणि ग्रीड-कनेक्ट केलेले सौर ऊर्जा प्रकल्प स्थापित केले जातात. हे केवळ त्यांच्या सिंचन गरजा पूर्ण करत नाही तर ग्रीडला अतिरिक्त ऊर्जा विकून त्यांना अतिरिक्त उत्पन्नाचा स्रोत देखील प्रदान करते. प्रत्येक शेतकऱ्याला कूपनलिका आणि पंप संच उभारण्यासाठी ६०% अनुदान मिळते. तसेच त्यांना एकूण खर्चाच्या ३०% रक्कम सरकारकडून कर्ज म्हणून मिळते.



यो योजनेत विद्युत कंत्राटदार सौर पंप बसवण्यात, तांत्रिक सहाय्य प्रदान करण्यात आणि विक्रीनंतरच्या देखभाल सेवा देऊ शकतात. ग्रामीण भागात नवीकरणीय ऊर्जेला चालना देण्यावर सरकारने लक्ष केंद्रित केल्यामुळे, कंत्राटदार सौर सोल्यूशन्सच्या वाढत्या बाजारपेठेत प्रवेश करू शकतात. याव्यतिरिक्त, त्यांना सरकारी प्रोत्साहन आणि अनुदानांचा फायदा होऊ शकतो, सौर ऊर्जा क्षेत्रात त्यांचा व्यवसाय विस्तारत असताना ते भारताच्या हरित ऊर्जा संक्रमणातील प्रमुख भूमिका निभावू शकतात.

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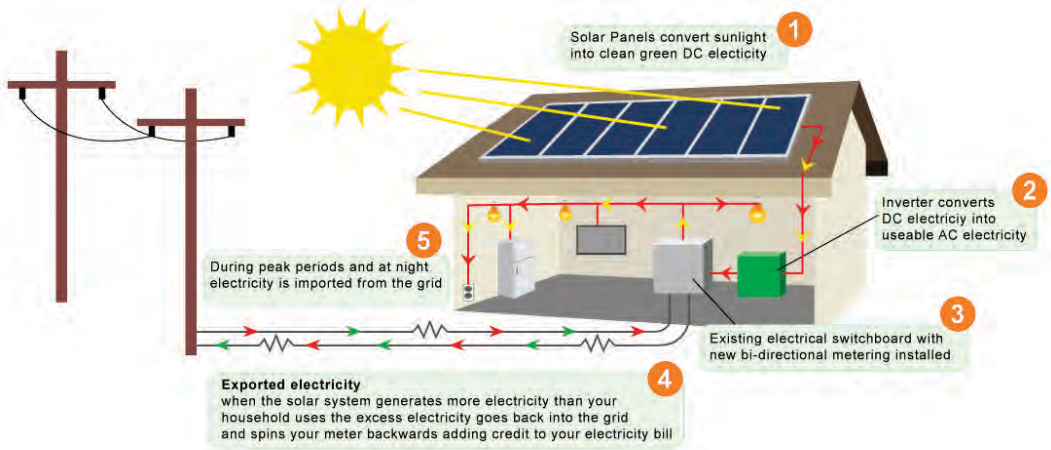

वाशी इंटिग्रेटेड सोल्युशन्स: सौर यशासाठी तुमचा वन-स्टॉप पार्टनर

सौर ऊर्जेची वाढती मागणी विद्युत कंत्राटदारांना त्यांच्या सेवांचा विस्तार करण्याची अविश्वसनीय संधी देते. वाशी इंटिग्रेटेड सोल्युशन्समध्ये, आम्ही तुम्हाला प्रत्येक टप्प्यावर मार्गदर्शन करण्यासाठी कटिबद्ध आहोत, या भरभराटीच्या बाजारपेठेत तुमचे यश सुनिश्चित करताना सौर क्षेत्रात सहजतेने व्यवसाय करण्यात मदत होईल.

सर्व सौर आवश्यकतांसाठी वन-स्टॉप सोल्यूशन म्हणून, आम्ही आत्मविश्वासाने सौर प्रकल्प हाती घेण्यासाठी आवश्यक असलेली प्रत्येक गोष्ट प्रदान करतो. आमचे मार्गदर्शन विद्युत कंत्राटदारांसाठी तयार केलेल्या विशेष प्रशिक्षण कार्यक्रमांपासून सुरू होते. सोलर मार्केटमध्ये काम करताना सरकारी योजना, अनुदाने आणि प्रमाणपत्रे समजून घेणे आवश्यक आहे. वाशी इंटिग्रेटेड सोल्युशन्स मार्गदर्शन देऊन ही प्रक्रिया सुलभ करते. यामुळे तुम्ही आणि तुमचे ग्राहक पूर्ण लाभ घेऊ शकता.

प्रतिष्ठापनांच्या पलीकडे, आम्ही तुम्हाला सिस्टम मॉनिटरिंग, कार्यप्रदर्शन विश्लेषण आणि देखभाल उपायांसह विक्री-पश्चात सेवांद्वारे दीर्घकालीन क्लायंट संबंध प्रस्थापित करण्यास सक्षम करतो. यामुळे ग्राहकांचे समाधान होते आणि व्यवसाय संधींसाठी दरवाजे उघडतात.

आजच आमच्याबरोबर चला आणि अक्षय ऊर्जा क्रांतीमध्ये तुमचा ठसा उमटवा.

वाशी इंटिग्रेटेड सोल्युशन्स – सौरऊर्जेमध्ये तुमचे यश!

इकॅम नगर विभाग : सोलर जनजागृती मोटर सायकल रॅली

दि. २०/१२/२०२४ रोजी राष्ट्रीय ऊर्जा संवर्धन सप्ताहच्या निमित्ताने इकॅम नगर विभाग, सोलर असोसिएशन, व महावितरण यांच्या संयुक्त विद्यमाने नगर शहरात सोलर जनजागृती मोटर सायकल रॅली काढण्यात आली. रॅलीला नगर शहराचे आयुक्त श्री यशवंत डांगे, तसेच महसूल प्रांताधिकारी श्री पाटील साहेब, महावितरण प्रभारी अधीक्षक अभियंता श्री काकडे साहेब, नगर शहर कार्यकारी अभियंता श्री योगेश चव्हाण, इकॅम महाराष्ट्र राज्य अध्यक्ष श्री उमेश रेखे,नगर विभाग अध्यक्ष श्री दत्ता झिंजुर्डे यांनी हिरवा झेंडा दाखवून सुरवात झाली. रॅली मध्ये नगर विभाचे उपाध्यक्ष श्री बाळासाहेब दुकळे, सचिव श्री अर्जुन ससे, सहसचिव श्री श्रीकांत देवढे, खजिनदार श्री संदीप डोळस, संचालक श्री आदिनाथ म्हस्के,श्री अभिजित कांडेकर,श्री जितेंद्र तोरणे, श्री योगेश खांदवे, श्री महेंद्र वाळके, महाराष्ट्र राज्य संचालक, श्री अमित गरुड,श्री राम गुंड व सभासद बंधु , महावितरण कर्मचारी, सोलर असोसिएशन सभासद इ उपस्थित होते.

महावितरण अहिल्यानगर बॉक्स क्रिकेट लीग २०२५

दि.२६ जानेवारी २०२५ रोजी ईकॅम व महावितरण यांच्या संयुक्त विद्यमाने झालेल्या महावितरण अहिल्यानगर बॉक्स क्रिकेट लीग २०२५ मध्ये ईकॅम अहिल्यानगर विभागाच्या टीम ने तृतीय क्रमांकाचे बक्षीस पटकाविले. ईकॅम च्या खेळाडूंनी मिळवलेली तृतीय क्रमांकाची ट्रॉफी संघटनेचे सचिव श्री अर्जुन ससे यांच्याकडे सुपूर्त केली.

टीम ईकॅम – १)श्री योगेश उघडे २) श्री महेंद्र वाळके ३) श्री सचिन चेडे ४) श्री दिपक बोन्दर्डे
५)श्री किशोर थोरात ६) श्री यश खांदवे ७) श्री अमित गरुड ८) श्री राम गुंड

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POWERGRID Wins Bids for Inter State Transmission Projects Worth INR 754 Crore

Power Grid Corporation of India has received Letters of Intent for two tariff-based competitive bidding projects in Gujarat and Karnataka, for the establishment of an inter-state transmission system on a build, own, operate and transfer basis.

State-owned Power Grid Corporation of India (PGCIL) has received Letters of Intent (LoIs) for two major projects in Gujarat and Karnataka worth INR 754 crore under the tariff-based competitive bidding (TBCB), for the establishment of an inter-state transmission system on a build, own, operate and transfer (BOOT) basis.

As per PGCIL, the first project involved augmentation of transformation capacity at KPS1 (GIS) and KPS2 (GIS) (Phase-V Part B1 and Part B2 scheme), at under-construction substations in Gujarat.

The second project involved augmentation of transformation capacity by 3×500 MVA, 400/220kV ICTs (6th-8th) and 1×1500 MVA, 765/400kV ICT (4th) at Bidar PS, at an under-construction substation in Karnataka.

The leading global power transmission utility said the projects will facilitate evacuation of power from renewable energy (RE) generation projects.

इकॅम पिंपरी चिंचवड विभाग आयोजित सोलर एनर्जी कार्यशाळा

शनिवार २५ जानेवारी रोजी पिंपरी चिंचवड विभागाने सदस्यांसाठी सोलर एनर्जी व रूफ टॉप सोलर इन्स्टॉलेशन या विषयावर वाशी इंटिग्रेटेड सोल्यूशन्स या कंपनीच्या सहकार्याने हॉटेल राधाकृष्ण येथे कार्यशाळा आयोजित केली. ५१ सदस्य उपस्थित होते. ही कार्यशाळा सकाळी ११ ते सायंकाळी ५ पर्यंत चालली. यापैकी बहुतेक सदस्यांनी हा व्यवसाय करायचे ठरवले. तसेच कार्यक्रम संपल्यानंतर उपस्थित सभासदांना संघटनेचे डायरी व कॅलेंडर चे वितरण करण्यात आले.

KEC International secures new orders in T&D worth Rs 14.45 billion

KEC International Limited, a wholly-owned subsidiary of the RPG Group, has secured new orders totaling Rs 14.45 billion in the transmission and distribution (T&D) business. In the T&D segment, the company has received orders for ± 800 kV high voltage direct current and 400 kV transmission line projects from Power Grid Corporation of India Limited.

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YOU THINK IT, WE DO IT

Dust And Tilt: The Impact On Solar Panel Performance

by Michael Bloch

Dust can have a negative impact on solar panel performance. But module tilt angle also plays a role in how much the impact will be, as this study carried out in an extreme environment indicates.

It's now been 3 weeks since any rain fell in my neck of the woods in Adelaide. This shot of my solar panels yesterday shows them looking rather dusty.

But according to SolarAnalytics1, the system has been performing within the normal range expected from an installation like mine :

It's one of the advantages of having an "oversized" system; where solar panel capacity (10kW in my case) is greater than inverter capacity (8kW). Oversizing is a very common and desirable practice.

Our roof's pitch is 22.5 degrees2; so even just a few millimetres of rain within a reasonably short timeframe should give them a decent clean. But what happens if this dry spell went on for months and months? What might be the impact?

Researchers from Saudi Arabia and the UK sought to help answer this by studying power yields of clean and dusty PV modules measured over a year in desert conditions.

They installed seven pairs of 10 Watt solar panels on the rooftop of the Faculty of Engineering at King Abdulaziz University (KAU) in Jeddah City. The region experiences high temperatures, low rainfall, drought, and dust and sand storms. While Adelaide can be a dry and dusty place, we don't see sand storms and only the rare dust storm.

The panels were installed at angles of 0° (flat), 15°, 25°, 45°, 60°, 70°, and 90°3; facing south. One of each pair was cleaned daily and the other allowed to accumulate dust. The duration of the dry and "rainy" periods was 183 and 182 days, and output power of each pair was recorded daily at one-minute intervals between 9am and 4pm.

During the "dry" period (which included a dust storm), each uncleaned module experienced a significant decline in performance. This was in addition to heat impacts; heat being the enemy of solar panel efficiency. After 182 days of dust accumulation without enough rain to wash it off, the power reduction for the uncleaned 0°, 15°, and 25° modules reached 80.4%, 75.6%, and 60.2% respectively.

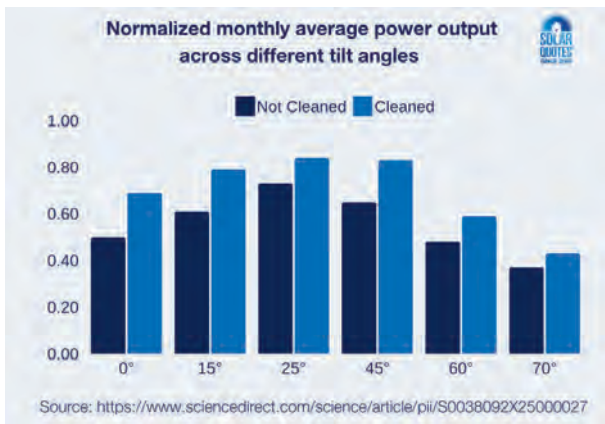
The normalized monthly average power output across different tilt angles for the uncleaned solar panels during the year was as follows, with 1 being the scale's maximum:

- 0°: 0.50
- 15°: 0.61
- 25°: 0.73
- 45°: 0.65
- 60°: 0.48
- 70°: 0.37

And the clean panels for comparison:

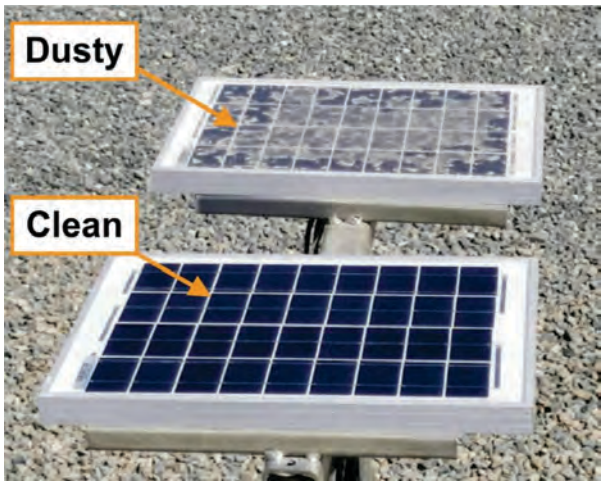
- 0°: 0.69
- 15°: 0.79
- 25°: 0.84
- 45°: 0.83
- 60°: 0.59
- 70°: 0.43

And graphing the above:



Little Rain Worse Than No Rain For Flat Panels

Following a light rain event (0.8 mm) during the dry period, performance of the dusty 45° tilt module improved, approaching that of its initial clean state. But the module installed flat retained a significant quantity of water on its surface, which combined with dust caused cementation as it dried that resulted in decreased performance. Here's what that solar panel pair looked like, with labels included by the helpful researchers in case we couldn't tell which is the dirty one.



Given the areas of dried gunk, this could also lead to "hot spots" if not dealt with. But a 6mm rain event occurred 16 days after the dust storm, significantly improving performance of all modules; particularly those at smaller angles.

After "heavy" rain events (7 mm and 9 mm back-to-back on two days) as the wet season came into play, another significant performance boost was noted. Those at the 45° and 25° tilt angles yielded the highest power output, and maintained it consistently until the end of the experiment.

25° The Sweet Spot

"A 25° angle demonstrated the best performance during the dry period, balancing effectively the reduction of dust accumulation and maximum capture of the solar irradiance," state the researchers. "During the rainy period, the optimal angle shifted to 45°, which enhanced the module performance due to natural cleaning by rain. Over the entire year, modules with a 25° angle consistently performed best, even without regular cleaning."

It's important to note that generally speaking, optimal solar panel angle/tilt and orientation/direction will depend on what part of the world you're in.

The full study report, titled "Impact of dust and tilt angle on the photovoltaic performance in a desert environment" has been published in the journal Solar Energy.

On a related note, we reported last week on a Finnish study that suggested using dishwashing detergent for cleaning solar panels should be avoided – find out why. By the way, you can pick up some tips on how to clean solar panels here, and read the debate on whether its worth it here.

धुळे व नंदुरबार रिझन कडून डायऱ्या वाटप

धुळे सिव्हिलविभागाचे अधीक्षक अभियंता यांना व इलेक्ट्रिकल विभागाचे कार्यकारी अभियंता व डेप्युटी इंजिनियर, ज्युनियर इंजिनीयर यांना धुळे व नंदुरबार रिझन कडून पदाधिकारी यांनी डायऱ्या वाटप केल्या.

ठेकेदार यांच्या अडचणी बाबत मा. अधीक्षक अभियंता निवेदन देताना व चर्चा करताना

Mega solar power park coming up in Maharashtra's Solapur

Mumbai: A mega solar power park with 1.2 gigawatt capacity spread over 4,200 acres is coming up in the Solapur district of Maharashtra.

The Hazoor Multi Projects Ltd (HMPL) is spearheading the green energy revolution by developing Maharashtra's first solar park named the Chhatrapati Shivaji Maharaj Saur Urja Park (CSMSUP).

The park is being developed in collaboration with a leading multinational company from the United Kingdom. It will utilise advanced technology, with each solar panel boasting a capacity of 750 watts and world-class efficiency levels. Both fixed and tracking solar panels have been employed, with tracking systems enhancing efficiency by following the sun's movement throughout the day.

CSMSUP will play a pivotal role in India's renewable energy transition, helping the nation meet its ambitious green energy goals while significantly reducing its carbon footprint. It underscores the fact that renewable energy investments are not just... environmentally sound but also contribute to economic growth and job creation in the Solapur region.

"The development of Chatrapati Shivaji Maharaj Saur Urja Park at Solapur is an important milestone in HMPL's growth story in India. It is an affirmation of our commitment to making India a leading player in the renewable energy business. HMPL plans to augment its renewable power generation capacities by opening new facilities in other Indian states soon," said Robert Moses, Director, HMPL.

India's progress in green energy sets a powerful example for other developing nations, showcasing how sustainable development can coexist with robust economic performance. As a symbol of India's leadership in combating climate change, CSMSUP has invited global businesses and investors to join this green revolution, fostering partnerships for a low-carbon future and the continued growth of the country's renewable energy sector.

In addition to CSMSUP, the HMPL, in collaboration with international partners, is planning solar hybrid projects in two states: Maharashtra (1,200 MW) and Andhra Pradesh 500 MW. These initiatives reinforce HMPL's commitment to driving innovation and sustainability in the renewable energy landscape.

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CUTTING -EDGE TECHNOL OGY:
Supreme Creation is at the forefront of adopting cutting-edge technology in signage and emergency lighting. They recogniz e the power of innovation in enhancing safety and have integrated state-of-the-art phot oluminesc ent materials into their products.

CUSTOM SOLUTIONS :
Every building and facility has unique requir ements when it comes to safety signage. Supreme Creation excels in providing customiz ed solutions that meet the specific needs of their clients. From digital signage to smart systems, they tailor their o□erings to ensure optimal safety.

COMPLIANCE AND STANDARDS:
Supreme Creation unders tands the importanc e of complianc e with safety standar ds and regulations. Their products not only meet but often exceed these standar ds, ensuring that clients can trust in the quality and e□ ectiv eness of their signage and emer gency lighting solutions.

COMMUNITY IMPACT:
Supreme Creation is not just a busines s; it's a contribut or to community safety. By providing top-not ch safety solutions, they make a positiv e impact on the lives of individuals and the safety of entir e communities.

INVESTING IN SAFETY : AN INVESTMENT IN PEACE OF MIND
In a world wher e uncertainty is a constant companion, investing in safety measur es such as e□ectiv e signage and emergency lighting is an investment in peace of mind. It's a proactiv e step toward ensuring the well-being of occupants, emplo yees and visitors in any building or facility . When disaster strikes, those responsible for safety can rest assured that they have done everything possible to guide people to safety.

Safety signage and emergency lighting may not always be in the spotlight, but they play a vital role in ensuring safety and saving lives during emergencies. Their evolution from static signs to dynamic, glowing guides is a testament to human ingenuity and our commitment to safeguar ding one another .

Supreme Creation, with its dedication to innovation, quality , and complianc e, stands as a beacon of safety in the modern world. Their products and solutions exemplify the potential of technology to enhanc e emergency preparedness and response .

As we navigat e an unpr edictable futur e, let us remember that safety is not an option but a responsibility . By embr acing the latest advancements in safety signage and emergency lighting, we illuminat e the path to a safer, more secure world for all.

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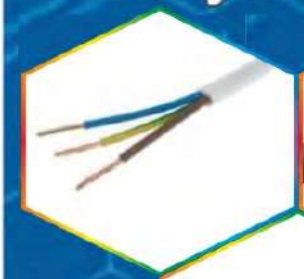

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