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## अध्यक्षांच्या कलमातून



## आपली “ECAM” ही संघटना एका वेगळ्या उंचीवर घेऊन जाण्याचा मानस व्यक्त करतो

सभासद बंधू भगिनींना नमस्कार.

सर्व प्रथम आपणा सर्वांना ‘२०२३’ या नवीन वर्षाच्या खूप खूप शुभेच्छा.

आपणास आणि आपल्या कुटुंबियांना हे वर्ष सुखसमृद्धीचे, आरोग्यदायी, भरभराटीचे जावो ही परमेश्वर चरणी प्रार्थना करतो.

दिनांक २१ जानेवारी रोजी झालेल्या ९७ व्या वार्षिक सर्वसाधारण सभेत, माझी इकॅम महासमितीच्या अध्यक्षपदी, बिनविरोध निवड झाल्याचे घोषित करण्यात आले. संघटना पुढील वर्षी आपले शंभरावे वर्ष साजरे करणार आहे आणि आपल्या सर्वांच्या सहकार्याने मला अध्यक्ष पदावर काम करण्याची संधी मिळत आहे. ही संधी मिळणे, हा माझ्या आयुष्यातील अमृतयोग असून, हे मी माझे भाग्य समजतो. आपण सर्वांनी ही संधी दिल्याबद्दल सर्वांचे मनःपूर्वक आभार व्यक्त करतो.

माझ्या पुढील तीन वर्षांच्या काळात इकॅमचे शतक महोत्सवी वर्ष येत आहे. या कालावधीमध्ये विविध तांत्रिक चर्चासत्रे, वेगवेगळ्या कार्यशाळा, अभ्यास सहली, करमणूक कार्यक्रम, वेगवेगळ्या प्रकारच्या स्पर्धा, अशा भरघोस कार्यक्रमांचे आयोजन, आपल्या सर्वांच्या सहकार्याने करण्याचा मानस आहे.

संघटनेची खरी ताकद म्हणजे सभासद. त्यांची संख्या ही तितकीच महत्वाची असते. पुढील तीन वर्षांत आज

असणारी संख्या दुपटीने वाढविणे हे उद्दिष्ट डोळ्यापुढे ठेऊन आपल्याला वाटचाल करायची आहे. कठीण असले तरी अवघड नक्कीच नाही. आपल्या सर्वांच्या सहकार्याने आपण प्रत्येकाने एक नवीन सभासद जोडल्यास, आपण नक्कीच उद्दिष्ट साध्य करू शकतो, याची खात्री वाटते.

विद्युत व्यवसायिकांना सतत भेडसावणारे प्रश्न म्हणजे DSR, Msedcl कॉस्ट डाटा, राज्यभर MSEDCL, मुंबई आणि आजूबाजूला ADANI, TATA, BEST, भिवंडीमध्ये TORANT. याठिकाणी कामे करीत असताना येत असणाऱ्या अडचणी सोडविणे यास प्राधान्य देणे, हे माझे कर्तव्य समजतो.

सभासद आणि बिगर सभासद यांच्यासाठी उत्तम विद्युत संचमंडणी पुरस्कार सुरू करण्याचा ही मानस आहे. इंटरनल तसेच एक्सटर्नल असे विभाग, किंवा इतर काही अवॉर्ड, विद्युत क्षेत्रात विशेष उल्लेखनीय कार्य करणाऱ्यांसाठी ECAM च्या वतीने राज्य पातळीवर किंबहुना त्याच्या पुढे जाऊन देश पातळीवर पुरस्कार देऊन सन्मानित करणे. तसेच सामाजिक क्षेत्रात काम करणाऱ्यांसाठी, असा काही पुरस्कार देता येईल काय, सभासदांच्या हिताच्या दृष्टीने ‘सभासद कल्याण निधी’ निर्माण करणे. अशा संकल्पना सन्माननीय संचालक मंडळ आणि आपणा सर्वांच्या सहकार्याने राबविता येतील का? यासाठी प्रामुख्याने प्रयत्न करण्यात येईल. अर्थात याची कोणत्याही प्रकारची आर्थिक झळ संघटनेला लागणार नाही. उलट हे सर्व करताना संघटनेची आर्थिक बाजू मजबूत कशी होईल आणि प्रसिद्धी कशी मिळेल हे पहिले जाईल.

अशा अनेक कल्पना घेऊन सर्व संचालक मंडळ, सर्व विभागीय अध्यक्ष आणि सर्व सभासद बंधू आणि भगिनी, या सर्वांच्या सहकार्याने, मी ही धुरा खांद्यावर घेत आहे. निश्चितपणे आपली “ECAM” ही संघटना एका वेगळ्या उंचीवर घेऊन जाण्याचा मानस व्यक्त करतो, पुन्हा सर्वांचे आभार व्यक्त करतो.

धन्यवाद.

**वामनराव भगवान भुरे**

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### महासचिवांच्या कलमातून.....



### चला, शताब्दीची तयारी करूया.....

मित्रहो,

सर्वांना नवीन वर्षांच्या हार्दिक शुभेच्छा !.

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२०२४- २०२५ या कालावधीत साजरे करण्यात येणार  
आहे. या शताब्दी महोत्सवानिमित्त आपल्याला बऱ्याच  
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## The Editor's Desk



## **ELECRAMA : Breaking own records!!**

Elecrama is the most successful exhibition of India. It is the largest exhibition of Asia and soon it will take the top position in World. Every edition of Elecrama is breaking it's own records of size, footfall and business. This year 1500 stalls are allotted to various exhibitors coming from India and abroad. This is the highest number so far. And more than 150 companies are still in waiting line to get a stall. Similarly, the efforts being taken by leema to increase the footfall during the 5 days of the exhibition, we can assume the huge numbers visiting the mega event.

Manufacturers in electric, power and electronic sectors are spending huge money in Elecrama and they expect a good return in the form of orders, inquiries and joint ventures. This is also going to break all previous records.

We congratulate the leema and Elecrama teams for this grand success on behalf of the Electrical Contractors' Association of Maharashtra and our monthly trade journal, IECT, Indian Electrical Contractor and Trader.

It is heartening to note that leema has created a sophisticated platform of exhibition for business opportunities on National and International level. Elecrama now is a great source of market information fulfilling the needs of manufacturers and traders in the respective sectors.

This is giving an excellent opportunity of interaction with your customers, distributors and traders. It is said that a stall holder of Elecrama gets so many contacts during the 5 days, that he can't follow all of them in two years when the next Elecrama takes place!

This issue of IECT is entirely devoted to Elecrama and contains interviews, articles, news items, success stories and information of new products coming in the market.

Ecama, the Electrical Contractors' Association of Maharashtra, is a pioneer in the field of Electrical contractors. Established in 1925, it will soon enter into centenary. IECT, being the mouthpiece of Ecama, will also be working with Ecama in organising trade related activities, exhibitions, seminars etc in the next two years to celebrate the centenary.

We request all the electrical fraternity to actively participate and support Ecama.



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# CONTENTS

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## MASSAGES :

06 PRESIDENT'S DESK

08 GENERAL SECRETARY

10 EDITOR'S DESK

14 "Reimagine Energy for a Sustainable Future"

### 18 NATIONAL NEWS

NTPC registers generation growth of 11.6 per cent to 295.4 Bus

Ministry of Coal to take up additional 19 FMC projects

### 20 NATIONAL NEWS

Mufin Green Finance partners with IREDA to drive EV penetration in India

### 22 INTERVIEW

**Mr. HARI OM TIWARI** (True Power)

### 26 Mr. SANDESH CHAVAN

(MSC Tranfrormer Pvt. Ltd.)

30 Building India's future of sustainable infrastructure needs wide adoption of Eco- friendly wires - **Mr. Bhushan Sawhney**

34 MoP notifies Energy Conservation (Amendment) Act, 2022

36 **Interview** - KENTER Cables makes waves while entering its 30<sup>th</sup> year in the industry

40 IS 'SAFETY FOR SHOPPERS' A PRIORITY FOR THE SHOPS?

42 Bus Duct Basics

44 **Interview** - We pioneered the use of Digital Instruments in India - **Mr. Navin Goliya**

48 The biggest game changer for the industry will be the National Hydrogen Mission -

**Interview** - **Mr. Vineet Mittal**, Chairperson Avaada Group

56 99th Year of Electrical Contractors Association of Maharashtra (ECAM)

70 97th AGM of ECAM

77 A case for nuclear energy

80 97th AGM of ECAM

85 RBI to issue sovereign green bonds for mobilising resources for green infrastructure

86 National News - TGBL to extract Green Hydrogen from biomass and waste in Pune plant

88 Cabinet approves National Green Hydrogen Mission

90 UJALA scheme brings about energy revolution in India

92 CPUC Issues Independent Study on Injecting Hydrogen Into Natural Gas Systems

93 Mukesh Ambani completes 20 years as Reliance boss

95 Manufacturing sector hits 13-month high in Dec

96 The future of renewable energy in 2023 and expectations from Union Budget 2023

98 India's decarbonized urbanization - A perspective

100 Adani Green, Torrent, Shell, Actis in race for KKR's energy InvIT - EQ Mag

110 India must recognize and accept the importance of quality to become a developed nation -Shri Piyush Goyal

113 GREEN IN ELECTRICAL WORKS - Ajit N. Kulkarni

116 Why India Is Facing Coal Shortage And How It Affects Power Supply?

### मराठी बातम्या/लेख

१०१ वीज कर्मचाऱ्यांनो जागे व्हा

१०३ महामुंबईसाठी 'टोरेट'चा अर्ज

१०४ स्वच्छ ऊर्जेच्या दिशेने भारत - श्रीपाद अपराजित

१०५ तीन सौर प्रकल्पांसाठी १३० कोटी

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Dated : 02-02-2023

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**18-22 FEBRUARY 2023**  
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## "Reimagine Energy for a Sustainable Future"

ELECRAMA is the flagship showcase of the Indian Electrical & Allied electronics Industry ecosystem and the largest congregation of power sector ecosystems in the geography. ELECRAMA brings together the complete spectrum of solutions that powers the planet from source to socket and everything in between. Features not just equipment & technology, but peerless thought leadership platforms for everything electric - from technical conclaves to industry summits.

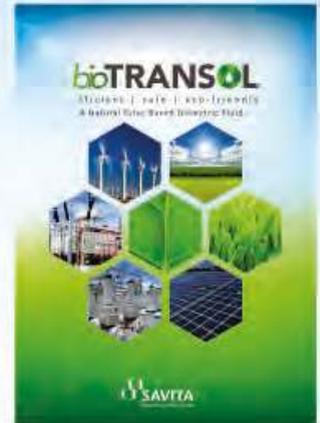
### Highlights

- Widest Choice of product and technology across the spectrum on display.
- Deeper & direct trade engagement with buyers and sellers through purpose built events.
- Preview new and upcoming product & technology, new specs & standards.
- Explore investment opportunities & closer view of Multi Billion dollar Indian Power Sector.
- Professional & peer networking across the globe and hierarchies through dedicated networking events.

## Dielectric Fluids for **TRANSFORMERS & ACCESSORIES**

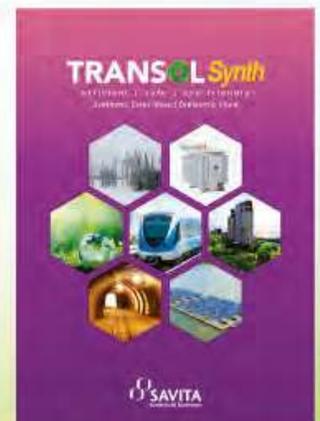
### Natural Ester Fluid: bio TRANSOL HF

- ▼ Type tested as per IEC 62770/IS 16659:2017
- ▼ Non toxic, biodegradable, derived from renewable vegetable oil
- ▼ K-Class fluid, superior fire retardant properties
- ▼ Ideal for non breathing/sealed/Air-cell type design
- ▼ No sludge formation, non corrosive hence reduce maintenance time & cost
- ▼ Economically alternate solution for Dry Type Transformers
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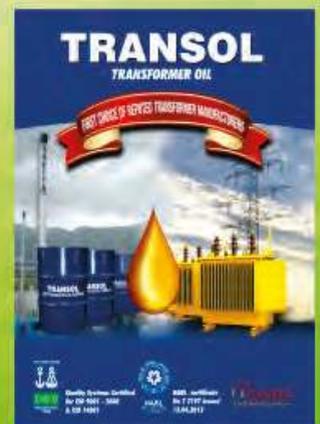
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- ▼ Type tested as per IEC 61099/IS 16081
- ▼ Can be used in both free breathing & Sealed Transformers
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- ▼ K-Class fluid, superior fire retardant properties
- ▼ Readily biodegradable



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ELECRAMA-2023 with the theme “Reimagine Energy for Sustainable Future”, is scheduled from 18th to 22nd February 2023 at India Expo Mart Ltd., Greater Noida, Delhi NCR, India. Some highlights of ELECRAMA 2023 includes:-

- 1500+ exhibitors from India and over 10 foreign countries showcasing the entire product range of electrical equipment from 220 KV to 1200 kv, including new energies segments
- Large presence of domestic visitors and over 700 buyers from over 60 countries
- ETechnxt: A dedicated pavilion showcasing e-mobility, energy storage, Green Hydrogen, Net Zero technologies etc. with focus initiative to attract global investors
- Startup challenge & Innovation Hub: Best-in-class Startups in new energy segments selected by industry experts showcasing R&D and Innovation solutions in these areas
- World Utility Summit: A platform for global power company officials to share knowledge and seek solutions on various challenges
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### Reverse Buyer Seller Meet (RBSM),

Reverse Buyer Seller Meet (RBSM), the biggest meeting place of International Buyers who plan to source electrical products and equipment from India. An important aspect of the RBSM is that it is in line with the 'Make In India' initiative. By having buyers come and have one-on-one meetings with the Indian market, three things are achieved. One, being introduced to buyers from different markets and highlighting solutions and capability to these buyers; two, development of products for new requirements, which will also lead to new technology development, and lastly, increasing the base for exports. Apart from this, both parties gain from knowledge sharing, development of mutually beneficial partnerships and introduction to new markets.



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## **NTPC registers generation growth of 11.6 per cent to 295.4 BUs**

NTPC Limited has recorded a generation of 295.4 billion units (BUs) during April-December 2022, registering a growth of 11.6 per cent compared to the same period, previous year.

On a standalone basis, NTPC generated 254.6 BUs during April-December 2022, an increase of 16.1 per cent over the previous year. The coal plants registered a plant load factor of 73.7 per cent during April-December 2022 compared to 68.5 per cent in the same period, previous year. This performance of NTPC is a testimony to the expertise of its engineers, operation and maintenance practices, and NTPC systems. Also, NTPC has portrayed a phenomenal growth in captive coal production by achieving 14.6 million tonnes of production, registering a growth of 51 per cent vis-à-vis the previous year for the same period. NTPC group has an installed capacity of 70,824 MW. Recently, the company has crossed 3 GW of renewable capacity.

## **Ministry of Coal to take up additional 19 FMC projects**

The Ministry of Coal will be taking up additional 19 first mile connectivity (FMC) projects for Coal India Limited (CIL) and Singareni Collieries Company Limited (SCCL) with a capacity of 330 million tonnes (mt). These projects will be implemented by 2026-27.

The Ministry of Coal has already undertaken 52 FMC projects (44 – CIL, 5 – SCCL and 3 – NLC India Limited) of 526 mt per annum (mtpa) capacity with an investment of Rs 180 billion. Out of which eight projects (6-CIL and 2-SCCL) of 95.5 mtpa capacity have been commissioned and the remaining will be commissioned by 2024-25. To ensure efficient and environ-friendly coal evacuation in future, the ministry is working on the development of National Coal Logistic Plan including FMC through railway sidings near coal mines and strengthening of rail network in coalfields. The Ministry of Coal has set a target to produce 1.31 billion tonne (bt) coal by 2024-25 and 1.5 bt in 2029-30. In this context, development of coal transportation that is cost efficient, fast and environmental friendly manner is important.

## **KPTL receives new orders worth Rs 12.47 billion**

Kalpataru Power Transmission Limited (KPTL) and its international subsidiaries have secured new orders / notification of awards of Rs 12.47 billion.

The orders are for India and overseas market in the transmission and distribution business.

## **HPL Electric secures smart meter supply contract worth Rs 1.62 billion**

HPL Electric & Power Limited has received an order worth Rs 1.62 billion for the supply of smart meters to serve a leading private discom player.

This new order has expanded the company's metering order book to exceed Rs 6 billion as of December 29, 2022. With this order, the company has further improved its market share in the smart meter market, making it a peer vendor in a highly competitive market.

## **MNRE and IRENA ink agreement for renewables and hydrogen push**

The Ministry of New and Renewable Energy (MNRE) has signed a strategic partnership agreement with the International Renewable Energy Agency (IRENA) to further strengthen its collaboration in the fields of renewable energy and hydrogen.

Under the partnership, IRENA will facilitate knowledge-sharing from India on scaling up renewable energy and clean energy technologies, and the development of domestic green hydrogen. They will work closely to assess the potential role green hydrogen can play both as an enabler of the green energy transition in India and as a new source of national energy exports. Notably, India has started the process for launching a National Green Hydrogen Mission to enable a cost-competitive green hydrogen production, storage, distribution, and application technologies.

## **Rays Power Infra commissions 275 MW (DC) solar PV project in Bangladesh**

Rays Power Infra Private Limited has announced the commissioning of a 275 MW (DC) grid-connected solar power plant in Sundarganj, Gaibandha, Bangladesh. Spread over 600 acres of land, the project will offset over 375 billion tonnes of carbon dioxide emissions, and power 500,000 households in Bangladesh. The project comprises of over 500,000 solar photovoltaic (PV) modules, making it the single largest solar plant in the country.

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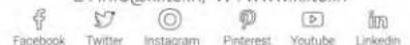


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## Mufin Green Finance partners with IREDA to drive EV penetration in India

Mufin Green Finance Limited has partnered with Indian Renewable Energy Development Agency (IREDA) to strengthen its retail electric vehicle (EV) portfolio for two and three-wheelers (mainly e-rickshaw and e-auto vehicles) pan India.

Muffin Green Finance intends to reach 5,000 consumers to start with, and eventually reach more than 100,000 consumers through this partnership. A major highlight of this initiative is the reduction in borrowing costs for end-consumers by 40 per cent. The company intends to expand to all parts of India by December 2023 and also plans to venture into other green financing products, such as solar panel financing, by 2023.

## IREDA signs MoU with MNRE setting annual performance target

Indian Renewable Energy Development Agency Limited (IREDA) has signed a memorandum of understanding (MoU) with the Ministry of New and Renewable Energy (MNRE), setting annual performance target for 2022-23.

India has set a target Rs 33.61 billion for revenue from operation, up by approximately 18 per cent from the previous year's achievement. The Government of India has also set various performance-related key parameters such as return on net worth, return on capital employed, non-performing assets to total loans, asset turnover ratio and earning per share, etc. IREDA has demonstrated exceptional performance by securing 96.54 marks for the MoU of 2021-22. The company as on date, has financed more than 3,068 renewable energy projects loan accounts with cumulative loan sanction and disbursement to the tune of Rs 1,416.22 billion and Rs 900.37 billion respectively and has supported renewable energy capacity addition of 19,502 MW in the country.

## EAC grants environmental clearance for the expansion of Okhla WtE plant in Delhi

The Expert Appraisal Committee (EAC) of the Ministry of Environment, Forest, and Climate Change has recommended granting environmental clearance for the expansion of the Okhla waste-to-energy (WtE) plant in Delhi.

## Discoms' outstanding dues to gencos decreased to Rs 626.82 billion in January 2023

According to the PRAAPTI (Payment Ratification And Analysis in Power procurement for bringing Transparency in Invoicing of generators) portal, the total outstanding dues owed by discoms to gencos decreased by 48.2 per cent to around Rs 626.82 billion in January 2023 as compared to Rs 1,210.30 billion in same month in 2022.

This substantial reduction in the discoms' total outstanding is mainly due to various steps taken by the government, like implementation of late payment surcharge rules and providing facility of equated monthly installments to utilities. The total outstanding dues of discoms in January, 2023 includes Rs 255.26 billion overdue amount, which was not cleared even after 45 days of grace period offered by generators.

## BHEL bags order for R&M of steam turbines at Ukai TPS in Gujarat

Bharat Heavy Electricals Limited (BHEL) has won an order for the renovation and modernisation (R&M) of steam turbines at Ukai thermal power station (TPS) in Gujarat.

The order is valued at about Rs 3 billion for R&M of the 200 MW Unit-3 and the 210 MW Unit-5 at Ukai TPS. The order has been placed by Gujarat State Electricity Corporation Limited. Significantly, BHEL is also the original equipment manufacturer (OEM) of these turbine sets which have been successfully operating for around 40 years, before being taken up for R&M. The R&M work being undertaken by BHEL will not only extend the life and reliability of Units-3 and 5 at Ukai TPS, but also improve the efficiency levels of these turbines addressing the problems of technical obsolescence, thereby making them more environment friendly. BHEL's scope of work in the contract includes design, engineering, manufacturing, supply, dismantling, erection, testing and commissioning of the steam turbines and associated auxiliaries. The equipment for the project will be supplied by BHEL's manufacturing units at Haridwar, Trichy, Bengaluru and Bhopal while the execution on site will be undertaken by the company's power sector – Western Region, Nagpur.



## NUMERICAL PROTECTION RELAYS

ASHIDA Electronics have introduced Enhanced and Modular series of Relays for Feeder, Transformer & Motor Protection.

ASHIDA is a leading Indian manufacturer & supplier of complete range of Numerical Protection & Auxiliary Relays. Protection Relays are used in Power Transmission & Distribution substations to protect instruments from getting damaged. ASHIDA is the first company in India to develop a range of Static and Numerical Relays indigenously. Additionally, ASHIDA manufactures Control & Relay Panels and have its own SCADA System with all latest specifications & communication mediums like IEC 61850. ASHIDA is the main supplier of Protection Relays to all the Electrical Utilities in India & abroad.

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**Mr. Hari Om Tiwari**

MD, True Power Ltd.

**“New clients are good but old ones are our inspirations, who encourage us always to deliver the best and lead the competition rather than learning from it.”**

**True Power Ltd, a chemical pipe Earthing manufacturer, has grown fastest in a competitive market. Apart from Earthing Electrode, true power also manufactures wires & cables and transformers. Mr. Hari Om Tiwari, the managing director of True Power Ltd is very enthusiastic business leader. This spirit is reflected in the interview taken by IECT edit team. A few excerpts are presented here for IECT readers.**

**Q. True Power' is in business for the last 18 years. How do you feel when you look back at the starting year? How was the journey? Ups & downs? Milestones?**

Yes, we are in business for last more than 18 years. At the time of inception, I was quite young and new to entrepreneurship and the commercial world, but I was too keen and enthusiastic to establish a giant setup and employ thousands of people. I always used to think of helping society and youth by generating job opportunities and helping them accumulate wealth to live a good and responsible life.

As it happens with many, we too have a few lean years before we really took a grip on the market and properly understand the needs of the people to cater to them, exactly what they were looking for. Finance too was limited in those days and so were limited the other resources like a good team, good vendors, good orders, and many other things. But, then we were prepared for it and took it responsibly and seriously to put our best and give a good value to the

clients for their money, no matter whether we make something or not. Even disbursing salary was a challenge in those days. Slowly and steadily we started getting people's support, good clients, big orders, and the trust of many to reach the stage today we are where.

**Q. Please give details of your Electrodes. How do you balance quality and pricing while facing competition?**

We manufacture and supply World-Class Chemical Earthing Electrodes and Back Fill Compounds at our own state-of-the-art manufacturing plant equipped with Modern types of machinery and the latest testing equipment and gadgets. Our in-house testing and inspection lab ensures that only premium raw material enters our plant to let us deliver the best of the product in line with the latest industry standards, after processing the quality raw material and thoroughly inspecting the final goods before they are sent to the packing department for final dispatch.

We manufacture a couple of different types of

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earthing electrodes to suit every need from a common man with a shoelace budget to the giant MNC who believes in nothing but to deliver only the best without cutting corners. Broadly speaking they are of 4 different types, say Pure Copper, Copper Bonded, GI, and Pipe-in-Pipe.

A few of our main Earthing Electrodes staying most in demand are

1. Pure Copper Earthing Electrode
2. Pure Copper Pipe-in-Pipe Earthing Electrodes
3. Pure Copper Bonded Earthing Electrode
4. Pure Copper Bonded Earthing Rod
5. Galvanized Iron (GI) Earthing Electrode
6. Galvanized Iron Earthing Electrode with Pure Copper Terminal
7. Galvanized Iron Pipe-In-Pipe Earthing Electrode

Nice, you raise a very important question of balancing quality and pricing. But we believe another way round. We believe, whoever needs quality, well understands the pricing also and don't compromise either on quality or on pricing. But, yes there are a few like this.

Most of them want quality within their budget, close to the pre-decided price they have already set in mind. For such clients, we manufacture different types of earthing electrodes as I mentioned earlier to meet all different budget needs.

**Q. Earthing is very important in every electrical fitting. How do you ensure safety & Security?**

It's simple.

When your earthing is intact and has low impedance, you are safe and secure.

I will say with True Power Earthing, you stay assured for your appliances and your dear ones from any sort of mishappening from getting an electrical shock to facing an electrical fire and from malfunctioning appliances to their complete failure.

Neither your appliances fail, nor do your people get electrical shocks. To a great extent, you stay completely safe from electrical fires and other electricity-related hazards.

Our True Power Chemical Earthing stands for the World-class quality, we talk about and the service life we commit to.

We are approved by RDSO/CPRI, the most stringent approving authorities. Our Chemical Earthing is also approved by several other State Electricity Boards like as from State Electricity Boards of Uttar Pradesh, Madhya Pradesh, Himachal Pradesh, Uttarakhand, Haryana, Jharkhand, Rajasthan, Bihar, and Jammu & Kashmir, to name a

few here.

With us, you are sound, safe, and secure.

**Q. There are several issues in every business. How you handle new technologies, finance, customer expectations, and online orders. etc?**

Oh yes! Every day you get out of bed and come across a new technology. And, as we are a team of technology-driven and highly innovative people we embrace it as long as it adds value to our client. We always want to be the first to deliver our clients the latest innovative products to let them stay ahead of the pack.

Finance was never a constraint for us. Our clients are good to pay us on time and help us stay as a Cash rich company. As long as you deliver value for every penny of the client, they don't mind paying you at your price, and that too in time.

Surpassing Customer expectations has always remained our forte. We regularly do surveys, make cold calls, pay visits, exchange greetings and do a lot to stay in touch and understand their buying experience to let us improvise on our products, processes, and dealings. After all, no matter how good we are, we are nothing without our existing clients. New clients are good but old ones are our inspirations, to encourage us always to deliver the best and lead the competition rather than learning from it.

Online Orders, we have to work on. We don't have much depth in them.

**Q. Which were the turning points in this journey giving a push to business growth?**

They are too many to discuss here. One of our latest turning points is our entry into Home Appliances & Solar business. And, we are sure these two new verticals will not only provide us with good revenue but rather it will provide us greater depth to let us penetrate into local consumer markets, from where we were aloof yet.

However, adding of our every new vertical from lightning arresters to transformers, to wires & cables had stayed as our major turning point giving a great push to our business, which we always crave for.

**Q. Any planning for expansion?**

Yes, expansion and making the Indian economy grow have always remained at the top of our agenda and our first desire. Recently our CMD Sir, Mr. Rajesh Tiwari Ji, has committed to open a new World-class manufacturing plant employing 100 more people on the company's roll in Investor Summit 2022, recently held at Barabanki, Lucknow, Uttar Pradesh, on 19<sup>th</sup> December 2022.

We are highly aggressive on growing at least 10

contd page on 32



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**M. Sandesh Chavan**

Managing Director  
MSC TRANSFORMERS PVT. LTD.

**“The successful businessman works with a positive attitude and an optimistic view of his business.”**

**MSC Transformers, well known for the technical strength and ability to deliver jobs in time, is aspiring to become a leader in the transformer industry around the world. Mr. Sandesh Chavan, the Managing Director of MSC Transformers, has spoken in length regarding the progress of his company. His advice to the new businessmen is worth reading. A few excerpts of the interview are presented here for the readers of IECT. - Editor**

**Q. Soon, you will have completed ten years in the transformer industry.**

**How do you look at the market vis-a-vis your company?**

We are grateful to have this opportunity to share our experience in the transformer industry with you. There is satisfaction in knowing that we have developed a company that is not only unique but also contributes to the development of others by providing technical support and quality products. In the transformer industry, we have people with more than eight years of experience in the field. It is very important to us to maintain our high standard of quality. We look at the market in terms of customer satisfaction and day-to-day requirements. Your business needs to transform to meet the demands of today's consumers. Hence, your focus should be on delivering a superior experience with your entire product portfolio. We'll provide you with comprehensive insights into accelerating your success. The market is very competitive, but we have highly qualified staff, especially in technology. I have

been in this industry for over ten years and am working on a new product. This technology can disrupt the market and make it easier for users to improve their performance and experience. The shift in the vision of the transformer industry over the last decade reflects a change in the market and its variety of uses. Now a days transformer becomes heart of electrical circuit and use for Power Generation, Transmission, Distribution application like Industrial, Residential, Charging station and many more, which has led to larger unit sizes and more complex parts.

**2. Post-sale service is always very important. How do you handle it?**

**Also, please tell us a bit about safety and security.**

We devised numerous safeguards to ensure that your product is safe and secure. We always ensure customer safety and security by updating the security features and providing remote access online so customers can download their data from anywhere.

Post-sale service is very important. We provide our customers with continued support and maintenance when needed. Our team will be available to answer any



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Thakkar Electricals is a Government licensed electrical firm providing complete electrical consultation and services. We have been working with a diverse set of clientele, in Commercial, Residential, Industrial, Corporate, Educational and Retails sectors.

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## Why US.

- Team Of Electrical Engineers (Degree Holder)
- Team Of Qualified & Licensed Supervisors
- Team Of Qualified & Licensed Electricians
- Regular Training Programs
- Provision of As Built drawings

questions regarding your transformer or provide any necessary service. Our service team is well-trained and committed to providing excellent care and customer satisfaction. We understand that the purchasing experience of a product is only complete once we hand over the product, so we also try our hardest to complete that process. To ensure our customers have a seamless shopping experience, we utilize email notifications and physical shipping addresses for every single order to ensure that both parties are kept as up-to-date as possible. We provide the best post-sales service to make you satisfied. Our team is standing by to answer all your questions and ensure that your product arrives in perfect condition. Our priority is to deliver a reliable product and provide you with the best customer service in the industry. Our post-sales support is unparalleled and includes a wide range of services, extended warranty coverage, so please don't hesitate to contact us. We will take care of anything we can to ensure you're satisfied with your purchase.

**3. There are several issues in every business. How do you handle new technologies, finance, customer expectations, online orders, etc.?**

Every business has issues, but our business is unique in many ways. We will solve problems that others can't. We can figure out what customers want, make sure the right products you need are given at the right price and time, ensure delivery of products promptly, and save you money! We have the tools and processes to take care of that. We have a web-based order management tool that allows you to process orders from multiple accounts and suppliers and track shipments in real-time. We can manage our accounts and provide weekly reports on all activities. Our finance department will help you with new technologies like online payments platforms. Transformer stands out by offering an exceptional range of products. Our customers will appreciate our assistance in ensuring they are well-informed when purchasing. We are here to assist you with all your business needs, so please do not hesitate to contact us, and we will be happy to answer any questions you may have. Transformers are meant to increase productivity and efficiency at your workplace, ensuring businesses stay ahead of their competition.

**4. Which turning points in this journey pushed business growth?**

The turning points in this journey were: The perfection of the product.

The launch of a new product to update existing

users and attract new ones.

As the business grows, it has to work on its business model. The biggest turnaround for the company was when it was able to close a deal with a major client that would make it famous in the market at large. This achievement helped increase revenue and improve margins. This journey has been full of ups and downs, with many turning points. The initial investment from the seed round was crucial to getting our business off the ground and ensuring that we could continue operating for several years. We pioneered a new product category, which enabled us to establish a strong customer base and provide value-added services to customers beyond what was possible with our first product offerings. We built an extensive sales organization to make those products accessible to our customers; it allowed us to scale operations quickly while establishing a service reputation.

**5. Any expansion plans?**

We plan to expand by adding more technology and people to our company, which will increase the efficiency of our business. We have taken a proactive approach to plan for expansion by adding range up-to 100 MVA Transformer and developed new products i.e. Natural Ester Oil Transformer, Compact Substation, Furnace transformers, Earthing Transformers, Low loss transformers, Station Transformers, Dry type transformers, LT & HT Cable, ACSR Conductor, LT Panel. Also we are going to establish set up for Paper covering machine and Copper drawing machine project- For productivity enhancement and cost saving. first working with our current customers to identify needs and conveniences not currently provided. We have identified several areas from these customer reviews that could improve the user experience and create additional growth opportunities. The goal is to expand by increasing brand exposure and sales in new markets, establishing a localized retail presence, expanding distribution channels, and expanding product offerings within the existing product line.

**6. What guidance would you like to give to young business people?**

When you are young and trying to start a business, the most important thing is to know what you are doing. If you only have an idea, you will have long-term difficulties. You want to make a good impression on your customers as a business person. You should also be able to keep their information secure and safe. Start your small business with a strong plan, focus, and passion for what you do. You can always scale up or down. It would be best if you

contd. page on 34



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## Building India's future of sustainable infrastructure needs wide adoption of Eco-friendly wires

### Mr Bhushan Sawhney

Executive President and Chief Business Office  
Polycab India Ltd.

**F**lame retardancy in wires and cables is undoubtedly the most basic criterion before equipping them in residential, commercial, and public structures. Primary cause of deaths in fire accidents is due to inhalation of smoke and toxic fumes, which are highly dense and dark in nature making rescue operation difficult. Unfortunately, this is not a widely considerable factor by individual and bulk buyers.

While all widely used wires offer some basic level of fire retardancy, they fail to be innocuous, non-poisonous, non-toxic, or even sustainable in nature. For instance, wires that are widely used in India, produce thick toxic smoke when exposed to fire leading to intense suffocation and poor visibility. This is because the manufacturing process involves hazardous chemicals and unsustainable practices that make it more dangerous. As per the World Health Organisation, 240 million people globally are overexposed to lead poisoning.

#### Green Infrastructure

Green Wires, on the other hand, possess all the advanced qualities that a forward-looking and progressive wire should. Green Wires bring more safety with low smoke and non-toxic gas emissions, fire resistance, low halogen, flame retardant properties, longer lifespan, and low-cost installation. These wires also help in saving big on energy bills which many of us are unaware of. As per May 2022 report, fire-related accidents have on an average killed 35 people every day in the five

years between 2016 and 2020.

These types of wires have been manufactured in a way that limits the environmental impact of their production by ensuring sustainable practices such as recycling materials, reducing energy consumption, or diverting waste from landfills.

Despite this, India's future of developing sustainable infrastructure barely has any mention of environment-friendly and energy efficient wires. In a bid to create a sustainable future in India, the country aims to implement the electrification of Indian railways, metro rails, smart cities, and green buildings. The idea of green infrastructure is rapidly making inroads in the country's urban planning future. To achieve carbon neutrality in the future, the need for a sustainable infrastructure is critical for a better tomorrow.

#### Stringent laws

The eco-friendly wires can be recycled and renewed. These wires must offer features that delivers fire safety, energy efficiency should be long-lasting, eco-friendly, and provide shock protection. The authorities need to come up with stringent laws that ensure safer wires are used in all structures for the overall safety of people and the environment.

#### Mass consumption

The conductor used in eco-friendly wires needs to be made from 99.97% pure electrolytic grade copper, which is perfect for the safety and quality of wires in public buildings, schools, hospitals, and even in national infrastructure projects like railroads, metros, and smart cities. The future of India's





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## Smart City Pole

# K-LITE

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

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

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

### Salient Feature of Smart City Pole

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



contd page from 24

## Interview of Mr. Hari Om Tiwari of True Power Ltd.

We are highly aggressive on growing at least 10 times by 2025 over our present stand and that does require rapid expansion and major deals. We are open to joint ventures and takeovers of small groups in line with our core business.

### Q. What guidance you would like to give to young business people?

Work smartly but do hard work too. There is no shortcut to hard work and to keep growing and staying ahead.

### Q. Please tell us about your hobbies, traveling, art, culture, social work, etc.

Well, I am a spiritual person and aesthetic at heart with deep roots in Indian culture, values, and traditions. I travel a lot spreading the messages of Shri Ram and doing Ram Katha. I like visiting Indian ancient sites, temples, and religious places and advocate for carrying our centuries-old heritage, legacy, culture, traditions, and customs.

I spend a good time reading our Holy Purans, Upanishads, Ramayana, Shrimad Bhagwat Geeta, and

many more spiritual Granthas. I have my own Youtube Channel to help young minds to go spiritually along with their daily life, the way I am doing for several years. It's a must to learn from centuries-old scriptures and religious books and embrace our ancient customs, spiritual values, and culture for growing holistically.

Keeping doing Social Work and spending my every moment in humanitarian activities like helping old & poor people, the destitute, and people with economical and other needs, keep me energetic and contended. It helps!

I regularly plant trees and educate people about Green House Effects. I like inspiring people across the globe to take immediate measures to protect our planet from natural calamities and contribute to our society and surroundings. There are many other things, which I think would need some separate sessions with you to talk in length.



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contd. page from 28

## Interview of Shri Sandesh Chavan, MD, MSC Transformers

had a business plan to maximize long-term growth. Follow trends in technology that could contribute to the long-term success of your company. Always be prepared for changes in customer requirements and the marketplace. If your business model needs to be fixed, bring it back when the time is right so that you have a better chance at making an impact on others. The most important thing you can do for yourself is to have a business plan. This will give you a rough idea of your revenue, expenses, and tangible results at the end of the month. It allows you to determine how much money your business will make or lose, depending on whether it's a success or a failure. You'll always have new ideas popping in your head, so get them down on paper. It is important to be yourself but also follow your passion. To be a successful entrepreneur and businessperson, you need to have the mindset that there are always ways to adapt and change no matter what happens. Leadership is an art that must be learned. You cannot simply buy good products. You need to find the right formula for success by executing what others have done. And you can only succeed if you work with others because you can't build your world if you are afraid to share it with someone else. The successful businessman works with a positive attitude and an optimistic view of his business. A positive attitude, in turn, results from self-confidence and self-assurance. The successful businessman will give himself a high rating for the first attempt at performing any task, whether large or small.

### 7. Please tell us about your hobbies, travel, art, culture, social work, etc.

My hobbies are many things. I love culture and social work because it brings people together and helps them find themselves. So I have a passion for art, culture, learning, and social work. I also like to travel with friends and family to different continents. One of my hobbies is traveling. So many people take vacations and enjoy the feeling of a new place, but I am interested in understanding other cultures and people's thoughts. That is why I like to travel so much: I want to experience different emotions and see things from another person's point of view. Another one of my favorite hobbies is Social work. I also love volunteering in my community, where I can give back to my surroundings and receive knowledge from others.

## MoP notifies Energy Conservation (Amendment) Act, 2022

The Ministry of Power (MoP) has notified the Energy Conservation (Amendment) Act, 2022.

Energy Conservation (Amendment) Bill, 2022 which was passed by Rajya Sabha on December 12, 2022, received the assent of the President on December 19, 2022 and was published for general information by Ministry of Law and Justice. Now, the MoP has released the notification for enforcement of Energy Conservation (Amendment) Act, 2022. The Act amends the Energy Conservation Act, 2001 to empower the central government to specify a carbon credit trading scheme. Designated consumers may be required to meet a proportion of their energy needs from non-fossil sources. The Energy Conservation and Sustainable Building Code will also apply to office and residential buildings with a connected load of 100 kilowatt or above. Energy consumption standards may be specified for vehicles and ship. The failure to comply with standards will be punishable with a penalty of up to Rs 1 million. Non-compliance in case of industrial unit or vessel will attract an additional penalty of up to twice the price of oil equivalent of energy consumed above the prescribed norm. Vehicle manufacturers in violation of fuel consumption norms will be liable to pay a penalty per unit of vehicles sold at Rs 25,000 (for non-compliance up to 0.2 liter per 100 km) and Rs 50,000 (for non-compliance exceeding 0.2 liter per 100 km).

The central government has notified that all the provisions of the said Act will come into force with effect from January 01, 2023.



## Tata Power raises Rs 10 billion capital through issuance of NCDs

Tata Power Company Limited has raised Rs 10 billion through the issuance of unsecured, redeemable, rated, listed, taxable, non-convertible debentures (NCDs) on a private placement basis.

The maturity of Series I NCDs worth Rs 5 billion is scheduled on January 8, 2030 while the maturity of Series II NCDs worth Rs 5 billion would be on December 29, 2032. These are fixed rate NCDs with annual coupon payment. The NCDs are listed on BSE Limited.



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## **KENTER Cables makes waves while entering its 30<sup>th</sup> year in the industry**

**A lot has changed for KENTER Cables from its humble beginnings in 1992. It's now one of the most prominent Wire and Cable Manufacturers in India, has a fast-growing client base across industries and is determined to grow exponentially this coming year. Here are the excerpts from our interview with Mr. Bhavik Vora MD of KENTER Cables.**

**Q. How do you feel when you look at the year 1992? How has the journey been?**

I feel immensely proud of how far we have come as a company and of course none of it would be possible if my grandfather, father and uncle hadn't laid a strong foundation. They dreamt big, but what led them to success is their determination to action their dreams. In 1992 they came to Mumbai and started a small manufacturing unit to produce Copper Control Cables and House Wires. They saw an opportunity in the market as the demand for electricity was growing and electrification of villages, Developing New area in Greater Mumbai was also being aggressively promoted at that time.

**Q. Which were the key turning points in the journey that drove business growth?**

1998 when KENTER Cables got a big push after receiving a BIS License for XLPE Cables – a new technology in the Indian market at that time. Bringing this new technology to India helped expand our customer base drastically and enter industrial activity sales.

The next big push came in 2006 when we got into the automation sector for specialized controlled instrumentation cables. That is when we got our first breakthrough with an MNC and leading Electrical and MEP Consultants.

Then the 2008 government agenda to electrify all villages gave us a significant boost in sales and we went on to enhance our manufacturing capacities. By 2010 we commenced production at

our Bhiwandi Unit. Next was 2016, when we expanded our product range by introducing Aerial Bunched Cables and Fire Survival Cables. This also drastically increased our customer base and we got approvals with major consultant utilities in India.

**Q. How does KENTER Cables maintain a balance in quality and pricing? What precautions do you take while facing competition?**

Adopting new technology in the manufacturing process is what helps up keep the quality top-notch and price competitive – after all India is a price-driven market. We also use our dynamics in sourcing, backward integration along with forward integration. Now coming to competition, its healthy for business. We make sure we know exactly what is new in the global market and continually work on bringing new technology to India. It is what keeps us ahead.

**Adopting new technology in cable manufacturing is expensive. But we keep upgrading to the latest technology because we see it as an opportunity cost.**

**Q. We sometimes hear of accidents at manufacturing units, what does KENTER Cables do to ensure safety in the workplace?**

We have strict safety protocols in place and regularly undertake training programs to operate and risks of using all kinds of machinery on the floor. We make sure everyone is familiar with the machinery and equipment before commencing work, make sure all safety gear is being used and conduct a thorough induction for everyone who works with us.

contd. page on 38



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contd. page from 36

## **KENTER Cables makes waves while entering its 30<sup>th</sup> year in the industry**

### **Q. How do you handle the ups and downs of business?**

Staying open to change is the only mindset to have when you are in business if you ask me. Sometimes things you never imagine happen – like COVID 19. But you just must reinvent the way you work and somehow figure out a way to service your customers, come what may.

Another big change we had faced was digitalization. We opened online orders and that really took off. So now, we are opening fulfilment centers in various parts of the country to enable us to deliver our products at the shortest time possible.

### **Q. Where is KENTER Cables headed in the next few years?**

Expansion is our internal goal. We have just commenced manufacturing of AAAC, AAC and ACSR Conductor in our latest manufacturing unit. We currently have an installed capacity of producing 61500 km of cables per annum and gauging the growing demand, we have planned to expand our capacity by 3X in conductor manufacturing. Simultaneously there is surge in the demand for HT Cables of 11KV, 22KV and 33KV for which we're working on a dedicated manufacturing unit with installed capacity up to 66KV Cables.

### **Q. What guidance do you have for young business people?**

India is already a reliable country for many business sectors and has the workforce and resources to be among the top 10 countries in the world for manufacturing over the next few years. By 2030 India is projected to export goods worth \$1 trillion. So now is the time, to think big and start working with a clear vision in mind. Never cut costs during R&D, and always look at new technology adoption costs as an opportunity cost. While new technology comes with a cost, when you consider the opportunity cost, technology will always overtake finance.

### **Q. Could you tell us a bit about what you enjoy when**

### **you are not working?**

Travel, Cultural Preservation and working towards Sustainability.

I really enjoy seeing new places, experiencing new cultures both in India and across the world. I feel it is one of life's greatest teachers. Travel helps you build a good foundation at a personal level and opens your perspective towards various aspects in life.

I'm also very interested in our Indian culture and heritage. Over the past decade I've had the incredible opportunity to be associated with R&D for the preservation and printing of Indian Manuscripts that are 2500 years old, on papers which will have a shelf life of nearly 500 years.

Living a more sustainable life – avoiding single use plastic, trying to lead an eco-friendly life is something that brings me great joy. This mindset also of course percolates into business where one of our key goals is to transfer our industry norms of using wooden drums to use Iron drums – it's better for the environment and ultimately better for our children.



## **CERC approves HPX's plea to include hydropower contracts in GTAM**

The Central Electricity Regulatory Commission (CERC) has approved Hindustan Power Exchange's (HPX) request for the inclusion of hydropower contracts in the green term-ahead market (GTAM) exceeding T+11 days.

The commission instructed HPX to include the necessary clauses in its by-laws, business rules, and regulations and submit them to the commission within two weeks. HPX had sought CERC's approval to introduce hydropower contracts in green contingency, GTAM contracts, and long-duration contracts (daily, weekly, monthly, and any day) in TAM and GTAM contracts, to help obligated parties comply with their hydropower purchase obligations (HPOs). Earlier in February 2022, CERC had approved hydropower contracts in GTAM on the Indian Energy Exchange (IEX).

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## IS 'SAFETY FOR SHOPPERS' A PRIORITY FOR THE SHOPS?

Shopping is such a passion that shoppers of all ages can be seen crowding malls and shopping arcades 24x7. The elderly, the infirm and the toddlers are all there. So how safe are they from physical hurt in case something goes wrong?

In enclosed public spaces such as shopping malls or arcades National Building Code (NBC) has certain safety protocols which are non-negotiable. Licenses and permits can only be issued after due diligence and minute inspection of safety protocols. Dumping stuff and blocking exits or allowing the locks to rust so that the door does not open in the critical moments of fire or stampede or blackout emergencies, is a strict No-No. Safety exit doors and pre-decided congregation venues in emergency situations need to be usable and available 24x7.

Many of us have seen how a slip on a staircase has altered the storyline in Bollywood films. In fact, the treacherous staircase often becomes the main villain. Prolite has written an original script where the villainous staircase has a change of heart and becomes a hero for everyone. No slips, no skids, no falls and no injuries.

Enclosed shopping arcades, buildings or spaces also see huge footfalls and so the staircases need special safety add-ons besides conventional signs and directional signs. Prolite, the unchallenged leader in safe exigency and escape route solutions, has devised a product range to make the staircase a safer option and a better one too. Staircase Nosing is an all-purpose stair safety product which provides a finely corrugated and serrated surface to avoid skidding and a photoluminescent band to light up the steps in pitch darkness. This nosing can cover the periphery of the step end-to-end and give it a metal cover so that it cannot break either at the edges or anywhere along the periphery.

In darkness or poor light, the staircase will stand illuminated all along, covering the length and breadth of each step to outline the steps and allow easy movement in zero visibility. An all-encompassing illumination and fall safety solution which only Prolite's stair safety product range provides is the best any market place can have.

Prolite has a specific range of lift and elevator signages that make it safer for people who go shopping in malls and enclosed market places. They

also manufacture portable tower lights for maintenance of escalators and elevators. For escalators specifically, Prolite manufactures signages and emergency lights for the ceiling. Besides all that, the company has also introduced one of the sleekest Emergency lights meant for the lift cabin.

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. 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.

PROLITE offers in its evacuation plan signage which would light up brightly in case of power failure or even pitch darkness and provide a simple and clear roadmap of the premises for people to follow and proceed swiftly to safety.

Ceiling Mounted Escape Lights are emergency lights with a little twist. These are designed to illuminate passageways or tunnels comprehensively taking up minimum space and consuming comparatively less power than the conventional varieties of emergency lights. They can be of 1 watt and up to 3 Watt capacity lights which are useful in shops, offices, restaurants or any commercial establishment. Non photoluminescent signages will disappear when darkness falls but with ceiling mounted light support, people will be able to see and read the signs even in pitch darkness. With lesser wattage, the bills will reduce too. So, it makes sense to include them in exigency plans for best output and results.

Prolite's products conform strictly to the codes and are ideal for installation in such spaces. Prolite's EXIT signs are most helpful as are the photoluminescent signs and lights that illuminate safety tools like fire extinguisher and alarm button so that they become instantly visible in pitch darkness or smoke haze conditions.

So, if safety of shoppers is your plight, you just got to get it right, play it safe, get Prolite.





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# Bus Duct Basics



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

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

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

Busway is also versatile. Thanks to developments like elbows and offsets, bus duct offers a lot of layout

flexibility, like adapting to directional changes. Tap-off units or new sections can easily help meet load changes. There are some cases, however, where cable and conduit are the appropriate option. For example, bus duct cannot be installed where it's subject to corrosive vapors.

When ordering a bus duct for a specific application, it's imperative that you plan ahead. EC&M recommends paying particular attention to dimensions. Note any bends, columns, floor elevation changes or other route information. Develop sketches of the route the bus duct must follow. The



manufacturer can use this information to develop final layout drawings. For any uncomplicated installations, standard bus duct can be ordered from the inventory stock.

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**Navin Goliya**  
Director



## We pioneered the use of Digital Instruments in India.

**Q. You are in the market since last 40 years. Please give details of your company from the date of foundation till today with ups & downs, milestones and achievements.**

KUSAM-MECO is a four decade old company in the field of Electronic Test and Measuring Instruments. KUSAM-MECO pioneered the use of Digital Test and Measuring Instruments in India, way back in 1986. At that time, analogue instruments were being used, and it was an uphill task to change the habits of the users, from analogue to digital instruments. Customers had all types of apprehensions about the Digital Instruments, their usage, life and service availability of Digital products in India. Due to our hard work in convincing the customers to change over from the analogue instruments to digital instruments, we were able to break the mental barriers of the users. Slowly and slowly the customers began to use the digital instruments, and due to the good quality and services provided by us, we achieved success after success. Once the mental barrier was overcome, and customers accepted the digital instruments, we added more and more instruments in our range, thereby pioneering the use of digital instruments in India. It was no doubt an uphill task to break the perceptions of the customers who were difficult in changing their mindsets. Today, KUSAM-MECO enjoys a high respect in the Instruments segment in India and abroad. Over the years, we have added many many new products in our range.

**Q. You have been participating in every Eleccrama. How is your experience? What are your expectations this year?**

We are one of the oldest participants in Eleccrama exhibitions. Every year it is attracting more and more quality visitors, which give the exhibitors more value for money. It also gives an opportunity for the manufacturers in India, to display their capability in offering the products with latest technology. Eleccrama now attracts visitors from over 30 countries in the world, which speaks volumes of the popularity and importance of this exhibition. By and large, we have had good experience in participating in these exhibitions. This year Eleccrama will be held after three years and after the effects of the lockdown due to Covid. Hence, it will be a good exposition of the products that have been developed during this period, and will be offered to the customers in this exhibition.

**Q. How you ensure quality of your products? With Special reference to safety & Security?**

At KUSAM-MECO, Quality and Safety have the topmost priority. Each and every instrument is tested thoroughly before dispatch to the customers, thereby ensuring trouble-free service to the customers. Moreover, many of our instruments are "UL" listed with high safety surge protection of upto 12KV unlike instruments with 'CE' certification. No other manufacturer offers products with such high safety in India. This ensures that both the user and the instrument are safe.

contd page on 45



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contd page from 44

## Interview of Mr. Navin Goliya, Director KUSAM-MECO

**Q. You are a pioneer of Digital Multimeters. Please give more details.**

KUSAM-MECO was established in 1983. Its main business was to import Digital Instruments and market them in India. We pioneered the use of Digital Instruments in India. Our Chairman has over 50 years experience in the Electrical and Electronic Test & Measuring Instruments field. Starting from a few models of Digital Multimeters and Clampmeters, we now have over 30 models of Multimeter and 30 models of Clampmeters. We have the highest safety Digital Multimeters which are 'UL' listed and have surge protection of upto 12KV which is not available with any other make in India. Besides, we have a full range of Insulation Resistance Testers upto 15KV, Earth Resistance Testers, High Voltage Non-contact detectors upto 500KV, Discharge Rods upto 400KV, Environment Monitoring Instruments, High Voltage Power Monitoring Instruments, Gas Detectors, Process Calibrators, Transducers, Transmitters etc. Today, KUSAM-MECO has a large range of Test and Measuring Instruments to cater to most needs of the customers.

**Q. There are several issues in every business. How you handle new technologies, finance, customer expectations, online orders. etc ?**

Each business has its own peculiarities in operations. The Test and Measuring industry is no exception. Day in and Day out there are challenges to be met either from the customers, or the users, or from the Tax Departments and other financial issues which are beyond our control. We have to be alert and ready to face the new challenges in the best interest of our company. We have a good team

of persons who can meet customer expectations, with a smile. Our products are also available on on-line platform like Amazon and Flipkart, and customers can buy them on terms convenient to them.

**Q. Any planning for expansion?**

Where there is growth, there is life and at KUSAM-MECO, our staff is lively to attend to the new requirements of the customers. KUSAM-MECO has ambitious expansion plans for adding more new products in our range, so that customers can get a range of good quality products in the market.

**Q. What guidance you would like to give to young business people?**

India is emerging as the new business hub of the world. Lot of emphasis is being given for startup industries in India. Young Entrepreneurs who have sufficient experience of Manufacturing / Marketing / Finance only should enter in the industrial field. Today in Business, an entrepreneur has to play many roles to take forward his business, and as such, he should be well experienced in all fields, so that he can run the business successfully. Do not jump into business just because somebody else also entered in the same business, without understanding the hardships faced by the industry. There is no substitute for hard work. Always have a good mentor, who will be able to guide you correctly.

**Q. Please tell us about your hobbies, travelling, art, culture, social work, etc.**

I love travelling and visiting new places, to learn about new cultures, meet new people in different parts of the world. Also interested in various social and cultural activities.





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## The biggest game changer for the industry will be the National Hydrogen Mission

**Vineet Mittal**, Chairperson  
Avaada Group

**Mr. Vineet Mittal, Chairperson, Avaada Group, is a dynamic, young entrepreneur in the renewable power sector, since last 15 years. He is known for his passion for clean energy transition. IECT editor had a detailed discussion with Mr. Mittal, covering business and social responsibility. A few excerpts from the talks are presented here for the readers of IECT.**

**Q. Avaada Energy being one of the top producers of renewable energy, please share your views on how renewable energy can improve livelihoods and generate economic activity and employment.**

Avaada Group believes in three R's Restore, Renew and Rebuild for a sustainable future. At Avaada, we work together and empower unprivileged communities for their upliftment, thereby alleviating them from poverty. Renewable energy is inversely related to poverty. Expanding the renewable energy

industry could help society in three ways, primarily by lighting the homes of impoverished communities, empowering communities through job creation, and reducing the carbon footprint by decarbonising the hard-to-abate sectors. Currently, about 940 million people, or 13% of the world's population, do not have access to electricity, and this number could increase in the coming years. The renewable industry efforts are focused to light up each and every home in India and we will not stop till we light up entire nation

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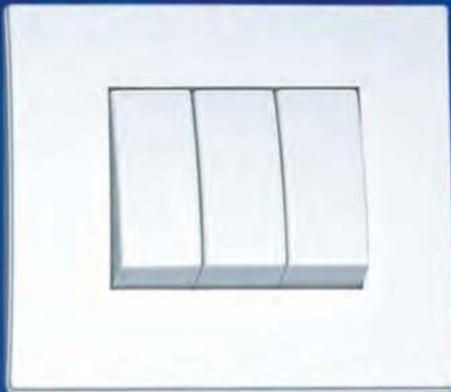
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**Q. Please explain the current position of Avaada Energy in the renewable section. What are your plans for the coming 3 years?**

Avaada Group is a leader in the renewable energy space for more than a decade now having commissioned some of the largest projects, such as 151 MW of solar energy in Neemuch, the second largest project in the world and the largest project in Asia in 2014. Recently, we commissioned the world's largest single-site solar energy project in Bikaner, Rajasthan, through an IPP with a capacity of 1246 MW. The group is entering new businesses these being Green Hydrogen and its derivatives, Solar Manufacturing & Electrolyser Manufacturing. We currently have ~ 4 GW of operational capacity and are targeting RE 11 GW of installed capacity by 2025 and 30 GW of installed renewable capacity by 2030.

**Q. Do you view the clean energy transition in India as an opportunity or a challenge considering the number of people who need to be brought out of poverty?**

A fundamental reason for the limited access to energy is higher prices. You will be glad to know that solar is presently the cheapest form of electricity. It presents a massive opportunity to increase energy access, especially in rural areas, which were hitherto deprived of electricity.

I have first-hand experience witnessing the transformation change that renewable energy plants bring to communities. Jobs get created, power supply access gets better, and it has a massive impact on the local economy.

We have 700+ districts abundantly endowed with solar radiation. If we can 100-150 MW in each district, it implies uniform development across the country and enhances energy access, which can have a multiplier impact on the economy and poverty levels.

**Q. How many people have grid access in India today?**

Courtesy of the Saubhagya scheme, launched by the present Government, 97% of Indian households is connected to the grid. Some of those that remain unconnected are in the remotest parts of the country. These areas are also being served through micro/microgrids.

The only challenges I foresee are hours of

supply. Discoms are in financial losses, hence, less remunerative nature of supply to these consumers. They are typically underserved.

However, things have improved considerably in the last few years, and I am sure energy access won't be a major issue in times to come.

**Q. Which sector-specific policy initiatives, from the government side, do you think were groundbreaking and have the potential to shape the year ahead for the sector?**

From the policy perspective, the Revamped Distribution Sector Scheme (RDSS) has benefited power-generating companies. We have seen a significant reduction in outstanding debt of power distribution companies to power generating companies. For the solar sector, the Production Linked Incentive (PLI) scheme of the government approved last year was very good. The latest allocation of Rs 19,500 crore will ensure that India has a vibrant solar manufacturing base.

In addition, the Energy Conservation Bill, which both Houses of Parliament have passed, will put in place a carbon credit trading system, which was a long pending demand of the industry to bring about more sustainable development in the country.

But the biggest game changer for the industry will be the National Hydrogen Mission, formalised in February 2022. The industry is waiting for more details but setting up the target for 5 million tonnes of green hydrogen by 2030 and creating that marketplace through renewable hydrogen purchase obligation will aid the decarbonisation of the economy.

**Q. You and your company are very much in the social sector. What is this vision?**

At Avaada, there is a core belief that enterprises must be driven by higher purpose and has accordingly identified the welfare of society and development of the nation as its higher purpose. The firm gives precedence to social and environmental returns over financial returns which are measured through a well laid down framework. Avaada, the name itself springs from the promise of giving back to society. I believe that we are indebted from birth, indebted to our ancestors (PitraRin), to the community and culture (NriRin), to the gods and sages (Deva Rin, Rishi Rin) and to nature at large (BhutaRin). The work environment at Avaada keeps reinforcing the higher purpose of



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the organization and motivates the team members to tap into their unlimited potential and provide exceptional results, for the needed change, uplifting society and eradicating poverty in the Indian context. Avaada core areas are the three Es and one H (Education, Empowerment, Environment and Health), to make a difference in society. Our goal is to impact 1 million lives by 2030 through various initiatives across all our sites nationwide.

**Q. What advice you would give to the younger generation?**

It is the time of Yuva India, and yuva shakti" (youth power) will drive India's future. The growth of the nation would provide ample opportunities for the youth of the nation, who will ensure that India leads from front on the global scene. Yuva Shakti, it is time to ensure serenity, to work hard for the betterment of society and to be the reason for change. For us, IT means Indian talent, the future of India. Youth is our talent pool, which has huge potential that should be written in golden words in the history of India. My message to the youth is that you can achieve anything you set your mind to. Celebrate challenges like festivals and surpass them with your innovative ideas. India has one-fifth of the world's youth population, which shows that we have the potential to change the world's today and tomorrow. With a clear goal towards righteousness, we can be at the forefront of change. Let us all follow the path of "Vasudhaiva Kutumbakam" and bring about the change we dream of.

**Q. Please tell us about your thoughts when it comes to social agenda of your company?**

I believe in a purpose-driven life, and in creating and building up newer things. I always strive to do something innovative, something that has never been done before, and could be a path-breaking thing for my country and for the industry. It is high time that the notion of working in the CSR sector being a charitable and thankless job is changed to that of a profitable one that provides stable employment as well as the satisfaction of giving back to society – something the youth of today yearns to do. I believe that my success and that of the company is a result of this good Karma.

**Q. What are your expectations from the Union budget of 2023-24 for the renewable energy sector?**

We expect the budget to have clear announcements around green hydrogen and enabling green hydrogen purchase obligations. We also expect a Production Linked Incentive (PLI) scheme for electrolyser and export incentives for green hydrogen and ammonia. GST is not a budget topic, but a direction towards reducing GST on renewable energy products from 12 per cent to 5 per cent can be a good start.

As the host country for G20, India has an opportunity to negotiate with world leaders. If the developed world is not able to provide the funds agreed upon at Paris and Glasgow COPs, they should at least set a quota of purchasing 10-20 million tonnes of green hydrogen from emerging countries so that they can benefit from the global energy transition.



## 20 MW solar plant comes online in Myanmar



Green Power Energy Company Limited (GPE) has commenced operations on its 20 MW Taungdaw Gwin photovoltaic (PV) plant in Myanmar.

The facility was developed under a build-own-operate (BOO) model and is located on an 81 hectare site in the Myit Thar Township. Taungdaw Gwin plant has around 45,980 solar panels with a solar tracking system. Sungrow Power Supply Company Limited has supplied the 1500 V string inverter solution. The solar plant can generate around 45 GWh of renewable energy annually. Output from the facility will be used to reduce power outages as well as well as increase the capacity of the national grid.

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# 99<sup>th</sup> Year of ELECTRICAL CONTRACTORS' ASSOCIATION OF MAHARASHTRA (ECAM)

**The ELECTRICAL CONTRACTORS' ASSOCIATION OF MAHARASHTRA, MUMBAI, has carved a niche for itself, in the annals of Electrical Contracting fraternity, by virtue of which, it has rightfully established its claim to be the foremost, perpetually reputed and the only one of its kind of PIONEERING ASSOCIATION in the whole of India. E.C.A.M. now triumphantly marches into its centenary YEAR in January, 2024. In Continuation of the previous issue of IECT.**

Government's decision to register electrical contractors and wiremen created a peculiar problem for all those who were in line. To record in the vivid words of Shri Natverial Ranchhodial Khambhati.

"They included numerous workers who could locate the most complicated electrical fault, could also wind the armature of a D. C.. Motor and yet, were not able to explain the cause of the fault, nor how the armature turned round".

"Should these persons", queried Shri Khambhati, "who undoubtedly had been instrumental in popularising electricity, be obliged to sit for an examination that Government proposed to conduct?" So, the status of such experienced, albeit, academically unqualified, electrical contractors and wiremen was at stake and their professional career was in grave peril.

The Association of Wiring Contractors, having now stepped in, to safeguard the interests of the practitioners of these professions, with its characteristic and forceful presentation of their case, in an able, pragmatic, and rational manner, was successful to prevail upon the Government to make an exception in case of those practitioners who had a minimum of 5 years experience in their respective spheres of specialisation. The Government acceded to a majority of the recommendations, duly and officially certified by us, then. This was the first conquest of the Association deservedly to be taken into account, when we are in the midst of our Platinum Jubilee Year.

The membership-fees in those early years were Rs. 10/- per mensem- i.e Rs. 120/- per year- quite a substantial amount compared to the purchasing power of the Indian Rupee in those Mid-Twenties.

But, subsequently, they were reduced to Rs. 5/-, then Rs. 3/- and even to Rs. 2/- when financial depression and economic recession had hit all the countries, of the world in late Twenties and early Thirties.

Initially, the Association had in its Managing Committee of 14 members. When the first President, Shri Kaishuru Sorabji Guzder, after serving 4 consecutive terms, relinquished his high office, it was decided to have one additional member- viz. the acting or the Vice President, to ensure maximum continuity and optimum functioning of the Association in its multifarious duties, responsibilities and obligations, it was called upon to perform, for and on behalf of its members in particular and the profession in general, with clock- like precision and split-second decisions, which sometimes, had to be as fast as the speed of electricity or light.

Since the very commencement of the activities of the Association, the moving spirits behind its establishment realised the necessity for :

1) Library Committee: Which was invested with the powers to purchase books, pertaining to electrical and technical matters and to subscribe to monthly journal of British Institution of Electrical Engineers, London;

ii) Publicity Committee: Which tried to propagate the aims and objects of the Association and to popularise its activities through the medium of newspaper advertisements;

iii) Social Committee: Which arranged frequent social, friendly, informal meetings amongst the members of the fraternity of this profession and those directly concerned with them:

iv) A Common Symbol: Around which to rally those engaged in the profession of electrical contracting trade;

In the early years, the Association was confronted



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# 99<sup>th</sup> Year of ELECTRICAL CONTRACTORS' ASSOCIATION OF MAHARASHTRA (ECAM)

with, tackling various problems of procedures and practices adopted by the Bombay Electric Supply & Tramways Company Limited. In 1928 the Association lodged a strong protest against the practice followed by the Supply Company in displaying notices on its Notice Board, giving a list of 'Wiring Contractors', whose workmanship was found to be defective, under the plea that as the Association put it, would 'untie, and undo the bond of present relations among the contractors and the consumers'. The Association had no objection if such a list was given on the Supply Company's leaflet, 'High Grade Workmanship', which was being mailed to all consumers.

The second problem concerned, was the practice followed by the Supply Company which required an electrical or wiring contractor to record his specimen signature before the officer(s) of the Company. This entailed a lot of inconvenience to those engaged in this profession. The Association suggested that the B.E.S. & T. Co. Ltd., should follow the same practice about the specimen signature, as followed by the Banks and other institutions, which could be obtained on a card, specially prepared for the purpose.

The Association also made representations to Elec. Engineer to the Government on a number of issues which directly or indirectly affected the interests of the elec. contractors, wiremen etc.

There was also a case in which the Association made representations to the Tariff Board, which then had its office

in Calcutta, concerning a certain company which proposed to enter as a manufacturer of cables in India. The Association represented, that since the company had 'No Indian Capital', 'No Indian Board of Directors' and, hence, it was 'Not a national industry. This was in 1931, when national movement had taken firm roots in the minds of the people of India. So even when these early Indian contractors brushed shoulders with Englishmen those days, that did not preclude them from taking decisions, which were truly national to the core of their heart. This is

not to say that our Association was parochial and chauvinistic in its nationalism. It underlines the credit of our Association, that many Europeans served on its various Committees from its very early years & as many as 3, became its Presidents, i.e., Mr. George Charles (1941-1942), Mr. Sidney Thomas Eburne (1943-1944) and Mr. James Mayman (1945-1946), although Mr. George Charles preferred to be styled as an Anglo-Indian. That is a measure of our catholicity and tolerance.

Our Association, even now, is following the same pattern that was set by the pioneers of our Association, in the formative years of our existence..

Apart from giving glorious vignettes of the early years of our Association, it would be next to impossible to go deep into the detailed history of the Association.

It would, therefore, be beneficial and profitable to dwell on the highlights of the history of the Association in subsequent years.

#### HIGHLIGHTS:

1925: The very first ELECTRICAL CONTRACTORS ASSOCIATION was formed on Saturday, January 10th 1925, as a result of a notification issued by the Govt. of Bombay, registering Electrical Contractors and wiremen, through the existence of Licensing Board in 1924.

1937: Our Association was registered under the Indian Companies Act, 1913, and the names of members of the Managing Committee, were filed with the Registrar of Companies on October 1st, 1937.

1938: The Association was represented on State Government's Electrical Licensing Board.

1947: On 7th August, 1947 just a week before India attained its independence, Bombay Muni. Corporation, municipalised the Bombay Electric Supply & Tramways Company Ltd., and named it as the Bombay Electric & Transport Undertaking, which is one of the most major electric distributing undertakings in India.

1950: 10th January 1950 marked the Silver Jubilee of the Association when, at a Gola Entertainment Function, the Late Dr. Jivraj N. Mehta, the then Minister of Public Works Government of Bombay, complemented the members in most glowing terms, by his lofty words, But for the efficient services rendered by the electrical contractors, the big City of Bombay would not have been



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# 99<sup>th</sup> Year of ELECTRICAL CONTRACTORS' ASSOCIATION OF MAHARASHTRA (ECAM)

what it is today. These words have much validity today, at the time of our Platinum Jubilee.

In September, 1950, the Association launched its own publication titled "Indian Electrical Contractor & Trader" which bears the sub-title of "Official Organ of E.C.A.M and which is still being very ably and efficiently published by the present publishers, namely, Campaign Masters, through their partners Shri Satish Sinnarkar and Shri Vijay Singh.

1952: At the time of Municipalisation of the B.E S. T., the City had D.C. system with a very heavy load. In 1952-1953, efforts were initiated to convert D. C. into A. C. system. In 1947 there were as many as 25,000 consumers dependent on D. C. system, but in 1971-1972 there were just 17. Progressively the number has fallen, and as on to-day there is no D. C. Consumer in B.E.S.T. area of Supply.

1953: On December 20th, 1953, the then Mayor of Bombay, Shri C. N. Desai, handed over to members of the Association a certificate, recording their membership of the Association. This was the first time that the members received a Membership Certificate in its 28 years' history. The most important aspect of the certificate was the incorporation of the CODE OF CONDUCT, in the certificate itself, which members were called upon to subscribe, adhere and to endorse. The origin and genesis of the Code of Conduct was directly related to the speech which the late Dr. Jivraj Mehta had delivered at our Silver Jubilee Celebrations about 3 years earlier, underlining and emphasising the need for ethical practice in the profession.

1954: Bombay Electricity Board came into existence, which later in 1960 became Maharashtra State Electricity Board in 1960.

1955: The Association sponsored a tour to United Kingdom and Europe, which enabled the participants to make an on-the-spot study of the latest trends, modern practices and procedures adopted in those advanced countries operating on scientific basis and stand to benefit from this excursion by enhancing their own level of physical and mental skills, essential for effective execution of any

electrical installation.

1956: Our Association, in collaboration with the Illumination Engineering Society of India and the Indian

Institute of Architects, sponsored an ILLUMINATION CONTEST- the first of its kind in India, which was designed to suitably accord recognition to licensed electrical contractors, both members and non-members, who executed illumination jobs, to coincide with the Republic Day on 26th January. In the initial stages, medals and certificates were given. In 1960, the then President of the Association, the Late Shri Jack Shellim, presented the Association with a Shield, which was Awarded for the first time in 1960 to the licensed electrical contractor, whose illumination was adjudged the best from amongst those competing for this illumination Contest.

1958: On 20th April, 1958, at our Annual Dinner, Shri U. N. Mahida, the then Chairman of Bombay State Electricity Board, presented a Booklet entitled, "STANDARD SPECIFICATIONS FOR ELECTRICAL INSTALLATION WORKS", to each and every member of the Association. This was a commendable achievement on the part of the Association, since it was a pioneering attempt in this field, which, in 1963, formed the background on which the Indian Standards Institution issued its Specification No. 732.

1959: 1st May, 1960, marked the bifurcation of the then Bombay State, into Gujarat and Maharashtra, with the consequence, that the Association had to close its Gujarat Centre in Ahmedabad, which was started in 1953.

1966: After a prolonged litigation that lasted for over 5 years, initially at the Bombay High Court and subsequently at the Supreme Court, the latter decided the case favourably which enabled the Association to obtain exemption for the licensed electrical contractors, from the purview of the Sales Tax Act.

1967 The Association formulated STANDARD CONDITIONS OF CONTRACT (Applicable to installation Contracts), to enable the Members to tender and compete for contracts on honourable healthy lines.

1972 In November 1972, our Association adopted a New Constitution, and assumed the name of "ELECTRICAL CONTRACTORS ASSOCIATION OF M



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MAHARASHTRA'. With suitable amendments, additions, alterations and deletions, the Association ultimately registered itself under the Bombay Non-Trading Corporation Act 1959.

Also in November 1972, the Indian Standards Institution-New Delhi, invited the Association to nominate its representative on their Sectional Committee to Draft Specifications concerning: 1. Steel Conduits & Its Accessories. 2. Electrical Wiring Accessories

1974: GOLDEN JUBILEE YEAR: The following were some of the more important events, highlighting the activities of the ECAM during the Golden Jubilee Year 1974-75. Inauguration of the Shanmukhanand Hall by Hon'ble. Dr. M. B. Papat, the then Minister for Prohibition. Inauguration of Exhibition by Shri K. R. Podar, the then Sheriff of Bombay.

February 23rd: The first Golden Jubilee year seminar was held on "Electric Safety" presided by Brig. Chainani. Speakers were Shri S. Srinivasan, D. N. Parekh & S. Purshottam

March 30 Second Golden Jubilee Seminar was held on "High Voltage Techniques", which was presided by Shri A. P. Shenoy. Speakers were Shri S. V. Upasani, M. N. Joglekar & P. H. Padhye

April 27: Third Golden Jubilee Seminar was held on "Electric Construction Industry, Organization and Management Presided by Shri J. C. Shah. Speaker was Shri D. N. Purandare.

June 29 Fourth Golden Jubilee Seminar on "Electrical Installation Practice presided by Shri K. V. Chaubal. Speakers were Shri S. N. Narsingrao, P. H. Padhye & V. V. Paranjape.

August 10: Fifth Golden Jubilee Seminar on "Lighting Practice" presided by Shri V. N. Manohar. Speakers were Shri A. T. Valia and S. Roychaudhary.

August 24: Sixth Golden Jubilee Seminar on "Uses of Copper, Epoxy & Miniature Air-Circuit Breakers in Electrical Installation' presided by Shri M. R. Bhot. Speakers were Dr. L. R. Vaidyanathan, Shri A. P. Mathur and Shri J. P. Mody.

September 21: Seventh Golden Jubilee Seminar on 'Electrical Installation Practice-Part II' presided by Shri P. H. Padhye. Speakers were Shri V. G. Kulkarni and Shri P. Tiwari.

October 13: Eighth Golden Jubilee Seminar on "Standardisation of Cables & Conductors' presided by Dr. K. R. Pandit. Speakers were Shri T. Rajaraman and Shri M. L. Dongre.

November 17: Ninth Golden Jubilee Seminar on "Code of Practice for Electrical Installation presided by Shri K. S. Subramanyam. Speaker was Shri R. C. Jain.

January 11, 1975: Tenth Golden Jubilee Seminar on "I.E Rules, LE Act, Power Control Measures & Electricity Duty presided by Shri R. P. Aiyar. Speakers were Shri S. N. Agnihotri, A. P. Shenoy and S. V. Modgovkar.

#### TECHNICAL VISITS IN 1974:

Hydro & Thermal Power Stations at Ukai (Gujarat) Mahindra Electro Chemicals Ltd., Pune.

1975. S. I. invited 'ECAM' to work on the ETDC-44, and ETDC- 66 Committees and later on ETDC-1 and ETDC-20 Committees and ETDC-44/P, 1/P. 2 Sub-committees. E.C.A.M. Representative was elected Chairman of ETDC-44 committee and ETDC-44/P 1 Sub-committee.

1976 ECAM published its diary with 13 technical date tables, with a print order for 1000 diaries. ECAM set up a Committee, for a competition, for temporary wiring installation for its members. The proposal was to award a shield to the member, whose work was adjudged the best from amongst the competitors every year. It was to be a rotating shield.

1982 I.S.I invited ECAM to prepare draft of Code of Practice for electrical installations in :- a. Commercial Buildings, Show Rooms & Institutions, b. Stand-by

Generating Station. These would be a part of the National Electrical Code under print and which was published in 1985.

1983: ECAM Annual Diary was published with 122 Technical Data Tables. The Date Book was in demand from all over India & Overseas. The print order was for 5000 diaries and 1000 data-books.

The ECAM continued its various activities with

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vigour & gusto from 1984 to 1999. Many members contributed in keeping the flag of ECAM flying high. To do justice to the efforts of these members & their activities, will necessitate the writing of the history of ECAM which will well span over a hundred pages. Hence, suffice it to record, that all the committees were active in their respective spheres which may generally be listed as under:

1. Representation on the Licensing Board.
2. Representation on the Bureau of Indian Standards.
3. Technical Visits & Study Tours.
4. Technical Programme Committee.
5. Publications, Exhibition & Diary Committee.
6. Membership Drive Committee.
7. Building Corpus Fund.
8. Social Contact Committee.
9. Legal, Commercial & Taxation Committee.
10. Power Supply Committee.
11. Editorial Committee.

However, some of the important landmarks & milestones of the past fifteen years are as follows:

1984: Shri D. N. Purandare was made Chairman of ISI ETDC-44 & member of ETDC-56 council. The draft for the National Electric Code was completed, approved & released for printing. Shri Shirish Jhaveri was the alternate member on said committee.

#### FORMATION OF ECAM, PUNE REGIONAL CENTRE

Due to the increase in membership from Pune & adjoining areas, ECAM opened a new REGIONAL CENTRE in Pune on 14th October, 1984, at the hands of Shri M. A. Khan, C. E. (Elec) PWD, Government of Maharashtra and Shri B. D. Ranade of M/s. Ranade Electric Co., Pune was elected as the Chairman. ECAM would consider the opening of more centres in cities like Nagpur, Nasik, Aurangabad etc., with autonomous powers for each centre, with a view to enable local contractors to redress their grievances in their respective areas.

ECAM organised a felicitation function on 10th February 1984, in honour of Shri D. N. Purandare, Past

President, upon his selection to be recipient of the IEEE Centennial Medal & Citation by IEEE- U.S.A.

#### 1985: DIAMOND JUBILEE OF ECAM :

The Diamond Jubilee of ECAM was celebrated with fervour & great success. Eminent persons from Trades, Industry & Utility participated. Shri Ramkrishna Bajaj, President, Federation of Indian Chamber of Commerce and Industries, inaugurated the function. at Shanmukhanand Hall, on 21st January, 1985. A dance ballet 'MEERA SHYAM DULARI' by Shri Yogendra Desai and his troupe was staged at the Hall, was followed by a contributory dinner.

A Souvenir depicting the history of the Association, was released at the hands of Chief Guest, Shri Ramkrishna Bajaj, at the inaugural function of the Diamond Jubilee Celebrations at Shanmukhanand Hall.

#### ECAMEX-85 EXHIBITION:

The Association organised an exhibition "ECAMEX-85" at Sunderbai Hall, from 23rd to 27th January, 1985.

#### SEMINAR:

A two days conference on "Electrical Installation Practices" was organised at Patkar Hall on 24th and 25th January, 1985. About 300-400 delegates from Bombay City & Districts, participated in the conference. A book on "Electrical Installation Practices" was released during the Conference.

#### 1986: DIAMOND JUBILEE YEAR:

The concluding programme of the Diamond Jubilee was held as Bhaidas Sabhagriha, Vile-Parle (W), on 2nd February, 1986. Shri S.P. Manaktala, Managing Director, Tata Electric Companies, was the Chief Guest at the entertainment programme, by Maheshkumar & Party, which was followed by lunch for members & their guests at Jashoda Rang Mandir, Vile Parle(W).

The Technical Programmes Committee, consisting of Shri N.D. Chawla as Chairman, Shri S. Y. Kazi as Co-Chairman, and Shri Mohan Agarwal as Secretary, organised programmes as under in 1985-96:

A Technical Seminar on 'Design & Selection of Energy Efficient Motors. A Technical Seminar on "National Electrical Code".



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## Fybras strengthens its presence in India

**F**ybers, a proficient brand of modern electrical goods in India, announces its launch in Guwahati and Bihar. They held a Partner's Meet in Guwahati in December'22 to officially announce the market entrance. The brand also participated in the mega 'Bihar Electrical Trade Expo' (BETA), which bookmarked its official launch in Bihar.

Fybras exhibited its entire product range, including Wires & cables, Switches & Accessories, Switchgears, and Lighting systems. Representatives from Fybras explained the practical application of its modular switches categories, such as the Four-X and Wood-em series. Attendees were also provided with in-depth knowledge of Lighting, Wires & Cables, Switchgears, and other smart accessories.

**Mr. Parasmal Jain, Director, Fybras**, said, "We are proud to embark on our journey in Bihar & Guwahati officially. Our participation has allowed us to understand market needs and the pain points of the consumer sector.

We are confident that our commitment to quality, innovations and customer service will also stand us in good stead in these markets."

Mr. Jain added, "We have been catering to the needs of the Indian Electrical Equipment sector since 1968. Our commitment to excellence is evident in the portfolio of past projects, and we are eager to continue this tradition in these states."

### **About Fybras-**

Fybras is a proficient brand of modern electrical goods in India; they construct a premium range of electrical products, which varies from Wires & cables, Switches & accessories, Switchgears to Lighting systems. It is a brand founded by the management of Balar Marketing Pvt Ltd in 2012. They have been catering to the needs of the Indian Electrical Equipment sector since 1968 by the name of KundanCab. Fybras believe in benefiting every customer by using modern yet cost-effective technology and adhering to superb quality



and innovation that meets the highest industry standards. The company is headquartered in New Delhi and has branch offices in Mumbai, Chennai, Bangalore, Kolkata and other major cities of India.





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## Delhi govt approves draft Solar Policy, revises target by three times to 6,000 MW by 2025

**T**he policy also encourages discoms to increase the share of solar energy procured from outside Delhi through innovative models such as RE-RTC (Renewable Energy-Round the Clock). It combines a host of renewable energy sources (solar, wind and others) alone with appropriately sized battery storage to provide round-the-clock power as per the demand curve of Delhi, the statement said.

"To motivate consumers to use solar energy, the government will provide various incentives such as generation-based incentives (GBI) and capital subsidies. For the first time in the country, consumers will have an opportunity for Community Solar and Peer-to-Peer trading," Sisodia said. The policy will provide capital subsidies for residential as well as commercial consumers in Delhi, he said. The draft Delhi Solar Policy 2022 will now be in the public domain for 30 days for comments from stakeholders, after which it will be tabled in the Cabinet for final approval. "The new solar policy will further boost the efforts of the Delhi government to fight pollution while generating 12,000 new jobs. It will make Delhi a model for states and cities not just in India but also across the world in enabling sustainable clean energy transition," the deputy CM said. The draft policy provides for monthly GBI for residential, group housing societies and resident welfare associations, and commercial and industrial consumers for five years from the date of commissioning of the solar power. The GBI will be Rs 3/kWh for residential solar systems up to 3 kW, Rs 2/kWh for residential solar systems above 3 kW and up to 10kW, Rs 2/kWh for CGHS and RWAs with solar systems up to 500kW (at 10kW per house). An early-bird GBI of Rs 1/kWh will be offered for the first time for commercial and industrial consumers

for the first 200 MW of solar deployment. For residential consumers, a capital subsidy for mounting structures (raised structures that have a minimum ground clearance greater than six feet) will be provided at the rate of Rs 2,000 per kW up to a maximum of Rs 10,000 per consumer and adjusted against electricity bills, as per the policy. Taxes and duties will not be levied on generation from RTS (roof top solar) panels whether for self-consumption or supplied to the grid. To increase the uptake of RTS panels, the policy also encourages new deployment models such as Hybrid RESCO, Community Solar and Peer-to-Peer trading. A Hybrid RESCO model is envisioned for the first time in India through the draft Delhi Solar Policy 2022 for all consumers, a Delhi government statement said. Read before you invest. Insights on Websol E

This model enables consumers to access the net metering benefits of solar without making any upfront capital investment by entering into an agreement with their power discom. For the first time in the country, 'Community Solar' will be set in place. It will enable consumers who do not have a suitable roof for installing a solar system to be owners of a part of a larger solar energy system set up by a developer within an available land parcel in Delhi, the statement said. 'Peer-to-Peer Trading' of solar energy will also be set in place. It will enable owners of solar energy systems to sell their excess generated electricity in real-time via a P2P energy trading platform. The policy also encourages discoms to increase the share of solar energy procured from outside Delhi through innovative models such as RE-RTC (Renewable Energy-Round the Clock). It combines a host of renewable energy sources (solar, wind and others) alone with appropriately sized battery storage to provide round-the-clock power as per the demand curve of Delhi, the statement said.





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- **Auto-V LoZ AC Voltage :** 1 V ~ 750 V.
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## 97th AGM of ECAM held at International Convention Hall, BSE, Mumbai On Saturday, 21st January 2023.



**Shri Achyut Godbole, the eminent speaker, spoke on “Technological Changes and the effects on business and personal life.” He also answered queries from several members.**



**Shri Gopal Kabra of R R Global Ltd. addressed the members on a video call regarding precautions to be taken by the contractors while purchasing wires and cables.**

# 97th AGM of ECAM held at International Convention Hall, BSE, Mumbai On Saturday, 21st January 2023.



**The 97th AGM of ECAM started with lighting of lamp by veteran leader Shri Sailesh Doctor.**

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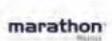
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## 97th AGM of ECAM held at International Convention Hall, BSE, Mumbai On Saturday, 21st January 2023.



Shri Sailesh Doctor was felicitated for his guidance, Shri Sunil Bhure was felicitated being past president of ECAM, Shri Milind Naik was felicitated being past General Secretary of ECAM



As per the Election results declared, Shri Waman Bhure has now taken the chair of President of ECAM and Shri Devang Thakur has now taken the chair of General Secretary of ECAM for 2022-2025. Both were felicitated on the occasion of their election.



Six Directors are elected for the period 2022-2025. They were felicitated on the day of AGM.

1. Shri Rajendra Sinnarkar
2. Shri Rao Saheb Rakibe
3. Shri Raghuvir Patil
4. Shri Manohar Shahane
5. Shri Amit Garud
6. Shri Umesh Rekhe.



# A case for nuclear energy

- By Aditya Sinha & Chirag Dudani

Respectively, additional private secretary (policy & research) and assistant consultant, EAC-PM

Western activism tends to push agenda that don't find buyers in the home countries to the much less-developed Global South. This activism conveniently portrays something that is cutting edge, as a global pariah. Nuclear energy is a case in point. Our country has had a history of nuclear projects being stalled due to protests, which are often funded by the West. It is worth quoting from a 2012 interview in Science with then PM of India, Manmohan Singh. "The atomic energy program has got into difficulties because these NGOs (the ones in the developed world), mostly, I think, based in the US, don't appreciate the need for our country to increase energy. The local NGO-led protests have stalled the commissioning of two 1000 MW nuclear reactors".

One major concern raised by opponents of nuclear energy is the potential safety risks involved in running a nuclear power plant and handling radioactive waste. However, the data tells a completely different story. According to an analysis by Our World in Data ([bit.ly/3laXEep](http://bit.ly/3laXEep)), the death rate per unit of electricity production for nuclear is a mere 0.03. These numbers are much higher for brown coal (32.72), coal (24.62), and oil (18.43). This analysis uses deaths from accidents and air pollution to

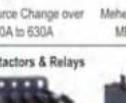
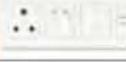
calculate the death rate per terawatt-hour of electricity. Although it is true that fossil fuel-based electricity generation often leads to higher death rates, people tend to overestimate the dangers of nuclear power. But why is it so?

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### Making the most of millets

Those who know behavioural economics or psychology will attribute it to the “availability heuristic.” Amos Tversky and Daniel Kahneman were the first ones to study the availability heuristic, which is a mental shortcut wherein people make judgments on the basis of the immediate examples that come to a given person's mind. Humans tend to overestimate the frequency of an event because it is more readily available in one's memory. While many of us do not know about the accidents in the thermal power plants, everyone knows about Fukushima nuclear disaster and Chernobyl. This has distorted perceptions of risk or probability.

This is despite the fact that the Japanese government reported that only one person died directly as a result of the Fukushima nuclear accident, and that more deaths were caused by the evacuation process. The Chernobyl accident resulted in 31 direct deaths, but estimates of the total number of premature deaths from cancer linked to the accident range from a maximum of 4,000 according to the World Health Organization to a maximum of 62 according to another UN agency.

In the past, nuclear accidents typically involved older, outdated reactors that are no longer in operation. Modern, third-generation reactors are designed with improved safety features and are less prone to meltdowns. Despite the risks associated with nuclear energy, research ([bit.ly/2TIGMP7](https://bit.ly/2TIGMP7)) has demonstrated that transitioning from fossil fuels to nuclear power has prevented approximately 2 million deaths from air pollution since 1971. If nuclear energy is more widely adopted as a means of decarbonising the global economy, it has the potential to prevent tens of millions of deaths in the future.

That is not the only reason India should invest

more in nuclear energy. The renewable energy sector is yet to solve round-the-clock baseload power generation, which is critical for grid stability. Even though solar has seen significant per-unit cost efficiency in the recent past, battery technology is still far from making it a predominant source of power. In an increasingly uncertain geopolitical environment with price spillovers to hydrocarbon imports, the transition to green energy has payoffs beyond climate change. This is even more true for India with its high current account deficits. Nuclear power is indispensable to this transition, being the only scalable power source with 24x7 baseload power generation.

There are currently 22 nuclear reactors in India. The government envisions nuclear energy as a key part of its electricity generation strategy and aims to increase the share of nuclear energy in the country's electricity mix to about 10% by 2031. However, India has not been able to truly leverage the landmark nuclear deal, which made India the only non-NPT signee with nuclear weapons allowed to carry out nuclear commerce with the Nuclear Suppliers Group. The 48-nation NSG waiver to India opened the doors for procuring civilian nuclear technology and fuel from other countries. Despite the substantive increase in access to technology and fuel, the share of nuclear energy in the overall energy pie has stagnated at around 3% since 2008, when the deal was signed. The nuclear power sector has the slowest rate of growth in capacity addition amongst fuels, notwithstanding ambitious targets laid at the time.

### ALSO READ

#### Tatas in an air pocket

The recent major breakthrough in nuclear fusion technology announced by US department of energy has sparked new optimism in the sector. The Indian government, on its part, has approved the construction of ten more pressurised heavy water reactors (PHWRs). These new PHWRs, which will have a capacity of 700 MW each, will be set up in a fleet mode, which means they will be constructed and operated as a single unit to increase efficiency and reduce costs. The future of nuclear energy in India looks bright as long as Indians are able to resist the temptation of becoming the consumers of activism of the global north.

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# 97th AGM of ECAM held at International Convention Hall, BSE, Mumbai On Saturday, 21st January 2023.



Shri Waman Bhure, the new president of ECAM addressing the members. Shri Sanjay Kolhatkar, Director, ECAM spoke about his contribution in BIS & NEC. He also gave details of office renovation of ECAM



Shri Sanjay Kolhatkar, Director, ECAM was felicitated by Shri Sailesh Doctor for his contribution in deciding the National Electric Code. He was given a certificate of appreciation. At this occasion the family members of Shri Kolhatkar were also present.



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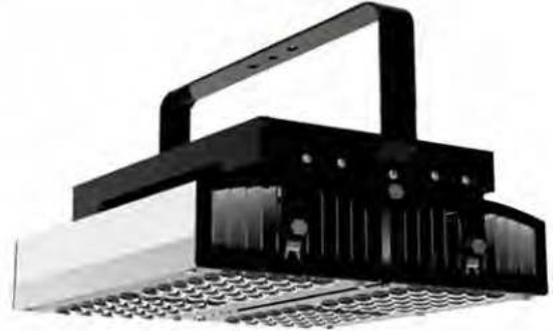
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- \*Yard

### 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
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- \*Minimizing overall costs
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- \*Fully compliant with WEEE and RoHS regulations



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

# RBI to issue sovereign green bonds for mobilising resources for green infrastructure

The Government of India, as part of its overall market borrowings, will be issuing sovereign green bonds, for mobilising resources for green infrastructure, as announced in the Union Budget 2022-23.

The sovereign green bonds will be issued in two tranches of Rs 80 billion each on January 25, 2023 and February 9, 2023. Each tranche will include Rs 40 billion worth of 5-year sovereign green bonds and Rs 40 billion worth of 10-year sovereign green bonds. The proceeds will be deployed in public sector projects which will help in reducing the carbon intensity of the economy. Accordingly, it was notified in the half-yearly issuance calendar for marketable dated securities for the second half of the fiscal year 2022-23 on September 29, 2022 that sovereign green bonds for an aggregate amount of Rs 160 billion would be issued. The Government of India has



since issued the Sovereign Green Bond Framework on November 9, 2022.

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## TGBL to extract Green Hydrogen from biomass and waste in Pune plant



**T**he Refuse Derived Fuel (RDF) from the waste would be utilised to generate hydrogen using Plasma Gasification technology developed while closely working with Bhabha Atomic Research Institute (BARC) and Indian Institute of Science, Bengaluru.

New Delhi: TheGreenBillions Limited (TGBL), a company that deals in sustainable initiatives, announced it has partnered with Pune Municipal Corporation (PMC) to set up first plant in India to extract green hydrogen from biomass and municipal solid waste. TGBL's wholly-owned subsidiary Variate Pune Waste to Energy

TGBL's wholly-owned subsidiary Variate Pune Waste to Energy NEWS SITES News   International Economy & Policy Reports & Data Podcasts Webinars Infographics  Ener (VPWTEPL) will manage and utilize the municipal solid waste of 350 TPD of Pune for generating hydrogen for a period of 30 years. The company is discussing with other state municipalities in India to set up similar plants. Broadcast Engineering Consultants India (BECIL), a central public sector enterprise, will provide the project management consulting and VPWTEL will implement the project.

The Refuse Derived Fuel (RDF) from the waste would be utilised to generate hydrogen using Plasma Gasification technology. The technology has been developed while closely working with Bhabha Atomic Research Institute (BARC) and Indian Institute of Science, Bengaluru, the company said. Mahatma Phule Renewable Energy & Infrastructure Technology (MAHAPREIT) has proposed to offtake the hydrogen generated at the facility and develop logistical infrastructure for hydrogen transportation to industries for this. In the first phase, MAHAPREIT proposes blending in the city gas distribution network in Pune by partnering with Maharashtra Natural Gas Ltd, a joint venture between GAIL (India) and Bharat Petroleum Corporation. The company said the joint efforts by MAHAPREIT and GAIL can help the proposed hydrogen blending project set a benchmark for a circular economy with hydrogen generated from the city's waste and blended back into its gas distribution network. With this project, Pune city can reduce 2.5 million MT CO<sub>2</sub>e, 3.8 million MT waste would be diverted from the landfill and around 1,80,000 estimated households will be served directly. The Municipal solid waste otherwise being dumped in low lying urban areas will be diverted, saving upto 689.5 cubic meter space every day.



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

# Cabinet approves National Green Hydrogen Mission

**Mission aims to make India a Global Hub for production, utilization and export of Green Hydrogen and its derivatives**

**Mission will help in India becoming energy independent and in Decarbonisation of major sectors of the economy**

The Union Cabinet, chaired by the Hon'ble Prime Minister Shri Narendra Modi, has approved National Green Hydrogen Mission. The initial outlay for the Mission will be Rs.19,744 crore, including an outlay of Rs.17,490 crore for the SIGHT programme, Rs.1,466 crore for pilot projects, Rs.400 crore for R&D, and Rs. 388 crore towards other Mission components. MNRE will formulate the scheme guidelines for implementation of the respective components.

The Mission will result in the following likely outcomes by 2030:

- Development of green hydrogen production capacity of at least 5 MMT (Million Metric Tonne) per annum with an associated renewable energy capacity addition of about 125 GW in the country
- Over Rs. Eight lakh crore in total investments
- Creation of over Six lakh jobs
- Cumulative reduction in fossil fuel imports over Rs. One lakh crore
- Abatement of nearly 50 MMT of annual greenhouse gas emissions

The Mission will have wide ranging benefits-creation of export opportunities for Green Hydrogen and its derivatives; Decarbonisation of industrial, mobility and energy sectors; reduction in dependence on imported fossil fuels and feedstock; development of indigenous manufacturing capabilities; creation of employment opportunities; and development of cutting-edge technologies. India's Green Hydrogen production capacity is likely to reach at least 5 MMT per annum, with an associated renewable energy capacity addition of about 125 GW. The targets by 2030 are likely to bring in over Rs. 8 lakh crore investments and create over 6 lakh jobs. Nearly 50 MMT per annum of CO<sub>2</sub>



emissions are expected to be averted by 2030.

The Mission will facilitate demand creation, production, utilization and export of Green Hydrogen. Under the Strategic Interventions for Green Hydrogen Transition Programme (SIGHT), two distinct financial incentive mechanisms – targeting domestic manufacturing of electrolysers and production of Green Hydrogen – will be provided under the Mission. The Mission will also support pilot projects in emerging end-use sectors and production pathways. Regions capable of supporting large scale production and/or utilization of Hydrogen will be identified and developed as Green Hydrogen Hubs.

An enabling policy framework will be developed to support establishment of Green Hydrogen ecosystem. A robust Standards and Regulations framework will be also developed. Further, a public-private partnership framework for R&D (Strategic Hydrogen Innovation Partnership – SHIP) will be facilitated under the Mission; R&D projects will be goal-oriented, time bound, and suitably scaled up to develop globally competitive technologies. A coordinated skill development programme will also be undertaken under the Mission.

All concerned Ministries, Departments, agencies and institutions of the Central and State Governments will undertake focussed and coordinated steps to ensure successful achievement of the Mission objectives. Ministry of New & Renewable Energy will be responsible for overall coordination and implementation of the Mission.



## NTPC Green Energy and HPCL sign MoU for renewable energy business and green power for HPCL refineries and other business units

NTPC Green Energy Limited (NGEL) has signed a memorandum of understanding (MoU) with Hindustan Petroleum Corporation Limited (HPCL) for development of renewable energy based power projects to tap business opportunities in renewable energy and supply of 400 MW round the clock renewable power for requirements of HPCL.

This MoU marks the first step for NGEL and HPCL to collaborate and cooperate in the field of development of renewable energy projects which will help HPCL in meeting its clean energy commitments.



## President lays foundation stone for SJVN's 1,000 MW solar project in Rajasthan

The President of India has laid the foundation stone of SJVN Limited's 1,000 MW Bikaner solar power project in Jaipur, Rajasthan.

The project will be implemented through SJVN's wholly-owned subsidiary, SJVN Green Energy Limited (SGEL). Development cost of the project is Rs 54.92 billion with a viability gap funding support of Rs 4.47 million per MW from Indian Renewable Energy Development Agency Limited. It will come up on a 5,000 acres area. The project is scheduled to be commissioned by March 2024 and the project will generate 2,454.55 million units (MUs) in the first year and approximately 56,838 MUs would be generated on a cumulative basis over a period of 25 years.



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# UJALA scheme brings about energy revolution in India

New Delhi [India], January 6 (ANI): The UJALA (Unnat Jyoti by Affordable LEDs for All) scheme is aimed at promoting the efficient usage of energy at the residential level by using energy-efficient appliances and aggregating demand to reduce the high initial costs.

Also known as the LED-based Domestic Efficient Lighting Programme (DELDP), it is considered the world's largest programme.

With the rising energy bills and resulting crisis due to the war in Europe, it becomes even more important for a nation like India that is dependent on many other countries for its fuel and energy to establish itself as a self-sufficient player at the global stage.

The Government of India, in its effort to bring about this energy revolution in the country, accorded top priority to building the adequate infrastructure required for meeting the electricity requirements of the country.

As part of the Saubhagya Yojana to provide electricity to every household in the country, the Government of India decided to arrange for low-energy consumption through the UJALA

scheme. Given the importance of lighting in any manufacturing setup, educational institution, security and connectivity sectors, the scheme was launched in the year 2015 recognising the cost and sustainability benefits of energy-efficient lighting.

In eight years, nearly 37 crore LED bulbs, 72 lakh tube lights and 23.5 lakh energy-efficient fans have been distributed, saving approximately Rs 20,000 crore per year.

Touted as the world's largest LED distribution programme, the scheme has been able to promote energy efficiency with the mission to build a greener and cleaner environment.

As per estimates, saving 48.3 billion KW hours of electricity per year, the scheme has further put into practice the idea behind the mantra of LiFE (Lifestyle For Environment) propounded



at the COP27 by the Indian delegation. It is estimated that there is carbon dioxide emissions by 3.9 million metric tonnes per year, equivalent to the removal of around 4.7 million cars from the road every year.

In terms of cost-benefit analysis on an individualistic as well as household level, the reduction of 15 per cent in the electricity bills of an average common Indian is quite a significant number. These low-priced and economical LED bulbs have successfully saved the common people approximately Rs 19,300 crore annually on electricity bills.

Being implemented by the Energy Efficiency Services Limited (EESL), the programme has also been named 'Prakash Path'.

Prior to 2014-2015, the electricity bill used to be higher due to the use of outdated bulbs despite the lower demand for electricity. Requiring a solution that would reduce power

consumption, and improve lighting but still reduce overall costs, the UJALA scheme has been successful in achieving these objectives.

With annual sales of more than Rs 21 billion, India has become the world's largest LED market as well. Amidst the same, the domestic production of LED bulbs has increased from 1 lakh to 4 crores. As a result of this

scheme and increasing the quantity of production, the price of the 'Make in India' LED bulb has dropped by approximately 90 per cent.

Using LED bulbs which provide more light but cause less electricity expenditure, has come within the reach of the common Indian as well with the same bulb available for Rs 420 in the year 2015 now selling in the open market for around Rs 75 in 2023.

To ensure that the benefits of the scheme are extended to a larger part of the country, various state governments have signed Memorandums of Understanding (MoU) through different State Rural Livelihood Missions.

It is through these missions, agencies and self-help groups (SHGs) that the state governments aim to distribute UJALA appliances. Along with the same, smart LED lights and efficient DC electric motor fans are bound to replace fans, bulbs, tube lights and street lights, bringing the benefits of UJALA to the masses at optimal extent.

In addition, to ensure that maximum outreach is reached, the nodal agency of the programme EESL has partnered with the Department of Posts to

distribute UJALA devices using the

latter's nationwide network to offer a convenient retail counter in rural areas of the country.

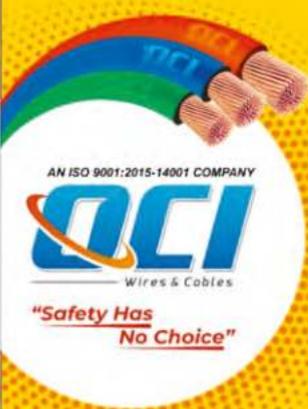
Therefore, it is through this new energy revolution in the country that the nation has saved crores of rupees via the dual process of ensuring significant reductions in the cost of the LEDs as well as the savings achieved in the electricity bills of consumers.

However, the benefits achieved until now may not convert to long-term achievements unless the adoption continues on a steady level to the last person at the bottom of our society.

The availability and access to energy to the common people at an affordable price are the catalysts for inclusive growth and are major instruments for complacent life. This growth ideally should be attained in a sustainable manner while addressing climate change concerns. This would ensure that both the energy as well as climate crisis is averted. (ANI)

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# CPUC Issues Independent Study on Injecting Hydrogen Into Natural Gas Systems



The California Public Utilities Commission (CPUC), in ongoing actions to assess the feasibility and safety implications of injecting hydrogen into the natural gas system, and in order to advance its deployment, has issued for comment a Study that represents a critical step in considering renewable hydrogen as a component in California's statewide decarbonization strategy.

The University of California at Riverside Hydrogen Blending Impacts Study was commissioned by the CPUC in compliance with Senate Bill 1369 and as part of the CPUC's ongoing Renewable Gas Rulemaking. The Rulemaking examines expanding renewable hydrogen by establishing standards and interconnection protocols for injecting renewable hydrogen into natural gas pipelines. The Study assesses the operational and safety concerns associated with injecting hydrogen into the existing natural gas pipeline system at various percentages to help California establish the standards and interconnection protocols for possibly injecting renewable hydrogen into natural gas pipelines.

The Study's findings include:

- Hydrogen blends of up to 5 percent in the natural gas stream are generally safe. However, blending more hydrogen in gas pipelines overall results in a greater chance of pipeline leaks and the embrittlement of steel pipelines.

- Hydrogen blends above 5 percent could require modifications of appliances such as stoves and water heaters to avoid leaks and equipment malfunction.

- Hydrogen blends of more than 20 percent present a higher likelihood of permeating plastic pipes, which can increase the risk of gas ignition outside the pipeline.

- Due to the lower energy content of hydrogen gas, more hydrogen-blended natural gas will be needed to deliver the same amount of energy to users compared to pure natural gas.

The Study concludes that additional examination is needed into blending hydrogen into the gas system to ensure its safety in California. The Study finds that it is critical to conduct real-world demonstrations of hydrogen under safe and controlled conditions to build on the Study's findings and determine the appropriate blend percentage suitable to mitigate operational risks such as ignition.

"This Study provides additional insight into the possibilities and limits of California's pipeline infrastructure as we explore options for supplying zero-carbon energy to hard to decarbonize applications," said Commissioner Clifford Rechtschaffen, who is assigned to the Renewable Gas Rulemaking. "I look forward to party comments on hydrogen-methane blending and its role in decarbonization strategies."

The Study is available at:



# Mukesh Ambani completes 20 years as Reliance boss

Mukesh Ambani, who took over the reins of Reliance Industries Ltd (RIL) after the sudden demise of his legendary industrialist father Dhirubhai Ambani, completes 20 years at the helm during which the company saw a 17-fold jump in revenues, 20-times surge in profit and has become a global conglomerate.

Following Dhirubhai's death in 2002, Mukesh and his younger brother Anil assumed joint leadership of Reliance.

While the elder brother took over as the chairman and managing director, Anil was named vice chairman and joint managing director.

The brothers, however, feuded over control, leading to a split with Mukesh assuming control of the gas, oil, and petrochemicals units as RIL, while Anil got telecommunications, power generation, and financial



services units through a demerger.

In 20 years that Stanford University-drop out Mukesh, 65, has been at the helm of RIL, the company has re-entered the telecom business, diversified in retail and new energy, and raised a record Rs 2.5 lakh crore selling minority interests during the Covid lockdown.

Here is his journey in numbers at the helm of RIL:

Market capitalisation grew at an annualized rate of 20.6 per cent in the last 20 years from Rs 41,989 crore in March 2002, to Rs 17,81,841 crore in March 2022.'

Revenues grew at an annualized rate of 15.4 per cent

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from Rs 45,411 crore in FY 2001-02, to Rs 792,756 crore in FY 2021-22.

Net profit grew at an annualized rate of 16.3 per cent from Rs 3,280 crore in FY 2001-02, to Rs 67,845 crore in FY 2021-22.

Exports grew at an annualized rate of 16.9 per cent from Rs 11,200 crore in FY 2001-02, to Rs 254,970 crore in FY 2021-22.

Total assets grew at an annualized rate of 18.7 per cent from Rs 48,987 crore in March 2002, to Rs 14,99,665 crore in March 2022.

Net worth grew at an annualized rate of 17 per cent from Rs 27,977 crore in March 2002, to Rs 645,127 crore in March 2022.

RIL added Rs 17.4 lakh crore to investor wealth during these two decades, which is an average of Rs 87,000 crore every year.

According to Motilal Oswal's 26th annual wealth creation study, the company has emerged as the largest wealth creator, over 2016-21, creating wealth to the tune of nearly Rs 10 lakh crore and breaking its own previous record.

#### **Diversification**

Reliance started several new businesses in these two decades - telecom arm Jio started operations in 2016, retail in 2006, and new energy in 2021.

From a single oil refinery in 2002, Jamnagar is now the world's largest single-location refining complex.

During this period, RIL doubled oil refining capacity, adding the unique capability to convert the worst of crude oils into the best of exportable fuels.

It also added some of the world's largest downstream units.

Its traditional business of petrochemicals too flourished and expanded many-fold in the last two decades.

Reliance's oil and gas exploration (E&P) business made the first hydrocarbon discovery in late 2002 and production started in 2009.

The firm got UK's bp plc as an investor in the E&P business in 2011 and in recent months, it brought to production the second set of discoveries.

RIL brought bp, one of the global petroleum industry leaders, as a partner in its Indian fuel retailing business.

Reliance Mobility Solutions has brought the latest technology and offerings for consumers at petro-retail outlets through the Jio-bp brand.

It aims to offer a new experience in buying fuel with high-quality service and making the retail outlets future-ready with charging and battery swap facilities.

Reliance set the foundation for New Energy Business committing over Rs 75,000 crore investment in three years to set up five uniquely integrated Giga Factories at Jamnagar with the world's latest technology.

This will have a first-of-its-kind 'quartz-to-module' solar panel facility. The ultimate aim is to emerge world's lowest-cost producer of solar energy and green hydrogen.

Reliance has set a target to become Net Carbon Neutral by 2035, contributing to India's net carbon zero mission.

It will start 10GW of solar PV cell and module factory by 2024, to be scaled up to 20GW by 2026.

By 2025, RIL plans to generate its entire round-the-clock (RTC) power and intermittent energy for Green Hydrogen from captive solar power plants.

#### **Fundraising**

Reliance set a record for capital fundraising in FY21.

It raised more than Rs 2.5 lakh crore through a rights issue and minority stake sales in Jio Platforms and Reliance Retail Ventures to global marquee investors such as Facebook and Google.

During FY2021, Reliance was the single-largest foreign direct investment (FDI) generator for India.

After the launch of Jio, India became the data capital of the world and the cost of data/GB fell from Rs 500 to Rs 12.

India's ranking in Broadband data consumption moved from 150 in 2016 to No.1 in 2018 thanks to Jio.

Born in Aden, Yemen, where his father worked as a gas station attendant, Mukesh Ambani earned his bachelor's degree in chemical engineering from the University of Bombay (now the University of Mumbai) and subsequently pursued a master's degree in business administration from Stanford University.

He, however, left the program in 1981 to join the family business, where he worked to diversify the company, foraying into communications, infrastructure, petrochemicals, petroleum refining, polyester fibres, and oil and gas production.

In 2007, he became India's first rupee trillionaire.

He, however, has lost the richest Indian tag to a fellow Gujarati businessman, Gautam Adani in recent months.



# Manufacturing sector hits 13-month high in Dec

India's manufacturing sector activity rose to a 13-month high in December, supported by healthy inflows of new business and strong demand conditions, according to a monthly survey.

The seasonally adjusted S&P Global India Manufacturing Purchasing Managers' Index (PMI) stood at 57.8 in December, up from 55.7 in November, as business conditions improved to the greatest extent in over two years.

The December PMI data pointed to an improvement in overall operating conditions for the 18th straight month.

"Following a promising start to 2022, the Indian manufacturing industry maintained a strong performance as time progressed, wrapping the year with the best expansion in production seen since November 2021," Pollyanna De Lima, Economics Associate Director at S&P Global Market Intelligence, said.

Hiring activity was stretched to December, while more inputs were acquired as firms sought to supplement production and add to their inventories.

Demand resilience boosted sales growth in December.

Panellists continued to obtain healthy inflows of new business, and stepped up production to the greatest extent seen since November 2021.

Factors that supported sales growth include, advertising, product diversification and favourable economic conditions, as per the survey.

"Less challenging supply-chain conditions also supported the upturn.

"Delivery times were reportedly stable, which enabled firms to secure critical materials and boost their input stocks," Lima said.

On the exports front, new orders rose at the slowest pace in five months as several companies reportedly struggled to secure new work from key export markets, the report said.

On the year-ahead outlook for production, companies were optimistic.

Advertising and demand buoyancy were cited as the key opportunities to growth prospects.

"While some may question the resilience of the Indian manufacturing industry in 2023 amid a deteriorating outlook for the global economy, manufacturers were strongly confident in their ability to lift production from present levels," Lima said.



On the inflation front, cost pressures remained relatively muted in December, with the overall rate of inflation little-changed from November and the second-slowest since September 2020.

The S&P Global India Manufacturing PMI is compiled by S&P Global from responses to questionnaires sent to purchasing managers in a panel of around 400 manufacturers.

The panel is stratified by detailed sector and company workforce size, based on contributions to GDP.



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# The future of renewable energy in 2023 and expectations from Union Budget 2023



**T**he future of renewable energy in 2023 and expectations from Union Budget 2023 seems to be a very promising year for the renewable energy industry. In addition to continuing on the course set last year, it will adopt new strategies to support India's objectives for sustainability.

With ambitious goals, visionary initiatives and strategies, India has rapidly accelerated the renewable energy generation endeavours in the last few years. In 2022, the government aggressively pushed the production of renewable energy, manufacturing of solar equipment, and energy storage facility to achieve its 500 GW renewable energy generation target by 2030. Currently the clean energy capacity of the country is 173 GW and projects of 80 GW capacity are under construction. To accomplish its ambitious developmental and environmental targets, India needs increased emphasis on renewable energy generation in 2023 and beyond. To reduce the share of fossil fuels in the energy mix, which is currently approximately 59%, the country needs to increase the generation of renewable energy by about 30-35 GW this year. In the coming year, the sector is expected to witness a huge flow of investment, around USD 25 billion, further providing impetus to its energy generation plans and strategies. Through this, it can not only

accomplish this year's goals, but surpass them as well.

Currently, the solar industry is expanding rapidly than others. While the nation must sustain or accelerate this expansion, it must also concentrate on other sectors like on-shore and off-shore wind and green hydrogen to achieve its RE targets. The broad coastline and enormous landmass give a fantastic opportunity to harness the power of wind energy and raise its share in the country's renewable energy mix. The Union Budget 2023, which is a few weeks away, would be the opportunity for the government to resolve hurdles and provide the necessary stimulus to the sector. Challenges and solutions The high investment, low tariff, and project execution challenges make the renewable energy sector an unviable investment option for investors. For instance, if we talk about investment, a solar power plant costs around Rs 4-5 crore for 1 MW, whereas a wind power facility requires around Rs 7.5-8.2 crore for 1 MW. Similarly, the tariff rate is continuously decreasing due to stiff competition in the market and other factors, resulting in low return. Considering this scenario, it's imperative for the government to draft specific policies for the segments to support RE growth, mainly for wind sector, intensify research efforts and concentrate on technical advancement for wind OEMs, especially turbines with better performance and longer lifecycle.

Furthermore, lack of power evacuation infrastructure in the country and the distance between the grid and plant increases operations and transmission costs. Grids are typically installed in remote locations, far from the centres of consumption. The increased operations costs due to transmission charges dampens power generators and investors sentiment. The wind energy sector has witnessed a reduction in capacity addition since the introduction of reverse auctions in 2017. The number of bids increased but it has become highly competitive today, resulting in reduction in tariffs by 50%. This drop in tariffs can lead to halting projects. A shrink in margins to unsustainable levels and the pressure to reduce costs and upgrade turbine technologies have severely impacted the balance sheet of wind power producers and the capacity addition in India. The government must rethink reverse bidding and give due attention to tariff issues. Land acquisition is yet another crucial aspect that needs immediate attention. Large areas are needed to build the essential facilities for renewable energy sources. A simple, transparent and practical land transfer system is required for the expansion of the sector. Simultaneously, the time-consuming approval process and ROW issues cause a delay in project implementation. Removing these obstacles has become inevitable to fuel the RE power generation. The expansion of renewable energy in the nation is also troubled by the discoms' poor financial standing. Firstly, even after winning bids, a delay in signing PPA with PSUs occurs. After the PPA, the payment cycle creates problems due to its unsustainability and affects operations, finances, and enthusiasm of power generators. Focusing on fixing this issue is also very crucial.

The upcoming budget is expected to introduce a number of initiatives, taking into account the importance of renewables in India's energy security. The sector is hoping for some funding and reforms that will pave the way for India's switch to renewable energy. The budget must include provisions to encourage the development of battery storage system which is a big challenge today. The sector also anticipates certain tax adjustments. The government should consider granting a favourable tax on income derived from the sale of Renewable Energy Certificates (RECs) in accordance with Section 115BBG and treating RECs similarly to carbon credits. Furthermore, considering the severity of tariff issues, the government must announce a

national level fixed and implementable tariff policy as it is associated with the profits across supply chain of power generators and their encouragement. Additionally, it must continue GBI scheme, wheeling and banking provisions, and think about reducing import duty on wind and electrolytes. These steps will further stimulate investor's sentiment and assist the RE segment in securing the required funding. Most importantly, the industry expects the budget to announce Production Linked Incentive (PLI) scheme for wind turbine generators and device manufacturers. This will augment indigenous equipment production, which will bring down the installation costs. The government must also take into account eliminating the levy on biofuels. Conclusion 2023 seems to be a very promising year for the renewable energy industry. In addition to continuing on the course set last year, it will adopt new strategies to support India's objectives for sustainability. It will improve energy generation and expand exponentially with capital flow, research and innovation to upgrade technology, and government backing through futuristic policies and measures.








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## India's decarbonized urbanization - A perspective

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



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

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

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

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

Considering that a better part of forthcoming urbanization is going to be greenfield, the current approach of urban planning is simply unviable in light

of challenges listed above. For instance, can the country afford to let urbanization continue to take place haphazardly and then try to somehow contain its ill effects? If the urban India is going to be engines of economic growth – as per LT-LEDS – obviously it must also be a key element of India's transition to net-zero emissions economy. What is required, instead, is to start incorporating necessary measures in the very planning framework, ranging from urban spaces to buildings to intra/inter-city divorced from the ease of commuting between residences and places of work or between homes and commercial/institutional establishments. Likewise, scant attention is given to holistic mobility plans centred around public transportation, walkways, and cycling. Instead, band-aid solutions like flyovers and selective metro network are resorted to by the time the problem had already taken an unsurmountable proportion. These are supplemented with other knee-jerk measures like odd-even without creating accessible and convenient alternatives. Let us also remember that while EVs happen to be an important part of decarbonization of fledging transport sector, ultimately its largescale transition to efficient and convenient public transportation that would lead us to our net-zero goal and sustainable LiFE. Same goes for buildings: since a significant portion of India's building stock has not yet been built, we have the opportunity to control future cooling requirements through energy efficient design. Although passive building design occupies an important place in our energy conservation building codes; the situation is that in today's buildings, provisions like natural ventilation have

become an exception. Thus, first our modern architecture contributes to the temperature rise around us, which we then try to cool by air conditioning. Early architecture was attuned to the local weather conditions. But now? Even though the climates of Gurgaon and Hyderabad differ vastly, both will have similar concrete-glass buildings. And when ever-increasing heatwaves require more of air-conditioning – and the concomitant power – resort to super-efficient air-conditioners and clean electricity augmentation. Essentially, instead of planning pre-emptive measures, help crises to develop and then apply short-term but expensive remedies



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## Adani Green, Torrent, Shell, Actis in race for KKR's energy InvIT – EQ Mag

About half a dozen domestic and global energy developers, including , Shell and Actis, are looking to acquire Virescent Renewable Energy Trust, an infrastructure investment trust (InvIT) owned by KKR India, for an enterprise value of \$550million (₹4,500 crore), sources said.



**T**he trust has a portfolio of 16 operational solar power projects, aggregating to 538 MW, across 7 states. If the deal materialises, this could be the first sale of an InvIT in India. The contenders have submitted non-binding offers recently and are currently negotiating with KKR and its advisors JP Morgan who will proceed with a smaller group of shortlisted candidates for the next round of negotiations and due diligence, the sources mentioned above added.

The trust's initial portfolio of assets comprised 9 operational solar power projects, aggregating to 394 MW, in Maharashtra, Tamil Nadu, Rajasthan, Gujarat & Uttar Pradesh. Subsequently, the Trust added another 7 operational solar power projects, aggregating to 144 MW, in Rajasthan, Madhya Pradesh & Punjab. All 16 projects have long term Power Purchase Agreements for 25 years, with Central & State Government offtakers.

Terra Asia Holdings II Pte. is the sponsor to the Trust and is an affiliate of the funds, advised by affiliates of KKR.

“The potential sale of InvIT would be a complicated one,” said one of the persons cited above. As the sponsor can't hold more than 75% stake in the

InvIT, the new investor needs the approval from other minority shareholders to become a co-sponsor and acquire a majority stake. The potential buyer, for becoming a co-sponsor, needs to intimate Sebi and then seek approval from the other unit holders.

“In case the minority shareholders don't agree, the potential buyer has to provide an exit to them which would create more complexities and further delay the process,” he added. Mails sent to Actis, Torrent Power, Adani Green, Shell did not elicit any responses till the press time. A KKR spokesperson declined to comment.

The pooled structure of the InvIT results in a well-diversified mix of assets and the cash flows from the pool of 14 assets, having an operational track record of three-to-nine years, are robust, said a recent India Ratings report. The projects are located across 7 states, minimising the impact of any one-time resource-related risks at isolated locations to an extent, it added.

Virescent, set up in 2020, raised Rs460 crore (\$62 million) from a group of foreign and domestic investors including Canada's Alberta Investment Management Corporation. KKR invested in VRET from its Asia Pacific Infrastructure Investors Fund.



# वीज कर्मचाऱ्यांनो जागे व्हा

वीज कर्मचाऱ्यांचा संप एकच दिवसात संपला म्हणून सर्वांनीच सुटकेचा निःश्वास सोडला. याबद्दल उपमुख्यमंत्री तथा ऊर्जामंत्री देवेंद्र फडणवीस यांचे आभार. त्यांनी कामगार संघटनांचे म्हणणे सहानुभूतीने ऐकून घेतले आणि तोडगाही काढला. महावितरण, महानिर्मिती आणि महापारेषण अशा तीनही कंपन्यांतील एकूण ३२ कर्मचारी संघटनांनी हा संप पुकारला होता. त्यांनी वास्तववादी भूमिका घेतली आणि संप मागे घेण्याचा निर्णय घेतला. मी त्यांचाही आभारी आहे.



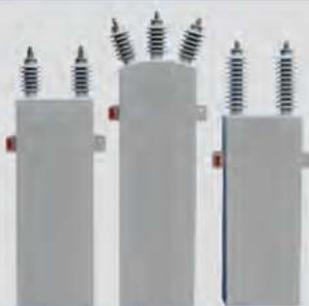
विश्वास पाठक

**सं**घटनांचे आभार मानताना एक गोष्ट स्पष्ट सांगितली पाहिजे. हा संपाचा निर्णय गैरसमजावर आधारित होता. कर्मचाऱ्यांनी त्यांच्या मागण्यांसाठी संप करणे लोकशाहीमध्ये मान्य आहे. तथापि, चुकीच्या मुद्द्याच्या आधारे संप करणे सर्वांसाठीच नुकसानकारक ठरू शकते.

एका खासगी कंपनीने नवी मुंबई, उरण, पनवेल इत्यादी भागात वीज वितरणासाठी परवाना मागितला आहे, त्यातून महावितरणचे खासगीकरण होईल, असा गैरसमज निर्माण झाला आणि त्याच्या आधारे संप झाला. वस्तुस्थिती अशी आहे की, या कंपनीने वीज कायदा २००३च्या तरतुदींच्या आधारे या भागात समांतर वीज वितरण परवाना मिळावा म्हणून महाराष्ट्र विद्युत नियामक आयोगाकडे याचिका केली आहे. कायद्यानुसार

कोणतीही कंपनी वीज वितरण परवाना मागू शकते. परवाना द्यायचा का याचा निर्णय नियामक आयोग घेतो. महावितरण किंवा राज्य सरकार कोणत्याही कंपनीला वीज वितरण परवाना मागण्यापासून रोखू शकत नाही. आयोगासमोर बाजू मांडण्याचा अधिकार महावितरणला आहे व त्यानुसार कंपनीची बाजू ठामपणे मांडली जाईल. तथापि, आयोगाकडील सुनावणीची व निर्णयाची प्रक्रिया पूर्ण होण्याच्या आधीच संप पुकारण्यात आला.

महावितरणची संपूर्ण मालकी राज्य सरकारची आहे व त्यामध्ये जोपर्यंत बदल होत नाही तोपर्यंत महावितरणचे खासगीकरण होऊ शकत नाही. वरील क्षेत्रात सध्या महावितरणला वीज वितरण परवाना आहे. तेथे आणखी एखादा परवानाधारक आला तर महावितरणसमोर स्पर्धेचे आव्हान निर्माण होऊ शकते पण




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महावितरणचे खासगीकरण होऊ शकत नाही. तथापि, मूळ मुद्द्याकडे दुर्लक्ष झाले. संबंधित खासगी कंपनीला समांतर विद्युत वितरण परवाना द्यावा का, याबद्दल महाराष्ट्र विद्युत नियामक आयोगासमोर सुनावणी होईल, त्यावेळी राज्य सरकार महावितरणची बाजू मांडेल, असे उपमुख्यमंत्र्यांनी सांगितले आहे. आपण आयोगासमोरच्या सुनावणीची वाट पाहू या.

खासगीकरण होणार या गैरसमजातून केलेल्या संपामुळे जनतेच्या दरबारात महावितरणची बाजू कमकुवत झाली. संपावर जाताना काही ठिकाणी खोडसाळपणे फीडर बंद केले गेले व त्यातून संबंधित भागात वीजपुरवठा खंडित झाला. त्यानंतर समाजामध्ये संतप्त प्रतिक्रिया उमटल्या. वीज पुरवठा खंडित झाल्यामुळे ऑक्सिजनची गरज असलेल्या वडिलांना त्रास झाला, याला जबाबदार कोण, इथपासून अनेक संतप्त प्रतिक्रिया सोशल मीडियावर उमटल्या. हे असे चालणार असेल तर खासगीकरणच करा, अशी मागणी काहींनी केली. संपाची समाजात कशी प्रतिक्रिया उमटली याची डोळसपणे नोंद घेणे गरजेचे आहे.

एकेकाळी वीज पुरवठा हा केवळ घरात रात्री दिवे लावण्यापुरता होता. त्यातून वीज पुरवठा खंडित झाला की लाईट गेली असे लोक म्हणू लागले. पण आता विजेचा उपयोग दिव्यापुरता मर्यादित नाही. पाणी पुरवठा, लिफ्ट, हॉस्पिटल, रस्त्यावरील ट्राफिक सिग्नल, कार्यालयांचे कॉम्प्युटर, बँकांचे आर्थिक व्यवहार, ऑनलाईन शिक्षण या सर्वांसाठी वीज आवश्यक आहे. वीजपुरवठा नाही तर हाहाःकार माजेल. पण असे झाले तर लोकांची काय प्रतिक्रिया होईल, याचा विचार वीज कर्मचाऱ्यांनी करावा.

केवळ विजेच्या वापराच्या बाबतीत समाजात बदल झाला आहे, असे नाही. समाजात विविध सेवांबाबत अपेक्षा वाढल्या आहेत. एकेकाळी फोनचे कनेक्शन मिळण्यासाठी खासदाराचा वशिला लावावा लागत असे. फोन कनेक्शनसाठी प्रतीक्षा यादी असे. आता एकेक माणसाकडे दोन दोन मोबाईल फोन कनेक्शन असतात. फोन कनेक्शनसाठी वाट पाहण्याची कल्पनाही करता येत नाही. एके काळी रेल्वे स्थानके अस्वच्छ असत, गाड्या अस्वच्छ असत. आता बदल झाला आहे, सर्वत्र स्वच्छता असते. लोकांना हे हवे आहे. समाज बदलला आहे. आपल्याला उत्तम सेवा मिळणे हा अधिकार असल्याची भावना निर्माण झाली आहे. त्यासाठी अधिक पैसे मोजायलाही लोक तयार आहेत. अशा एकविसाव्या शतकातील बदलेल्या समाजात आपण संपाचे हत्यार उपसून लोकांची गैरसोय केली तर लोकच खासगीकरणाची मागणी करतील याचे भान ठेवावे.

मुंबईत बेस्ट ही सार्वजनिक कंपनी आणि टाटा व अदानी या दोन खासगी कंपन्या यांचा वीजपुरवठा लोकांना उपलब्ध आहे आणि ग्राहक हव्या त्या कंपनीची वीज घेऊ शकतात. अनेक वर्षे ही पद्धती आहे. मुंबईप्रमाणेच आम्हालाही पर्याय हवेत असे महाराष्ट्रातील वीज ग्राहकांनी म्हटले तर काय करणार ? त्यामुळे

वीज कर्मचाऱ्यांना माझे आवाहन आहे की, विसाव्या शतकाच्या पद्धतीने विचार करू नका, काळ बदलला आहे, लोकांच्या अपेक्षा वाढल्या आहेत, जनमत आपल्या विरोधात जाईल असे काही करू नका.

वीज क्षेत्रातही अनेक मोठे बदल होत आहेत. घरावर सौरऊर्जा निर्मिती यंत्रणा बसवायची, त्यातून घराची वीजेची गरज भागवायची आणि जास्त वीजनिर्मिती झाली तर महावितरणला विकायची ही कवी कल्पना नाही तर महाराष्ट्रात अनेक घरांमध्ये असलेले वास्तव आहे. सौरऊर्जेच्या बाबतीत ज्या वेगाने संशोधन चालू आहे, वीज साठविण्यासाठी अधिकाधिक कार्यक्षम बॅटच्या ज्या प्रकारे निर्माण होत आहेत हे पाहता भविष्यात वीज पुरवठ्यासाठी महावितरण किंवा कोणत्याही खासगी वितरण कंपनीवर लोक अवलंबून राहतीलच असे नाही.

एकीकडे लोकांच्या सेवांविषयी वाढलेल्या अपेक्षा आणि दुसरीकडे तंत्रज्ञानातील बदलामुळे निर्माण झालेले आव्हान असा दुहेरी पेच महावितरणसमोर आहे. त्यातून महावितरणला एकविसाव्या शतकाला अनुरूप बनवून ग्राहकांच्या अपेक्षा पूर्ण करणारी कंपनी होण्यासाठी कंपनीचे व्यवस्थापन आणि मुख्यतः राज्य सरकार प्रयत्न करत आहे. उपमुख्यमंत्री देवेंद्र फडणवीस यांनी सरकारी वीज कंपन्यात पन्नास हजार कोटी रुपयांची गुंतवणूक करण्याचे दिलेले आश्वासन हे त्याचाच भाग आहे. महावितरणमध्ये कर्मचारी भरती करण्यात येणार आहे. अशा स्थितीत महावितरणला जनतेची पसंती रहावी आणि ही कंपनी स्पर्धला तोंड देणारी व्हावी तसेच सक्षमपणे चालावी यासाठी आपण सर्वांनी हातात हात घालून काम करण्याची गरज आहे.

कामगारांनी आपल्यासमोरचे आव्हान ओळखले पाहिजे. कर्मचारी संघटनांनी महावितरणचे खासगीकरण होऊ नये म्हणून संप पुकारला. पण एका संघटनेचे नेते तीन तीन वर्षे रजा घेऊन खासगी कंपनीचे काम करत होते. तेच सरकारसोबत चर्चेसाठी आले होते. असे घडले तर कसे होणार, हा प्रश्न आहे. महावितरणसाठी आपण सर्वांनी बांधिलकीने काम केले पाहिजे.

महावितरण ही सरकारी कंपनी टिकणे ही सर्वांची गरज आहे. आपण सर्वजण मिळून ती टिकवू शकतो. तौक्ते वादळ आले त्यावेळी महावितरणच्या कर्मचाऱ्यांनी अत्यंत प्रतिकूल परिस्थितीत वीज पुरवठा सुरळीत केला. अशी अनेक आव्हाने कंपनीच्या अधिकारी आणि कर्मचाऱ्यांनी पेलली आहेत. जनतेशी थेट संपर्क आणि अनुभवी मनुष्यबळ हे महावितरणचे सामर्थ्य आहे. महावितरण टिकविण्यासाठी आपल्याला एकविसाव्या शतकातील आव्हानांची जाण ठेवायला हवी. लोकांच्या अपेक्षा बदलल्या आहेत, हे ध्यानात घ्यायला हवे. सरकार, व्यवस्थापन आणि कर्मचाऱ्यांनी हातात हात घालून काम करायला हवे. वीज कर्मचाऱ्यांनी जागे व्हा, काळ बदलला आहे.

(लेखक महावितरणचे स्वतंत्र संचालक आहेत.)



# महामुंबईसाठी 'टोरेट'चा अर्ज वीजवितरण परवान्यासंबंधी नोटीस जारी, महावितरणसमोर मोठी स्पर्धा

ठाणे महापालिका क्षेत्रात महावितरणकडे सध्या परवाना आहे. अदानी समूहाने त्यांच्या 'अदानी इलेक्ट्रिसिटी नवी मुंबई' या नव्या कंपनीद्वारे परवान्यासाठी अर्ज केला आहे. आता टोरेट पॉवरनेदेखील याच क्षेत्रात परवान्यासाठी अर्ज केला आहे. या दोन्ही कंपन्यांना परवाना मिळाल्यास ठाणे महापालिका क्षेत्र अर्थात ठाणे जिल्ह्यात वीज वितरणची तिहेरी स्पर्धा असेल. आणखी एक खासगी कंपनी परवाना अर्जाच्या तयारीत असल्याची चर्चा आहे. तसे झाल्यास ही स्पर्धा चतुरंगी असेल, हे विशेष.

अदानी इलेक्ट्रिसिटीच्या पाठोपाठ टोरेट पॉवरनेदेखील महावितरणच्या कार्यक्षेत्रात समांतर वीजवितरण परवान्यासाठी अर्ज केला आहे. कंपनीने महामुंबई क्षेत्रातील पाच महापालिका अर्थात पाच शहरांत वीज वितरणची परवानगी मागितली आहे. याखेरीज पालघर, पुणे महानगर क्षेत्र व नागपूर महापालिका आणि जिल्ह्यासाठीही अर्ज केला असून त्याची नोटीस कंपनीने काढली आहे.

अदानी इलेक्ट्रिसिटीने परवान्यासाठी अर्ज केल्यामुळे ऊर्जा क्षेत्र ढवळून निघाले होते. त्यानंतर आता टोरेट पॉवरनेदेखील परवान्यासाठी अर्ज केल्याचे जाहीर नोटीशीमुळे अधिकृतरीत्या समोर आले. हा परवाना अर्ज महाराष्ट्र वीज नियामक आयोगाने स्वीकारल्यानंतर कंपनीने हरकती व सूचना मागविणारी नोटीस जारी केली. 'हा परवाना अर्ज वीज कायदा २००३च्या कलम १४ व १५ अन्वये असून हरकती किंवा सूचना असल्यास त्या ३० दिवसांच्या आत महाराष्ट्र वीज नियामक

आयोगाकडे सादर कराव्यात, असे कंपनीने म्हटले आहे. टोरेट पॉवरने वसई-विरार महापालिका, कल्याण-डोंबिवली महापालिका, उल्हासनगर महापालिका, ठाणे महापालिका आणि अंबरनाथ महापालिका, या क्षेत्रांत वीज वितरणाच्या समांतर परवान्यासाठी अर्ज केला आहे. याशिवाय वाडा व पालघर तालुक्यांतील ग्राहकांना वीज पुरविण्यासाठी परवान्याचा अर्जदेखील केला. या सर्व भागात परवाना मिळाल्यापासून पाच वर्षांच्या अखेरपर्यंत आठ लाखांहून अधिक ग्राहकांना वीज वितरित केली जाईल, असे कंपनीने यासंबंधीच्या नोटीशीत म्हटले आहे. या क्षेत्राखेरीज कंपनीने राज्याची उपराजधानी असलेले नागपूर महापालिका क्षेत्र व नागपूर जिल्ह्यातील तीन लाखांहून अधिक ग्राहक, पुणे व पिंपरी-चिंचवड महापालिकेसह पुणे जिल्ह्यातील सहा लाखांहून अधिक ग्राहकांना वीज वितरणासाठी समांतर परवाना अर्ज केला आहे. त्यासंबंधी नोटीस जारी केली. या क्षेत्रासाठीदेखील ३० दिवसांत हरकती व सूचना मागविण्यात आल्या आहेत.

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# स्वच्छ ऊर्जेच्या दिशेने भारत....

- श्रीपाद अपराजित

आपल्या देशात सरकारचे भवितव्य निश्चित करताना आमतदार वर्गाचा डोळा पेट्रोल, डिझेलच्या किमतींकडे असतो. 'अॅव्हरेज' हा वाहन खरेदीतील महत्त्वाचा मुद्दा ले असतो. पेट्रोलियम पदार्थांच्या चढ्या किमतींनी जगाला काळजीत टाकले असताना 'हरित हायड्रोजन मिशन' हाती घेण्यात आले आहे. हे मिशन स्वच्छ ऊर्जा प्रदान करतानाच सामान्यांना इंधनखर्चातून मुक्ती देईल, असा सरकारचा दावा आहे. अवजड उद्योगांपासून छोट्यामोठ्या वाहनांमध्येही 'ग्रीन हायड्रोजन'चा वापर होईल. अमेरिका, जपान, जर्मनी, दक्षिण कोरियासह अनेक युरोपीय देशांमध्ये हायड्रोजन इंधनावर चालणारी वाहने रुळली आहेत. सन २०५० पर्यंत हायड्रोजन ऊर्जेची बाजारपेठ अडीच लाख कोटी डॉलरपर्यंत पोहोचेल. ऊर्जास्रोतांची व्याप्ती वाढविणे हे भारताचे लक्ष्य होते. हे व्यवस्थापन फक्त आर्थिक दृष्टीनेच नव्हे तर हवामान बदलातील जोखीम टाळून कार्बन उत्सर्जन कमी करण्यासाठीही महत्त्वाचे आहे.

## ■ जीवाश्म इंधन म्हणजे काय ?

स्वच्छ ऊर्जेच्या दिशेने भारत....

हायड्रोजन ऊर्जेची चर्चा होताच जगाच्या तुलनेत भारताचा क्रमांक काय यावर खल सुरू झाला. आपला देश अजूनही जीवाश्म इंधनावर अवलंबून आहे. कोळशाखेरीज वायू, तेल या पारंपरिक ऊर्जा आहेत. त्यांना जीवाश्म इंधन म्हणतात. केले आहे. पृथ्वीच्या अंतरंगात गवसणारे कार्बनचे संयुग म्हणजे जीवाश्म इंधन. यात कार्बन, हायड्रोजन आणि मिथेनचे मिश्रण असते. प्राचीन काळात समुद्राखाली गाडल्या गेलेल्या प्राण्यांच्या आणि वनस्पतींच्या अवशेषांतून जीवाष्म इंधनाची निर्मिती झाली. जलाशयांच्या पाण्याचा प्रचंड दबाव येतो आणि रासायनिक प्रक्रियेतून जीवाष्म इंधनाची प्रक्रिया सुरू होते. निळ्या हायड्रोजनची निर्मिती जीवाश्म स्रोतांपासून होते. हरित हायड्रोजन गैर जीवाश्म स्रोतांमधून तयार होतो.

## ■ कशाला म्हणतात स्वच्छ ऊर्जा ?

प्रदूषणरहित पाण्याचे उत्पादन होत असल्याने अवलोकन

हायड्रोजन ऊर्जेच्या उपयोगानंतर या प्रक्रियेला स्वच्छ ऊर्जा म्हटले जाते. प्रदूषणाची समस्या जागतिक पातळीवर नेहमीच व्यक्त होते. ही ऊर्जा मात्र लख्ख आहे. उच्च चलनही मिळवेल. इंधन क्षमतेमुळे अग्निबाण इंधन म्हणूनही ते उपयोगात येते. २०२१-२२ मध्ये अर्थमंत्री निर्मला सीतारामन यांनी स्वच्छ आणि हरित ऊर्जेची घोषणा केली. पंतप्रधान मोदी यांनी अमृतमहोत्सवी स्वातंत्र्यदिनी हायड्रोजन मिशनचा शुभारंभ केला. आगामी सहा वर्षात भारतातील अक्षय ऊर्जेची क्षमता अडीच टक्के वाढविली जाईल. भारतातील पहिल्या हरित हायड्रोजन मिश्रण परियोजनेची सुरुवात गुजरातच्या कवास टाउनशिपमध्ये सुरू झाली. एनटीपीसी लिमिटेडने स्वयंपाकाच्या गॅसमध्ये हायड्रोजनचे मिश्रण केले आहे.

## ■ आत्मनिर्भरतेचे उद्दिष्ट कोणते ?

या क्षेत्रात आत्मनिर्भर होण्यासाठी सौर आणि पवन उर्जेसोबत हायड्रोजन ऊर्जेचे योगदान महत्त्वाचे ठरेल. तसेही एकूण ऊर्जा उपयोगात आणणारा भारत हा जगातील तिसरा मोठा देश आहे. या दशकाच्या मिळू शकेल. अखेरपर्यंत ५० लाख टन ग्रीन हायड्रोजन उत्पादनाचे लक्ष्य भारताने ठेवले आहे. भारताखेरीज फक्त ब्रिटन, जर्मनी आणि ऑस्ट्रेलिया अशा मोजक्या देशांनी अशी भक्कम तयारी केली आहे. ठरल्याप्रमाणे झाले तर भारताचे हायड्रोकार्बन आयात बिल कमी होईल. हायड्रोजन अर्थव्यवस्थेच्या केंद्रस्थानी आपला देश येईल. हरित हायड्रोजन तसेच हरित रसायन निर्यातदार म्हणून परदेशी चलनही मिळवेल.

## ■ जागतिक आव्हानांचा टक्का ?

सप्टेंबर २०२२ मध्ये 'विश्व कॉम्पॅक्ट बोर्ड'च्या बैठकीत संयुक्त राष्ट्रसंघाचे सरचिटणीस अँटोनिओ गुटेरस यांनीही वाढत्या इंधन मूल्यांबाबत चिंता व्यक्त केली होती. जीवाश्म इंधनाच्या वापराची जगाला लागलेली सवय मोडीत काढण्याची वेळ आली असल्याचे त्यांचे आवाहन होते. जगातील वीज उत्पादनात नव्या ऊर्जेचा सध्याचा ३० टक्क्यांचा वाटा वाढवून सन २०३० मध्ये ६० टक्क्यांपर्यंत तर २०५० मध्ये ९० टक्क्यांपर्यंत न्यावा लागेल, असे ते म्हणाले होते. त्यांचे वक्तव्य भविष्यातील इंधनाचे चित्र स्पष्ट करणारे होते. नव्या ऊर्जास्रोतांखेरीज जगाला भविष्य नाही या अर्थाने जगभरात आखणी सुरू आहे. भारताची दिशाही तीच आहे. हा बदल सामान्यांच्या आयुष्यात झिरपला तर देशाच्या निर्धाराला बळ मिळू शकेल.

Shripad.Aparajit@timesgroup.com



# तीन सौर प्रकल्पांसाठी १३० कोटी;

## महापारेषणच्या उपकेंद्रांमध्ये उलवे, मानकोली, पनवेलचा समावेश

राज्यातील तीन सरकारी सौर प्रकल्पांना १३० कोटी रुपयांचे अर्थसाह्य मिळणार आहे. तर महापारेषणच्या सात उपकेंद्रांसाठी १२० कोटी रुपयांची मदत होत आहे. यानुसार एकूण २५० कोटी रुपयांच्या मदतीसंबंधीचा शासनादेश सरकारने काढला आहे. याबिनव्याजी कर्जस्वात केंद्र सरकारी योजनेतील ही मदत आहे.

राज्य सरकारी ऊर्जा कंपन्यांमध्ये तीन वर्षांत ५० हजार कोटी रुपये गुंतवणूक होईल, अशी ग्वाही उपमुख्यमंत्री देवेंद्र फडणवीस यांनी बुधवारी दिली होती. त्या घोषणेनंतर २४ तासांतच ऊर्जा विभागाने या मदतीचा शासनादेश काढला. वास्तवात ही मदत केंद्र सरकारी योजनेतील माफक स्वरूपाची असली तरी गुरुवारच्या संपाच्या पार्श्वभूमीवर ती महत्त्वाची ठरली आहे. केंद्र सरकारकडून राज्यांना भांडवली खर्चासाठी विशेष साह्य योजनेतर्गत निधी दिला जातो. हे ५० वर्ष मुदतीचे बिनव्याजी कर्ज असते. या योजनेतर्गत ऊर्जा विभागाला ५०० कोटी रुपयांचे वित्तसाह्य होणार आहे. त्यातील २५० कोटी रुपयांच्या वित्तसाह्याचा आदेश सरकारने काढला असून त्या अंतर्गत ऊर्जा विभागातील महानिर्मिती व महापारेषण, या कंपन्यांचा समावेश आहे. त्यामध्ये धुळे जिल्ह्यातील साक्री व दोंडाईचा, तर महापारेषण कंपनीच्या उलवे, मानकोली, पावणे, तीर्थपुरी, पनवेल, शहा व धानोरा येथील उपकेंद्रांचा समावेश आहे. यापैकी सौर ऊर्जा प्रकल्प नवे आहेत, तर महापारेषणच्या प्रकल्पांची कामे सुरु आहेत.

केंद्र सरकारकडून आलेल्या २५० कोटी रुपयांच्या निधीचा हा पहिला टप्पा आहे. २५० कोटी रुपयांच्या कामाची पावती सादर केल्यानंतरच केंद्र सरकार उर्वरित २५० कोटी रुपयांचा हप्ता ऊर्जा विभागासाठी मोकळा करणार आहे. बिनव्याजी कर्जरूपात केंद्र सरकारी योजनेतील ही मदत आहे.

अर्थसाह्य याप्रमाणे

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# १.३७ लाख कोटींचे करार

## मुख्यमंत्री एकनाथ शिंदे यांची माहिती; दावोस जागतिक परिषदेची फलश्रुती

दावोस येथे गेल्या दोन दिवसांत विविध उद्योगांशी संबंधित १.३७ लाख कोटी रुपयांच्या गुंतवणुकीचे सामंजस्य करार झाले. दावोस दौऱ्याबद्दल मी खूप आनंदी आणि समाधानी आहे. प्रथमच दावोस इथे महाराष्ट्राचे इतक्या मोठ्या संख्येने करार झाल्यामुळे गुंतवणुकीसाठी महाराष्ट्र गुंतवणूकदारांचे पसंतीचे राज्य असल्याचे ठळकपणे अधोरेखित ल झाले,' असे सांगत मुख्यमंत्री एकनाथ शिंदे यांनी या गुंतवणूकदारांचे प्रकल्प लवकरात लवकर सुरू होतील, असा विश्वास व्यक्त केला.

दोन दिवसांच्या दावोस दौऱ्यानंतर शिंदे यांचे दुपारी मुंबई विमानतळावर आगमन झाले. त्यानंतर त्यांनी दावोस दौऱ्याच्या फलश्रुतीची माहिती दिली. राज्यात उद्योगवाढीसाठी पोषक वातावरण असून, उत्तम पायाभूत सुविधा आणि कुशल

मनुष्यबळ आहे. त्यामुळे उद्योजकांना मॅग्नेटिक महाराष्ट्रात गुंतवणूक करण्याची संधी असून, दावोसमध्ये राज्यात विविध क्षेत्रांत गुंतवणूक करण्यासाठी उद्योजकांनी पसंती दर्शवली आहे, असे शिंदे यांनी सांगितले. 'जगभरातील विविध देशांतील लोक त्या ठिकाणी होते. भारतात आणि महाराष्ट्रात गुंतवणूक करण्याची सर्वांना इच्छा होती. विविध देशांच्या लोकांना मी भेटलो आणि त्यांच्याशी चर्चा केली. याध्ये काही देशांचे मंत्री. काही पंतप्रधान यांचाही समावेश होता. सिंगापूर, सौदी इतर देशांच्या प्रतिनिधींशीही चर्चा झाली. त्यांनी आवर्जून महाराष्ट्राच्या पॅव्हेलियनला भेट दिली. राज्यासाठी ही मोठी कामगिरी आहे,' असे शिंदे यांनी सांगितले.

'राज्यात काही आलेच नाही' मुंबई : मागच्या वर्षी सुमारे ३० हजार कोटीचे सामंजस्य करार झाले होते, ५० हजार कोटींचा एनर्जीचा करार झाला होता. मात्र यापैकी राज्यात काहीही आले नाही असे सांगत उद्योगमंत्री उदय सामंत यांनी तत्कालीन महाविकास आघाडी सरकारला टोला लगावला.

दावोस येऊन त्यांनी कुणाची भेट घेतली होती हा प्रश्नच असल्याचेही ते म्हणाले.

### हायटेक आणि पायाभूत सुविधा क्षेत्रात ५४ हजार २७६ कोटी

पंतप्रधान नरेंद्र मोदी यांच्या मार्गदर्शनाखाली देशाची आणि महाराष्ट्राची छाप या आर्थिक परिषदेत दिसून आली. महाराष्ट्राच्या विविध औद्योगिक क्षेत्रात गुंतवणूक झाली असून त्यामध्ये हायटेक आणि पायाभूत सुविधा क्षेत्रात सहा कंपन्यांसोबत ५४ हजार २७६ कोटी रुपयांच्या गुंतवणूकीचे सामंजस्य करार झाले आहे. त्याद्वारे ४ हजार ३०० रोजगार निर्माण होणार असल्याची माहिती मुख्यमंत्र्यांनी दिली.



### ऊर्जा आणि इलेक्ट्रीकल व्हेईकल क्षेत्रात ४६ हजार ८०० कोटी

ऊर्जा क्षेत्रातील नविनीकरणीय ऊर्जा आणि इलेक्ट्रीकल व्हेईकल क्षेत्रात ४६ हजार ८०० कोटी रुपयांचे सामंजस्य करार करण्यात आले आहेत. त्यामाध्यमातून ४५ हजार रोजगार निर्माण होणार असल्याचे शिंदे यांनी सांगितले. आयटी, फिनटेक, डेटा सेंटर या क्षेत्रामध्ये ३२ हजार ४१४ कोटी माहिती तंत्रज्ञान (आयटी), फिनटेक, डेटा सेंटर या क्षेत्रामध्ये ३२ हजार ४१४ कोटी रुपयांच्या गुंतवणुकीचे सामंजस्य करार झाले असून त्यातून ८ हजार ७०० जणांना रोजगार मिळणार आहे. लोह उत्पादन क्षेत्रात २ हजार २०० कोटी रुपयांची गुंतवणूक झाली असून तीन हजार जणांना रोजगार मिळेल. कृषी आणि अन्नप्रक्रिया उद्योग क्षेत्रामध्ये १ हजार ९०० कोटी रुपयांचे सामंजस्य करार झाले असून त्यामुळे सुमारे ६०० जणांना रोजगार मिळणार असल्याचे शिंदे म्हणाले.

### उद्योग वाढीला चालना देण्यासाठी नवीन धोरण

दरम्यान, राज्य सरकारमार्फत जनतेच्या हिताच्या निर्णयासोबतच उद्योग वाढीला चालना मिळावी म्हणून नवीन उद्योग धोरण आखण्यात आले असून नवीन धोरणामध्ये एक खिडकी योजना, भांडवली अनुदान, जीएसटी कर अनुदान त्याच बरोबर नवीन तंत्रज्ञान आणि मोठ्या उद्योगांना विशेष पॅकेज देण्याचा निर्णय घेतल्याची माहिती एकनाथ शिंदे यांनी यावेळी दिली.

## अन्य सामंजस्य करार

- रुखी फूड्स - ग्रीन फिल्ड अन्न प्रक्रिया प्रकल्प, पुणे (२५० कोटी)
- निप्रो कार्पोरेशन (जपान) - ग्लास ट्युबिंग प्रकल्प, पुणे-पिंपरी (१ हजार ६५० कोटी), २ हजार रोजगार
- एलाईट प्लास्ट अँटो सिस्टीम्स (पोर्तुगाल) - प्लास्टिक ऑटोमोटिव्ह प्रकल्प (४०० कोटी) २ हजार रोजगार
- मुंबई- इंड्स कॅपिटल पार्टनर्स - आरोग्य, तंत्रज्ञान, संरक्षण सेवा (१६ हजार कोटी)
- औरंगाबाद - ग्रीनको - नवीनीकरण ऊर्जा (रिन्युएबल एनर्जी) प्रकल्प (१२ हजार कोटी) ६ हजार रोजगार
- चंद्रपूर- भद्रावती - न्यू एरा क्लीनटेक सोल्युशन (अमेरिका) - कोल गॅसिफिकेशन प्रकल्प (२० हजार कोटी) १५ हजार रोजगार
- चंद्रपूर - मूल - राजुरी स्टील अँड अलाईज (इस्मार्टल) स्टील प्रकल्प ( ६०० कोटी) १ हजार रोजगार
- गडचिरोली - चार्मिशी - वरद फेरो अलाईज - स्टील प्रकल्प - (१ हजार ५२० कोटी) (२ हजार रोजगार )
- महाराष्ट्र - गोगोरो इंजिनीअरिंग अँड बडवे इंजिनीअरिंग - ऑटो प्रकल्प (२० हजार कोटी) - (३० हजार रोजगार)
- महाराष्ट्र - बर्कशायर-हाथवे - नागरी पायाभूत सुविधा (१६ हजार कोटी)
- महिंद्रा इलेक्ट्रिक ऑटोमोबाईल (१० हजार कोटी) ३ हजार रोजगार
- लक्ष्म्वर्ग इन्व्हेस्टमेंट कंपनी (१२ हजार कोटी) १२०० रोजगार
- हंस इन्फ्रोसोल्युशन प्रा. लि. वूडवीन (४ हजार कोटी) ८०० रोजगार
- मुंबई, पुणे, ठाणे, नागपूर येथे जपानच्या निप्पोन टेलिग्राफ एंड टेलिफोचे डेटा सेंटर्स (२० हजार ४१४ कोटी) (१ हजार ५२५ रोजगार )



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Dear All

We are proud of **Shri Sanjay Kolhatkar** for his contribution in revision of **National Electric Code**. He has been appreciated by Deputy Director General of BIS Standardization I, the letter is also posted herewith. Our Past President Late D.N. Purandare Sir contributed for forming the NEC. Thanks & Congrats Sanjay!

**Sunil Vasant Bhure** , On behalf of ECAM members & BOD

राजीव शर्मा

**RAJEEV SHARMA**

वैज्ञानिक-एफ एवं उप महानिदेशक (मानकीकरण-1)

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(भारत सरकार)

मानक भवन, 9, बहादुरशाह ज़ाफर मार्ग,

नई दिल्ली 110 002

**Bureau of Indian Standards**

(Government of India)

Manak Bhawan, 9, Bahadur Shah Zafar Marg,

New Delhi - 110 002

**Our Ref: ETD 20/G-1**

**10.01.2023**

**Subject: Appreciation for contribution made in the work of revision of National Electrical Code of India 2023.**

Dear Sir,

BIS is glad to have you as a member of Safety of Electrical Installations Sectional Committee, ETD 20.

BIS acknowledges your dedication and commitment towards the work of the revision of National Electrical Code of India 2023.

BIS would like to place on record its appreciation of your active involvement and contribution to national standardization.

BIS wishes to also convey its gratitude to your organization for nominating you as an expert in the committee. We are sure that you and your organization would continue supporting the national standardization work and contribute in all future endeavors.

With kind regards,

Yours sincerely,

(Rajeev Sharma)

Deputy Director General (Standardization -I)

**Shri Sanjay Kolhatkar**

**Electrical Contractors' Association Maharashtra**

**1st basement, Stock Exchange Tower, Dalal Street, Mumbai 400 001.**



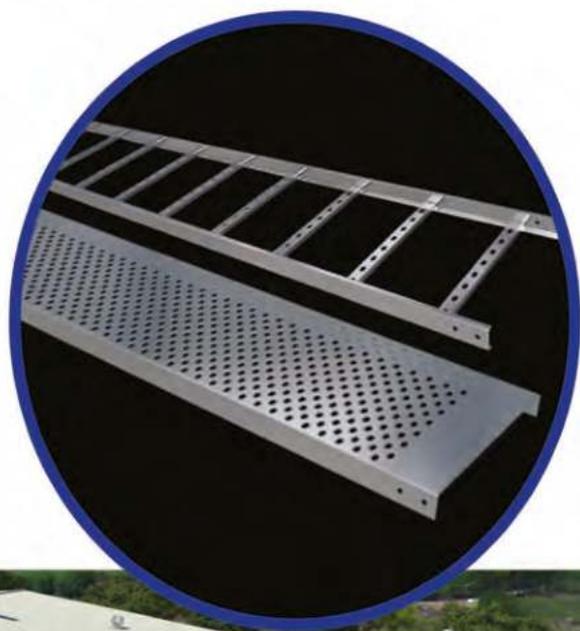
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# India must recognize and accept the importance of quality to become a developed nation



**Shri Piyush Goyal**

Union Minister for Commerce and Industry

Union Minister for Commerce and Industry, Consumer Affairs, Food and Public Distribution and Textiles, Shri Piyush Goyal today said that we must recognize and accept the importance of quality to make India a developed nation. He was addressing the gathering on the occasion of 76th Foundation Day of Bureau of Indian Standards (BIS) in New Delhi.

The Minister extended his greetings on the occasion of 76th Foundation Day of BIS. Portal for mapping of Industrial Units and Laboratories was launched on the occasion today. This is a centralized platform for information on industrial units and laboratories across the country. This will enable analysis of test facilities in the country and help entrepreneurs in accessing information about testing facilities.

Quoting John Ruskin, "Quality is never an accident. It is always the result of intelligent effort", the Minister pointed out that if we look at the history of developed nations, we find that those countries who adopted 'Quality' in early stages of their development cycles progressed faster. He further added that these countries were able to engage with the world from a position of strength and inculcate the spirit to have high quality products, goods, services, in turn leading to high quality of lifestyle for the people.

Portal for mapping of Industrial Units and Laboratories launched.

He applauds BIS for launching several transformational initiatives including Standards National Action Plan (SNAP) 2022 - 27 and setting up around 4000 Standards Clubs across the country.

Shri Goyal suggests creating an outreach program whereby retired experienced people can engage with students to create quality consciousness among them.

Government is committed to making the testing infrastructure ecosystem in India at par with the world class : Shri Goyal

Shri Goyal addresses on the occasion of 76th Foundation Day of BIS

Shri Goyal said as India enters into Azadi Ka Amrit Mahotsav, it's a great opportunity for all of us to pledge ourselves to take quality as our mission and to explore how we can contribute to maintain India a developed nation. He emphasised that India will not become a developed nation unless we all recognize and accept the importance of quality.

Referring to the Prime Minister's clarion call of 'Zero effect Zero defect', Shri Goyal emphasised that 'zero defects' will help us produce goods and services of high quality service to people. He also pointed out that unless our lifestyle has zero effect on climate change, we will not be able to survive. He therefore called for efforts towards mitigating the disasters of climate change and contributing towards reducing carbon footprint in the world. He termed zero effect and zero defects as the urgent call of the hour.

He exhorted everyone to move ahead together with confidence to rapidly transform the future of India and the future of every Indian citizen. Referring to PM Modi's quote, "rapid transformation, not gradual evolution is going to take this country", Shri Goyal said we no longer have the luxury of time and called for efforts for a transformational journey.

He complimented BIS for launching several initiatives today and said that these have the potential of having a transformational effect on the Indian economy and on the lives of the people. On Standards National Action Plan (SNAP) 2022 - 27, the Minister said it lays down the roadmap on which we will all have to work to

make quality a part of the very thinking and philosophy of every citizen in our country. He also praised BIS for setting up around 4000 Standards Clubs across the country to expand quality connect with the people. He said this year's effort to reach out to five lakh households is only the beginning.

He pointed out that there may be a lot of people who may have retired but still have the desire to work and participate in the future well being of the country. He asked BIS to explore if a database of such people can be built up by connecting with alumni associations, organisations, and companies. He suggested that an outreach/ awareness program can be initiated by BIS wherein these people can engage through online/offline/hybrid mode with students in schools/ colleges/ universities to create quality consciousness in students. He asked BIS to draw up a plan to execute this program with an aim to create quality consciousness in the country.

Shri Goyal said the Government is committed to making the testing infrastructure ecosystem in India at par with the world class. He mentioned that efforts are underway to equip BIS Labs with most advanced equipment, CCTV Cameras, automatic feeding of Reports of Testing, and focus on accreditation. He said

efforts are also to expand capacity and ensure all types of testing facilities are available in labs across the country. He informed BIS is also looking at collaborating with other private labs to upgrade and modernise their labs. He asked BIS to give a roadmap for achieving a target for 10X factory surveillance. He said that testing Minister concluded by saying that BIS must become the gold standard in terms of work on Quality. He assured that BIS will continue to be the harbinger of change and be at the forefront of the revolution of Quality.

On the occasion today, Union Minister Shri Piyush Goyal also launched the following:

**Launch of Standards National Action Plan (SNAP)**

**2022- 27:** Standards National Action Plan (SNAP) 2022 - 27, the document to serve as strong foundation for standardization to meet the emerging technologies and concerns of sustainability and climate change. SNAP 2022 - 27 will play an important role in steering the national standardization efforts which would lead to standards becoming a key enabler of India's economic aspirations. The implementation of key recommendations and strategies of the document will be pivotal in enriching and strengthening "Quality Culture" in the Nation.

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**Launch of Revision Exercise of National Building Code of India (NBC 2016):** BIS, through its concerned technical committee, namely, National Building Code Sectional Committee, CED 46 is initiating the Exercise of Revision National Building Code of India to include sustainable city planning norms; new and sustainable building materials, design concepts, construction technologies and building and plumbing services and to deal with the various challenges being posed in the current scenario, without compromising on the safety of the occupants and assets in buildings and built environment.

**Launch of Revised National Electrical Code of India 2023**

The National Electrical Code of India 2023 (NEC 2023), a comprehensive electrical installations Code prepared by BIS, is a national instrument providing guidelines for regulating the Electrical Installations practices across the country. India's first National Electrical Code was formulated in the year 1985, which was subsequently revised in the year 2011. The current revision includes the requirements of electrical installation as per the latest International best practices. Some of the important new Chapters added in the revised NEC are requirements related to Electrical installations at special locations like

Hospitals, Community facilities, Hotels, Swimming Pools, Amusement Parks, Supplies for Electric vehicles, multi-storied buildings etc.

**Launch of Training Courses on National Building Code of India 2016 and National Electrical Code of India**

Considering the importance of the Codes in ensuring quality and safety of the buildings, related infrastructure and to spread awareness about Electrical Safety and to ensure proper interpretation of the standard, it is important that various stakeholders contributing to building planning, design, construction and operation and maintenance are well aware of the provisions of NBC 2016 and NEC 2023 for judicious implementation of the provisions and intent of the Code. BIS through its training arm, the National Institute of Training for Standardization (NITS) has designed training courses for national capacity building which were also launched on the occasion.

**Standards Clubs in Schools**

Through Standards Clubs, BIS aims to expose science students of class 9th and above to the concepts of Quality and Standardization through student centric activities. BIS has till date established over 4000 Standards Clubs across India and upon realizing the potential and success of the novel endeavor, the target is ambitiously enhanced to creating 10,000 clubs by the end of 2022-23.



## Electrical Contractors' Association of Maharashtra

### CERTIFICATE OF APPRECIATION

**GRATEFULLY AWARDED TO  
SHRI SANJAY KOLHATKAR**

THE ECAM HEREBY PLACES ON RECORD ITS RECOGNITION AND APPRECIATION OF YOUR EXEMPLARY CONTRIBUTION RENDERED AS NOMINEE REPRESENTATIVE OF ECAM ON THE SECTIONAL COMMITTEE OF BIS ON THE SAFETY OF ELECTRICAL INSTALLATIONS AT THE REVISION OF NEC OF INDIA 2023.

THE ECAM STANDS BEHOLDEN TO YOU FOR YOUR COMMITMENT WHEREBY THE STATURE AND REPUTATION OF ECAM STANDS IMMENSELY ENHANCED.

DATED THIS 21ST DAY OF JAN 2023.

*President*  
**Sunil Bhure**

*Hon. Secretary*  
**Milind Naik**



# GREEN IN ELECTRICAL WORKS

## Ajit N. Kulkarni

Managing Director of  
M/s Ajit Kulkarni Consultants Pvt. Ltd.,

### What is Green

'Green' means environment sustainability. One must focus that environment is not getting destructed and there is preservation of natural resources. Let us overview what is Green and connection of the same with electrical installation.

In Projects whenever design, construction, implementation, operation is being done then there should not be impact on natural environment such as land, water, air, climate, plants, animals etc.

What is expected from "Green in electrical" is this.

#### Climate change

In 1970 study was done on environment and concluded that there is change in Global temperature, climate change and increase in pollution. It was concluded that situation was very much alarming. Following changes were seen in temperature, climate and in pollution:

#### Temperature

Since 1880, the earth's temperature has been rising at a rate of 0.14° F (0.08° C) per decade and the rate of increase has doubled since 1981 at 0.32° F (0.18° C) per decade.

#### Climate

The 10 warmest years on record have occurred since 2015, with 2020 recorded as the second warmest year as per the National Organic and Atmospheric



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Administration (NOAA).

### Pollution

Global carbon measurements have been rapidly rising for the last 15 years. This is largely due to carbon emissions from vehicles and industrial processes. As per recent data, in January 2022, carbon dioxide (CO<sub>2</sub>) measurement stood at 418 parts per million, up around 11% from 378 parts per million recorded since 2007. This measurement has been increasing at a constant rate and the compound average growth rate (CAGR) from 2016 to 2021 was around 0.73%.

**Apart from above , other effects were seen as**

Destruction in forest  
Disturbance in wild life  
Vanishing of few species  
Genetic changes in crop  
Water pollution etc.

To counter all these adverse effects, 'Green' movement has started.

### Main impacted elements

**Water –** Water means natural sources like ocean, rivers, lakes, ponds etc. Due to developments,

there is effect on water levels, groundwater conditions, water pollution etc. There is negative impact on the environment involving water such as deforestation, reduction in fish catch, unwarranted flooding, reduction in vegetation area, displacement of wildlife etc.

**Air -** Air means air surrounds us, atmosphere. Because of pollution, air which we breathe is not pure but polluted. Because of pollution greenhouse gas emission layer is formed above earth.

Due to which earth temperature starts increasing. There is depletion in ozone layer due to presence of CFC. The ozone layer in the atmosphere obstructs excessive amount of ultraviolet radiation from sun which reaches the earth surface. Due to which more UV lights percolates to earth.

That causes skin diseases in human being, affects animals, harmful effect on plants, marine life.

**Climate-** Due to layer of pollution in atmosphere, process of global warming is happening. In this heat around the earth is trapped. Pollution can be from factories, cars, power plants etc. Also due to polluted air quality there could be ill effect like asthma, respiratory diseases. So also there is overall increase in surrounding temperature.

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- Managing Director of M/s Ajit Kulkarni Consultants Pvt. Ltd.,
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- Engineering Graduate with courses of Fire and safety management, EHV Substation,
- Solar, Data center, Electrical Safety, Façade lighting etc.
- Author of Book which is Published – “Fire Due To Electricity – Preventable”
- Three patents to his name.
- Member of Institute of Engineers, CEEAMA, ISLE, ISHRAE, FSAI.
- Received the prestigious Entrepreneur’s Award from-Maharashtra Chamber of Commerce & Society Interiors Building Design Award and few accolades.
- Published many technical articles in journals, magazines
- Conducted many seminars for architects, Contractors, Consultants, Students on technical subjects.
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### Green initiatives

There are many measures being taken at various levels for sustainability. Few are given below from project point of view-

- Use sustainable and earth-friendly products.
- Reduce the waste.
- Improve indoor air quality.
- Less wastage in potable water.
- Water resources to be reused.
- Need of water inside the building to minimize.
- Improve energy efficiency and energy conservation.
- Improve the environmental quality.
- Increase daylight usage.
- Usage of sensors for effective use of energy.
- Promote natural ventilation.
- Usage of renewable energy like solar, wind
- Use energy star equipments.
- Use material which is available near to site.
- Use non polluted transport.

- Use fewer toxic products in process.
- Reduce wastages in process.
- Recycle the waste.

**Effect of Green measures**

There are good effects of green initiative and there is improvement in environmental qualities.

Few can be as –

- Reduction in carbon dioxide in atmosphere.
- Reduction in energy consumption.
- Less water requirement.
- Saving in operational cost.
- Healthy atmosphere.
- Efficient facility.
- Employees satisfaction
- Improvement in clients.
- Increase in property value.
- And many more

**Green in Electrical work**

The responsibility of contractor in project is enormous. It ranges from design to final product.

Contractor can adopt good practices to bring in more and more Green in installation for protection of environment. There are many points which can be

looked upon while doing electrical installation. Some examples can be –

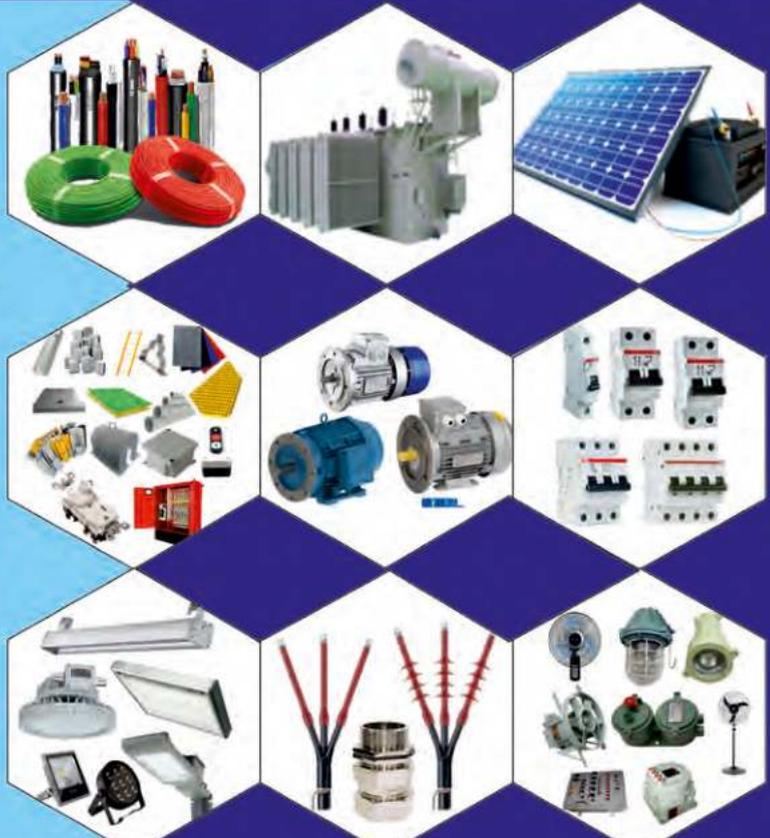
- Use energy star equipments.
- Use occupancy sensors in lighting.
- Use lux sensors or dimmers to optimize the lighting level emerging from light fittings.
- Use energy efficient motors.
- Measure and monitor the power (load ) and try to reduce the power consumption.
- Select materials for installation which are practicing green initiative.
- Improve the power factor towards unity and reduce harmonics.
- Use solar power wherever possible.
- While selecting electrical goods, use sustainable products.
- Use product having good shelf life so less replacement.
- Go for lithium ion batteries wherever possible.
- Bring in efficiency in usage through digitalization, automation.

**In short in electrical work take maximum measures to maintain sustainability and contribute to save our planet.**





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# Why India Is Facing Coal Shortage And How It Affects Power Supply?

The peak in demand has been met with load shedding and planned outages by states like Andhra Pradesh, Gujarat, Maharashtra, Jharkhand, Bihar, Haryana and Uttarakhand. Since the start of April, Jharkhand has been facing an average supply shortage of 10-12%, the worst in the country, followed by Andhra Pradesh (10%), Uttarakhand (8-10%), Madhya Pradesh (6%) and Haryana (4%).

India is undergoing a second major power crisis since October 2021. Several states across the country, including Andhra Pradesh, Gujarat, Maharashtra, Jharkhand, Bihar, Haryana and Uttarakhand, are reeling under long power cuts to meet the increased demand for electricity triggered by hotter-than-normal temperatures. The electricity supply in the country fell short of demand by 1.88 billion units, or 1.6%, during the first 27 days of April, according to a report by Reuters.

## Why India Is Facing Coal Shortage?

Coal contributes to over 70 per cent of India's power generation. Of this, over 12 per cent is import-based coal. The Russia-Ukraine war has led to a disruption in international coal supply, making the coal import much more expensive and affecting India's coal import. The cost of imported coal in India is expected to rise 35 per cent in the fiscal year 2022-23 compared to the past year. As per a report by Indian Express, power producers had to pay premiums of up to 300 per cent in March to secure coal supplies in the domestic spot market.

The already dwindling coal stock available with state-run thermal plants was further strained after India witnessed a sudden rise in energy demand in March — the hottest in its recorded history. This pushed peak power demand to 199 GW in the middle of March. The last week of March saw a 13 per cent higher demand over past year trends, accompanied by high electricity prices on the power exchange, the Indian Express report said.

Furthermore, the biggest reason for coal shortage is the increasing power demand over the years. As per a report by the Hindu, in 2021, demand increased to 124.2 BU per month from 106.6 BU per month in 2019. In 2022, the demand has further increased to 132 BU.

According to the Centre's core management team (CMT), heavy rains in coal mining areas like Gujarat, Punjab, Rajasthan, Delhi and Tamil Nadu had resulted in lesser coal production. Moreover, prior to the monsoon season, there was inadequate coal-stock

build-up in most thermal plants, pushing them below critical levels.

## What is Govt doing to mitigate the shortage?

On Tuesday, government-owned CIL said that it had increased the coal supplies to thermal power stations by 14.2% during the first half of April 2022, compared to the same period last year. Coal generation has hit 1.64 million tonnes (MTs) per day compared to 1.43 MTs in 2021, said a report by the Hindu.

The company further informed that it had raised coal production to 26.4 million tonnes during the first half of April, achieving 27% year-on-year growth.

Additionally, 8.75 MTs of coal will be made available to state and Central generating companies via rail till May 31, 2022, stated CIL. The government has also halted hundreds of passenger trains to may priority routes for coal wagons to reach power plants on an urgent basis.

## How coal shortage could affect power supply and cost?

The daily electricity deficit in India has increased from 0.3% to 1% in April 2022, said American credit rating agency Fitch. This power deficit has led to an 85% increase in the price of electricity traded on Indian exchanges from an average of Rs 3/kWh to Rs 8.23/kWh in March. To regulate prices, CEA has capped short-term power exchange rates to Rs 12/kWh.

## How Centre plans to fix the coal crisis?

The Centre has pleaded with the state governments of coal-starved power plants to start importing coal — the second time it has made such a request in recent weeks. The BJP-led government in Delhi has also allowed states to use its captive coal reserves up to 25% to meet growing domestic demand.

It has permitted power generating companies to blend imported coal up to 10% to ease the burden on CIL. The Centre is also mulling on increasing the imported coal stock, higher coal costs make it difficult.



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### **Nashik Municipal Corporation plans to set up 52 electric vehicle charging stations by bled March-end**

The NMC has already identified locations for the charging stations. Also as many as 35 charging stations would be set up by using funds received under the National Clean Air Programme (N-CAP). Tushar Pawar

NASHIK: The Nashik Municipal Corporation (NMC) has set a March-end deadline to set up 52 EV (electric vehicle) charging stations in the city.

The NMC has already identified locations for the charging stations. Also as many as 35 charging stations would be set up by using funds received under the National Clean Air Programme (N-CAP).

An NMC official, while talking to TOI, said, "The civic body has already received Rs 10 crore for setting up charging stations under the N-CAP, while the United Nations Development Programme (UNDP) has agreed to provide funds for the remaining 22 charging stations."

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# India on top gear in its drive to achieve ambitious 2030 milestones

**By 2030, the government expects the EV sales penetration to be 30 per cent for private automobiles, 70 per cent for commercial vehicles, and 80 per cent for two and three-wheelers, which would not only reduce the country's oil import bills in the longer term, but also ensure a cleaner environment.**

**D**espite some initial hiccups, the EV penetration in India is slowly but steadily increasing, especially in the scooter segment. Now, the fourwheeler manufacturers have also joined the bandwagon, pushing India's aim to significantly cut the dependency on traditional fuels and internal combustion engine-driven vehicles by 2030. By 2030, the government expects the EV sales penetration to be 30 per cent for private automobiles, 70 per cent for commercial vehicles, and 80 per cent for two

The sales of electric vehicles (EVs) in the country witnessed a surge in the last two years. While 48,179 EVs were sold in 2020-21, the figures increased to 2,37,811 in 2021-22 and 4,42,901 in 2022-23 (till December 9, 2022). Union Minister for Heavy Industries, Mahendra Nath Pandey, said in a written reply in the Lok Sabha last month that the ministry has implemented a scheme titled 'Faster Adoption and Manufacturing of Electric Vehicles in India Phase II' (FAME India Phase II) to promote adoption of electric/hybrid vehicles in the country. At present, Phase-II of the FAME India scheme is being implemented for a period of five years from April 1, 2019 with a total budgetary support of Rs 10,000 crore. According to auto industry experts, in terms of EV adoption at the moment, the three-wheeler segment is leading the market with a 4 per cent share, followed by two-wheelers (3.5 per cent) and passenger vehicles (1.3 per cent). "In the passenger car segment, Tata Motors leads the market with more than 90 per cent share, followed by MG Motor (7.2 per cent) and Hyundai (1.8 per cent). In the electric two-wheeler segment, Ola leads

the market followed by Okinawa and Hero Electric," Soumen Mandal, senior research analyst, IoT, automotive and devices ecosystem at Counterpoint Research told IANS. By 2025, the market share of electric passenger vehicles in India is expected to increase to more than 6 per cent. Currently, the market is dominated by Tata Motors, MG Motor and Hyundai, but other companies like Mahindra, BYD, Maruti Suzuki and Volkswagen have also announced their roadmaps to introduce EVs.

"India's EV market is expected to change with the entry of Maruti in 2025," said Mandal. Maruti is popular for its offerings in the budget segment (less than Rs 10 lakh). "If Maruti launches its first EV priced below Rs 10 lakh, it can be a potential gamechanger. Currently, Tata Tiago is the only EV model available for below Rs 10 lakh," Mandal noted. Auto manufacturers in India took the 'Auto Expo 2023' to showcase and tease their EVs and several models were unveiled, like Maruti Suzuki's eVX electric concept car; Tata's Harrier EV, Sierra EV and AVINYA EV; BYD's Seal and Atto 3; Hyundai's IONIQ 5, IONIQ 6 and MG Motor's MG5 and Marvel R, among others.

Compared to other petrol or diesel-powered vehicles, EVs release fewer greenhouse gases and air pollutants. For a market that already has over 13 lakh EVs including 2Ws, 3Ws, and 4Ws, and continues to grow, the coming years hold tremendous promise. According to industry experts, private equity (PE) investment in India's EV industry was likely to reach a billion dollars in 2022. Sameer Aggarwal, Founder and CEO at EV fintech platform Revfin, said that "EV financing will be the most important enabler of EV



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## Sterlite Power Bags Orders Worth Rs 3,800 Crore

Sterlite Power Bags Orders Worth Rs 3,800 Crore In April-December Sterlite Power is a leading power transmission developer and solutions provider.

The orders were bagged by the "solutions" business unit in the domestic and international markets during the first three quarters FY23, showing a growth of 90 per cent growth compared to the same period of FY22, a company statement said.

The new order wins are for the uprate of existing power transmission lines for 132 kV, 220 kV and 400kV of Power Grid Corporation of India and state utilities like Meghalaya Power Transmission Corporation Ltd., and West Bengal State Electricity Transmission Company Ltd., it said.

For Haryana Vidyut Prasaran Nigam Ltd., the company will supply and install OPGW for fiberization of the state's existing transmission network for 66 kV, 132 kV, 220 kV and 400kV. In the products business, the company bagged prestigious orders for conductors and OPGW from large customers in India,

Americas, SAARC, and MEA region, the statement said. Orders include supplies for major green energy

In the products business, the company bagged prestigious orders for conductors and OPGW from large customers in India, Americas, SAARC, and MEA region, the statement said.

The company has also acquired strategic orders for the supply of Extra High Voltage cables to state utilities like Maharashtra State Electricity Transmission Company Ltd. and Rajasthan Rajya Vidyut Prasaran Nigam Ltd.

The company has also been marking its presence in Turnkey EHV Cable Projects including Substation at various Utilities i.e., UPPTCL, OPTL & MPPTCL.

Manish Agarwal, Director & CEO India Transmission Business, Sterlite Power, said in the statement, "With power utilities facing increased pressure due to a rapidly growing population, increased demand and ageing infrastructure, there is an urgent need for uprates and upgrades."



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**The Newly Renovated Office of ECAM was inaugurated by the Head Strategy - BSE (Bombay Stock Exchange) & Managing Director - BSE Investments, Mr. Shankar Jadhav**



A Satyanarayan Mahapooja was performed by the President Shri Sunil Bhure & his wife on this occasion.



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## Two Special Meetings of ECAM members were arranged with the Chairman & Managing Director of R R Global Ltd. **Shri Shreegopal Kabra**



Mr. Gopal Kabra interacted with the members and explained how the cable & wire manufacturers are exploiting them by giving short quantity or inferior quality. There was full discussion on the topic the following members were present. Mr. Amit Saraswat, Mr. Ashok Wandekar, Mr. Kishor Sutar, Mr. Gopal kumar Jha, Mr. Bhikam Gurav, Mr. Haresh Wadhwana, Mr. Harshad Mukadam, Mr. Jagdish Vithalani, Mr. Kalpesh Patel, Mr. Raj Shah, Mr. Prakash Kyatam, Mr. Rajendra Gargave, Mr. Shripad Kulkarni, Mr. Vasant Garodia, Mr. Vilas Jadhav & Mr. Vinod Sharma. Mr. Satish Sinnarkar, Editor IECT organized the above meetings

### India key partner in fight against Climate Change: EU climate chief

We have a blind spot for India; we should be far more concentrated on India's enormous potential and the fact that India is also spreading its wings internationally and wanting to play a role internationally," Timmermans said. "We need to engage with India more than we did before. I think it's to the benefit of the European Union and to the benefit of India, if we look for these forms of stronger cooperation."

As countries begin preparing for a critical year for climate action, the European Union sees India as an important partner for undertaking measures to tackle climate change and slow down global warming, Frans Timmermans, man in charge of European Green Deal, has said. There has been a "real change" in the relationship between the European Union and India, a relationship that "sometimes was quite bumpy, sometimes

### CESL seeks price bid for leasing of 4W-EVs to various departments

Convergence Energy Services Limited (CESL) has invited price bids from original equipment manufacturers/leasing agencies/non-banking financial companies for leasing of 3,500 electric cars (passenger vehicles) to various government departments at the state level and autonomous bodies pan India. These states/union territories include Delhi, Maharashtra, Gujarat, Uttar Pradesh, Kerala, West Bengal, Haryana, Assam, Odisha, Rajasthan, Madhya Pradesh, Bihar, Goa, Telangana, Andhra Pradesh, Tamil Nadu, Jammu and Kashmir, and Jharkhand. Through this tender, CESL will make available the demand aggregated by it for electric vehicles (EVs), and financiers have to purchase the vehicle and lease it to CESL or the government partner for a defined period of time. CESL will charge a service fee for making available the aggregated demand for cars. The state authority/ department will be responsible for providing dedicated locations, space and all the necessary approvals for installation of charging stations.

## Union Budget 2023 must accelerate India's energy transition

Union Budget 2023: As India's energy demand grows, the Budget should make green finance accessible. When James Wilson presented India's first budget in 1869, he had already founded The Economist and established the Chartered Bank of India (later, Standard Chartered). He was called the 'father of taxation'. Decades later, that word is still why most Indians listen to the Budget speech – taxation. But things have changed, especially in the last few years. Our Budgets are now roadmaps for a green, sustainable future with a resilient, decarbonised economy. India is thinking long-term and not just about the financial year. The 2022 Budget, which came just months after India's historic net-zero by 2070 commitment at COP26, made it clear that climate action was a key pillar of India's economic policy. The 2023 Budget must show that India can grow in a steadily decarbonised manner—despite a war in Europe, a recession prediction by the IMF, and concerns about energy security. Whether the newly approved Green Hydrogen Mission, transition to electric vehicles (EVs) or mega push for renewables, India's energy transition is gathering pace. The Budget must provide the financial backing for our political commitments and strategic ambitions in four key areas

The previous Budget announcement on sovereign green bonds and the planned maiden issuances in the coming weeks are welcome developments to unlock green finance. However, more needs to be done to exploit under-tapped engines of finance, lower the cost of financing, and widen access to finance where it is not widely available. India should first, subsidise, for a limited period, credit enhancement for qualifying corporate RE bonds. The objective would be to unlock the bond market, creating a track record that can spur the emergence of the corporate RE green bond market in a self-sustaining manner and at scale. Secondly, create domestic institutional investor mandates for minimum portfolio allocation to green/sustainable themes. This would accelerate the flow of capital towards India's lowcarbon

transition. Thirdly, relax foreign ownership limits for corporate green bonds, in line with similar steps taken for the planned sovereign issuance. Higher limits can open another much-needed pathway for foreign capital to reach India's energy transition. Fourthly, the Budget can propose the development of a green taxonomy for renewable energy and mandate institutional Investors (insurance and pension funds) to have renewable energy financing obligations. Green hydrogen as a fuel of the future India's newly approved national green hydrogen mission is the largest of its kind worldwide. But for the Budget to convert the ambition of generating 5 million tonnes of green hydrogen annually into reality, we need to create demand in critical sectors, like urea fertiliser and steel in addition to refineries and non-urea fertilisers, as well as lower the cost of the fuel.





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## Green hydrogen is more expensive than grey hydrogen

Green hydrogen is more expensive than grey hydrogen (which is derived from fossil fuels), but key steps can help the domestic ecosystem and establish India as a global leader. For this, first, ensure accessible viability gap funding to tackle the cost issue – essentially, a subsidy to spur green hydrogen consumption because it is currently almost twice the price of grey hydrogen. This is the role that the newly announced SIGHT Fund can play. Secondly, roll out Production-Linked Incentive (PLI) schemes to operationalise incentives for manufacturing electrolysers and green hydrogen generation at home. India needs at least 40-60 GW of electrolyser capacity for producing 5 million tonnes per annum of green hydrogen. The PLI should focus on the indigenisation of the whole manufacturing process, rather than just assembling electrolyser parts – it will be a true Make in India push. And thirdly, India must use the G20 Presidency to push for a global rules-based architecture governing green hydrogen trade. It will ensure we don't fall prey to restrictive regimes imposed by other countries. Powering the renewable energy dream The Budget also needs to plan for energy storage, critical minerals and a resilient supply chain to boost the domestic renewable energy industry. The Russia-Ukraine conflict has turned the world's attention to renewables to tackle the energy crisis and price rise. India had already vowed to source nearly half of its energy needs from non-fossil fuel sources by 2030, but there's a lot to do. To increase the share of non-fossil energy sources to 50% of our installed power generation capacity, the Budget can take three steps. First, support a circular economy in renewables. Given the strategic and critical materials present in clean energy waste, the central government could provide incentives to recyclers doing high-value recycling. Secondly, provide financial support to deploy energy storage projects. Energy storage will be critical to integrate renewable energy into the grid. The government has already announced a trajectory to increase the share of energy storage (via the Energy Storage Obligation). Viability gap funding for energy storage projects (like in solar) can make storage services affordable for PPF Calculator This financial tool allows one to resolve their queries related to Public Provident Fund account. CALCULATE NOW ADVERTISEMENT Trending Shoes for Men for... Attitudist ADVERTISEMENT Trending Shoes for Men for... Attitudist ([ADVERTISEMENT ETBrandEquity Get a break from noisy environments with boAt ANC AD KNOW MORE Get top news alerts from The Times of India discoms. Thirdly, build on the advanced battery PLI scheme and develop the capability to manufacture raw materials required for battery cell manufacturing.](https://xai=AKA Ut1J3W lx6bD5 Tg1P0-sv1VttY TgA7hG foWU_ YR4LQ yEPdE 291Kjx [gw_fb</a></p></div><div data-bbox=)

Driving the e-mobility momentum The Budget needs to maintain the momentum on EV adoption by providing incentives, making loans easier and generating awareness. According to a CEEW study, 102 million EVs could be sold by 2030. For this, consumers will need the right incentives, a market of over \$200 billion. First, the Budget must set up a risk-sharing facility for the EV loan portfolios of banks and NBFCs non-banking financial companies. In the case of traditional mobility, banks and NBFCs are quite evolved with loan products easily available. However, the EV loan domain, especially for commercial use, has a meagre footprint owing to several risks. The initiative can help to reduce the cost of finance and loans, potentially leading to wider adoption of EVs. Secondly, allocate funds to incentivise EV purchases linked with vehicle scrappage. The government already provides economic benefits to those scrapping their old vehicles and buying new ones under the Voluntary Vehicle-Fleet Modernisation Programme. This incentive structure is neutral on vehicle technologies in use currently. The same may be redesigned to send the right policy signals to further accelerate EV transition. For example, a user scrapping an old diesel car for a new electric new car should have more incentives than a user replacing it with a new diesel car. Thirdly, increase allocation for EV awareness and education programmes. EVs can clearly improve the livelihoods of transport workers like autorickshaw drivers and delivery riders. Limited awareness and visibility impede faster adoption by these risk-averse and vulnerable groups. Higher IEC (Information, Education, Communication) fund allocation will improve the salience of EV economic benefits and build trust for technology, especially among low-hanging inclusive EV segments of two-wheelers and three-wheelers. In the one year since the last Budget, the world has seen several upheavals—high inflation, increased fuel prices, fears of recession, and an economy just emerging from the CoViD-19 crisis. At the centre of it all are concerns about energy security.

Doubling down on the energy transition is in India's strategic interest and will avoid larger macroeconomic challenges in the coming years. As the G20 President, India must now chart a path that promotes jobs, growth, and sustainability.





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## Energy Efficiency

*Energy Efficiency 2022* is the IEA's primary annual analysis on global developments in energy efficiency markets and policy. It explores recent trends in energy intensity, demand and efficiency-related investment, innovation, policy and technology while also discussing key questions facing policy makers.

This year record-high consumer energy bills and securing reliable access to supply are urgent political and economic imperatives for almost all governments. In response to the energy crisis countries are prioritising energy efficiency action due to its ability to simultaneously meet affordability, supply security and climate goals.

While efficiency investment has recently been increasing to reach new record levels, the pace of global energy intensity improvements had noticeably slowed in the second half of the last decade and virtually stalled during the first two years of Covid-19. With efforts to better manage energy consumption as a result of the crisis increasing the rate of improvement once more, the question as to whether 2022 will see a sustained efficiency turning point, and what more can be done, are key themes of this year's report.

### A global focus on the demand side

A global focus on the demand side of the energy equation has never been more important. Supply uncertainty, high prices and urgent climate targets all point to the value of energy efficiency and energy savings. Governments are responding with various measures including targeted grants and demand-reduction campaigns. At the IEA's recent 7th Annual Global Conference on Energy Efficiency, energy ministers from around the world agreed that "energy efficiency and demand side action have a particularly important role to play now as global energy prices are high and volatile, hurting households, industries and entire economies" and called on "all governments, industry, enterprises and stakeholders to strengthen their action on energy efficiency."

Well-designed campaigns can motivate people to reduce their energy use. For example, in the United States, some estimates suggest that up to 20% of home energy demand could potentially be saved from behavioural changes in the residential sector. One estimate for India suggests the potential for energy savings through behavioural adjustments to be in the range of 3.4 to 10.2 TWh per year by 2030. The IEA's 2021 report *The Potential of Behavioural*

### Efficiency action accelerates as countries move to contain economic pain from the energy crisis

The unparalleled global energy crisis sparked by the Russian Federation's (hereafter "Russia") invasion of Ukraine has dramatically escalated concerns over energy security and the inflationary impact of higher energy prices on the world's economies. Lowering record-high consumer bills and securing reliable access to supply is a central political and economic imperative for almost all governments. While there are many ways for countries to address the current crisis, focusing on energy efficiency action is the unambiguous first and best response to simultaneously meet affordability, supply security and climate goals. With efforts to conserve and better manage energy consumption in sharp focus since the onset of the crisis, efficiency progress has gained momentum, with annual energy intensity improvements expected to reach about 2% in 2022.

### The energy consumed for lighting

The energy consumed for lighting and the resulting emissions both increased in 2021, following reduced commercial activity in 2020. However, with improving efficiency, lighting consumption is still expected to fall despite the growing amount of lighting being used in buildings.

2021 saw progress both in the deployment of light-emitting diodes (LEDs) and gains in lighting efficiency. While numerous countries began to phase out incandescent lamps more than ten years ago, many are now beginning to eliminate fluorescent lighting to make LEDs the main lighting technology. Over 50% of the global lighting market uses LED technology.

Although some advanced markets have introduced new regulations mandating the exclusive sale of high-efficacy (LED) lamps, progress in this area must be sustained to ensure that all countries sell predominantly LED technology by 2025, and with increasing efficiency to 2030, to align with the Net Zero Emissions by 2050 Scenario.

*Interventions for Optimising Energy Use at Home* shows that campaigns can achieve a wide range of impacts in terms of amounts of energy saved. Even beyond today's energy crisis, IEA modelling highlights the importance of behavioural measures for achieving net zero targets.

# Market Forecasts: We Go Wrong in Predicting Even the Impact of Events, Not Just the Events

**R**emember listening to a big shot, at one of India's largest corporate houses, about India's economic prospects in 2008; this was at the fag-end of December 2007. With a ringside view of economic trends, the flow of funds and business sentiment, he was extremely positive about 2008, knowing that billions of dollars were about to flow into infrastructure, real estate and other businesses.

India will not be able to absorb the torrent of money that is headed our way, he said, especially from the Gulf countries, since oil prices had been high and petro-dollars were looking for an

investment destination. India was then seen as one of the most attractive investment destinations on earth. This corporate honcho was honestly sharing what he was witnessing from very close quarters.

We know what happened next.

By the third week of January, a global market decline was underway; but it was just the trailer. Throughout 2008, one crisis after another hit the US and morphed into what is known as a global financial crisis (GFC) that affected all markets and economies around the world. A couple of countries were literally bankrupt.

Indian indices were down almost 60% for the

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year, recording one of the biggest crashes in living memory. The episode assumes significance because it is that time of the year when investment strategists, fund managers and sundry opinion-makers pull out their crystal balls and gaze into them to let us know of their forecast for the next year.

My real-life anecdote and innumerable others forecasts like that one prove that this yearly ritual is a farce. Every year, major Wall Street institutions put out a year-end target for the S&P500 index.

Last year, Wells Fargo set a target of 5,200, Goldman Sachs 5,100 and JP Morgan 5,050 (yes, they herd together even while forecasting). The index closed the year at 3,839.

The apologists will ask: Who would have thought that Russia would invade Ukraine?

That is precisely the point. The crystal ball can never anticipate all the big events that move the market and impact economies and countries. And yet, we have an insatiable desire to lap up forecasts.

#### **We Can't Predict the Effect Either**

The outcome of such forecasts is far worse than a toss of a coin. This is not merely because of unknown causes or unanticipated global factors such as the invasion of Ukraine which happened just a few weeks after Wall Street had made its grand annual forecasts.

But what really makes a mess of forecasts is a second reason—the effect or impact of such unanticipated events. The fact is, even if we can anticipate such major happenings, we can still be wrong in predicting their effect or outcome. This is difficult to understand because it is counter-intuitive.

Take the case of what happened in 2022. Imagine someone asking a market expert to predict the effect of the following on the Indian stock market: Russia invades Ukraine, oil prices shoot up, the US kicks Russia out of the global settlement system and freezes the assets of Russian billionaires; Russia stops supplying gas to Europe; US inflation hits a record 8% causing the Federal Reserve to hike interest rates from 0.25% to 4.25% in nine months and China bumbles badly in controlling rapidly rising cases of COVID-19 in the country.

Rising inflation and escalating interest rates, together, act as a cold wet blanket and slow down growth worldwide. Also, the conventional wisdom

is that when the US sneezes emerging markets such as India will catch a cold.

Logically, in this set of circumstances, everyone would have predicted a market crash like 2008. And yet, the Indian stock market went up last year.

What about 2020? If anyone had told you that, in March 2020, a pandemic would suddenly bring the whole world to a standstill, leading to severe global lock-downs, high unemployment, business closures, a migrant labour crisis, a complete shutdown in travel and entertainment businesses, what would you have predicted for the year?

Your forecast would have been an uncontrolled rise in bad debts, severe contraction in profits and a huge market crash.

It did not happen.

Not only did nobody anticipate the cause (or calamity), but once the cause was known, no one could anticipate the effect.

Here is another piece of evidence that we cannot predict the effects, even if we know the cause. A study by David Cutler, James Poterba and Lawrence Summers in March 1988, titled "What Moves Stock Prices", concluded that even if investors knew tomorrow's news today, it would not be very useful. This is because big moves have happened on 'no news' days and many times no move happened on 'news days'.

Why are even experts so bad at predicting effects, not just causes? Because economies and markets are not static systems following physical rules; academics describe them as complex, emerging, adaptive systems. The impact of any major external event causes millions of people to react and interact in a chain-like process known as a feedback loop. The effects of such continuous interaction with everchanging external factors are obviously impossible for the human mind to grasp and predict.

So, the next time, you come across an apology for a wrong forecast like "who would have predicted...", remember that even if we had predicted the cause, the forecast for the effect would have probably been wrong.

*(This article first appeared in Business Standard newspaper)*



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## Microbiome therapy: A potential approach to disease management

*Dr Ashok Kumar, President, CRD, IPCA Laboratories, explains how a focussed research on microbiomebased interventions can help to understand the mechanism of action for developing a more rational and scientific approach and clinical efficacy data, before giving it as a therapy to patients*

Compassion or an act of kindness with selfless motive makes people 'feel good deep inside,' difficult to express in words. Some of those having routine to yoga or physical exercise may have also found themselves in relaxed or euphoric state (at least sometime) after the workout. This 'feeling good' was earlier believed to be related to the endorphins (endogenous opioids) surge, but has, of late, been found to be linked to the release of endocannabinoids, such as Anandamide, a Small Chain Fatty acid Amide (SCFA), known to participate in our body's endocannabinoid system (ECS) by interacting with cannabinoid

receptors. These receptors are also activated by compounds, such as THC

(Tetrahydrocannabinol) and CBD (Cannabidiol), found in Cannabis (Psychoendocrinology, 126, 105173, 2021). The striking feature of the other paper published in the same year (Gut Microbia 1997559, 2021) was the finding that exercise leads to noticeable change in the composition of gut microbiota producing anti-inflammatory substances (SCFAs) and lower levels of pro-inflammatory genus Collinsella, on the constant basis; and this shift is linked to the spike in the release of endocannabinoids. The latter are also known to possess potent anti-inflammatory activity, and,

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therefore, also help in managing conditions such as cancers, and even heart diseases, by reducing chronic inflammation. For those curious to know the origin, the name 'Anandamide' is taken from the Sanskrit word Ananda, which means 'Bliss' or 'Joy' (DOI:10.180/19490976.2021). The gut microbiome/microbiota: The large intestine, also commonly known as colon, has surface area touching 350 sq. ft. and hosts ~ 95 per cent of the total human microbiome (~100 trillions in numbers) and account for -> 0.2 kg of the body weight of a normal human adult. The microbiota of a human is quite diverse and constitutes approximately 4,000 different strains of bacteria, viruses and fungi. We possibly know a bit about bacteria, but probably lack almost complete knowledge of the viruses that inhabit in a human gut. In 1885, Pasteur promulgated that "animals lacking bacteria would die," but until the beginning of the 21st century, microbes were considered to produce toxins and also the cause for the poor mental health of patients. 'All diseases begin in the gut,' as proclaimed by Hippocrates over 2,000 years ago, may not be completely true, but, today, scientists believe that gut microbes play an important role in keeping the human health in shape. We are what we eat and think: Mounting evidence illustrates that diet plays an important role in shaping the gut microbiome, but there are good number of reports suggesting that close, yet sustained relationship (e.g. marital), harbour microbial communities of greater diversity and richness relative to those living alone (Scientific Reports 9, 703, 2019). Higher levels of wisdom, compassion, social support and lower levels of loneliness are found to have strong link to more diverse and rich gut microbiome, as reported by researchers from the University of California, San Diego (Front Psychiatry 2021,12,648475). These findings suggest that not only food, but the social interactions are also critical in maintaining quality gut microbiome (Labroots 30/3/2021). Gut microbiome and mental health: Apart from providing home to microbes, our gut also hosts Enteric Nervous System (ENS) also known as second brain because it seems to act autonomously, without involvement of CNS. And, if one remembers the emotions like having butterflies in the stomach, when excited or nervous, it is because of the sensitivity of the ENS. Gut-brain is the key to

maintain two-way biochemical signalling between GI tract and the CNS through vagus nerve, but it was the report published by Sudo et al in J Physiology in the year 2004, which, for the first time, brought a new dimension to the existing knowledge that the germ-free mice are more susceptible to stress compared with those having intact microbiota and the finding published by Cryan's group in PNAS- USA, 2011 confirming that vagus nerve is involved in providing connection between microbiota and the brain. Four week intake of yogurt with probiotics (Bifidobacterium, Streptococcus, Lactobacillus and Lactococcus), for example, modulating the brain regions that control the central processing of emotions and sensations, observed in the randomised controlled trials (Gastroenterology, 2013, 1394-401); and the confirmation of the consistent depletion of bacteria (Coprococcus and Dialister), known to have correlation with human health in the individuals suffering with depression, found from the studies conducted under Flemish Gut Flora Project (Nat.Microbial.2019, DOI:10.1038/s41564-018-0337-x) can be considered as evidence for substantiating the link between gut microbes and human brain health. Microbiome therapy: A hope So far, there is no knowledge on the underlying mechanism how gut microbes influence or modulate human health. However, it is more than evident from the above discussion that there is a microbiagut-brain-axis and many disorders such as anxiety, depression, schizophrenia, etc have some connection with this axis. However, once we believe in the said hypothesis, many questions which come spontaneously to our mind include: ♦ is it possible to use microbes for disease treatments? ♦ is it possible to prevent diseases in general and even the neurodegenerative diseases such as Alzheimer's and Parkinson's (for which there is no treatment available so far) by improving or manipulating the microbiomes of the patients? ♦ could it be possible to restrict the ageing process or reverse it via microbiome therapy, as demonstrated using mice model where scientists found rejuvenation of some aspects of brain and immune functions of the animals (Nature Aging 1. 666-67, 2021)? The answer of these questions is more likely to be - may be - 'yes' ! – because lots of studies are going on across the globe to translate the existing



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knowledge into treatments. Fecal Microbial Transplantation (FMT), however, has already shown some promising results, as highlighted below: FMT and Parkinson's disease: The finding of the study published in the journal Cell suggests that feeding the mice with the microbes taken from the gut of the people suffering with Parkinson's made the animals' symptoms worse in the mouse model of Parkinson's disease. However, since FMT from healthy donors did not show any observable impact on the animals' symptoms, one can believe that gut bacteria are indeed linked to neurodegeneration (Cell 167, 1469-1480, 2016). One should, however, not conclude that we are anywhere close to find a treatment for Parkinson's disease. FMT and insulin sensitivity: A recently published work (Nature Medicine 27, 1272-1279, 2021), however, takes us to a higher level of confidence which provides the Proof of Concept for the use of single-dose oral FMT generated from healthy donors to increase insulin sensitivity in patients suffering with severe obesity and metabolic syndrome in a randomised double-blind placebo controlled phase-II trial FMT. FMT and rCDi: The treatment of recurrent infections caused by Clostridium difficile (rCDi) using FMT, supported by several randomised clinical trials with a high success rate, is not only stabilised, but, is now considered as a second-line treatment (Clin. Endosc 52,137-143,2019); doi:5946/ce.2019.009). The same approach is also being considered for other GI diseases as well such as IBD, IBS and hepatitis encephalopathy. FMT and cognition: Based on the findings that FMT from young mice to aged one helps increase their cognition, the Motion Study, sponsored by Quadram Institute Biosciences has started tracking the gut microbiome and cognitive function of people aged 60 years living in East Anglia, with an aim to identify how microbiome changes correlate with the cognitive decline, and also finding a solution for, atleast, controlling the further decline, if possible, in the affected people. FMT and cancers therapy: A more recent paper appeared in Nature reports that microbiome can have effect on the progression of distant tumours, the side effects of the treatments and the ability of the immune system to pickoff cancer cells. The paper

also reports that FMT has already helped some people to overcome resistance to immunotherapies and at least 30 FMT trials are currently underway around the world, being conducted by academic institutions and pharma companies (Nature, 607, 436-439, 2022). Dr Boursi, an oncologist at the Sheba Medical Centre who has already treated 30 people, believes that this approach could open the door to a "new era of ecological oncology," in which understanding of tumour, host, the immune system and resident microbes will lead to better cancer treatment. COVID-19: The findings of the paper published last year (Gut 70, 698-706, 2021) suggest that depletion of immunomodulatory gut microorganisms contribute to severe COVID-19 disease and bolstering of the beneficial gut species, otherwise depleted in COVID-19, could serve as a novel avenue to mitigate severe disease, underscoring the importance of managing patients gut microbiota during and after COVID-19. The way forward FMT demonstrating improvements in the insulin sensitivity of patients suffering with metabolic syndrome and clinically proven success in treating recurrent rCDi substantiated by the findings compiled in the text can be considered as a reasonable support to believe that maintenance, improvement or manipulations of gut microbiota may one day provide us a healthy solution for treating or managing many diseases, and also maintaining good health without the medicinal intervention. However, more focussed research to understand the mechanism of action to develop a more rational and scientific approach and clinical efficacy data to support the findings is critical, before microbiome-based interventions could be given to patients as approved therapies. It is difficult to predict the time frame within which the microbiome-related approach could see, even if it does, the light of the day, as far as the availability of the proven treatments are concerned. However, one thing which is almost clearly evident from the above discussion is that diet has significant impact on the quality of gut microbial flora, on the gut health and mental wellbeing, and, therefore, it is important to make note of what we eat. Since higher levels of wisdom and compassion have shown to help maintaining quality microbiome, a lifestyle fortified with the virtues of humility and gratitude will surely lead us to an Anand-maya life! Let's give it a try !!



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# What is circuit protection?

Circuit protection, at its simplest, is the intentional addition of a 'weak link' in an electrical circuit. This link will be broken in the event of a fault – whether that's high temperature, excessive current or a short circuit in a conductor, thus protecting the electrical circuit it's part of from damage.

## Why are circuit protective devices important?

Protective devices are important because they ensure that under fault conditions, a high fault current cannot flow – as well as protecting the installation this, more importantly, ensures that consumers are not injured or killed as a result of an electrical fault. Overcurrent protection is provided by circuit breakers or fuses which operate within specific limits, disconnecting the supply automatically when there is an overload or fault current (short circuit or earth fault). Overcurrent conditions arise from overloads or short circuits. An overload is a result of a faulty item, or too many items being connected to a circuit. A short circuit occurs when a live conductor comes into contact with an exposed conductive part, or another conductor in the circuit where is low or negligible impedance. This can be due to incorrectly connected wiring or damage to cables. Meanwhile, earth faults are similar to short circuits and occur when a live conductor comes into contact with an earthed conductor, exposed or extraneous conductive part. There does not need to be a high current flow in an earth fault.

It is essential that the appropriate circuit protection is installed ensure an electrical installation is safe.

Types of circuit protection

### Fuse

A fuse contains a piece of wire that melts easily. If the current going through the fuse is too great, the wire heats up until it melts and breaks the circuit.

There are several different types of fuses:

- BS3036 rewirable fuses – these are used in domestic circuit protection and are cheap, easily repaired and easily checked to see if they've blown. However, they are not precise, can be abused by fitting incorrect fuse wire, and can contain dangerously hot metal.
- BS1361 / 1362 cartridge fuses – used in plug tops and distributions, cartridge fuses are fairly accurate, have a low fusing factor, are easily replaced and have no external arcing. However, they are more

expensive than rewirable fuses, and it's not possible to see by looking at them whether they've blown.

- BS 88 High Breaking Capacity Fuses (HBC) – these are used in industrial installations and motor circuits. They are fast operating, easily replaced, fairly accurate and have no external arcing. They are very expensive to replace.

### Residual Current Device (RCD)

Residual Current Devices (or RCDs) are designed to detect and disconnect supply in the event of an earth fault, for example when a live conductor touches an earthed equipment case, or when a live conductor is cut through. This type of fault is potentially dangerous and can result in electric shocks and fires.

### Miniature Circuit Breaker (MCB)

A Miniature Circuit Breaker is an electromechanical device designed to protect an electric circuit from overcurrent. MCBs are reusable where fuses are not. They are also much easier to use, with on/off switching for circuit isolation and are much safer as the conductor is housed within a plastic casing. There are much more expensive than fuses, and require regular testing. Ambient temperature also affects their performance.

A circuit breaker acts as a switch, and opens when excessive current flows in a circuit. It can be reset without damage and the main contacts are held closed by a latching mechanism. The latch can be tripped in two ways – thermally (when heat generated through excessive current would bend a metal strip to trip the breaker) or magnetically (when a fault current would strengthen the magnetic field to operate the latch).

MCBs do not protect humans against electric shocks caused by earth leakage – RCDs and RCBOs do this.

### Residual Current Breaker with Overcurrent (RCBO)

A residual current breaker with overcurrent (RCBO) is used in applications where there is a need for combined protection against both overcurrents (overload and short circuit) and earth leakage current faults.



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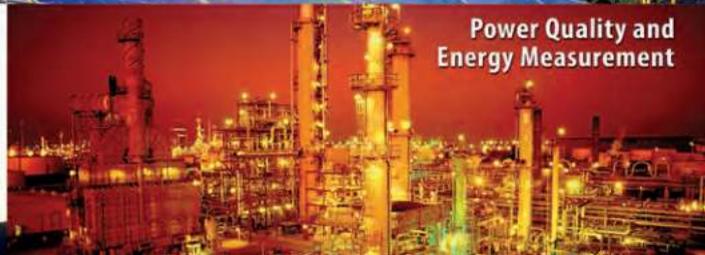
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