

# E&P Info

## Electrical & Power Info

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### Power Sector Trends in 2021 & the Future Ahead

**ERA FAME**  
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The image features three K-Lite-Pro architectural profiles against a dark grey background. One profile is vertical on the left, another is diagonal from the top right towards the center, and a third is horizontal, intersecting the diagonal one. All profiles have a black outer casing and a silver-colored internal track with multiple small, circular light sources.

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The Government of India has released its roadmap to achieve 227 GW capacity in renewable energy (including 114 GW of solar power and 67 GW of wind power) by 2022. The Union Government of India is preparing a 'rent a roof' policy for supporting its target of generating 40 gigawatts (GW) of power through solar rooftop projects by 2022.

Coal-based power-generation capacity in India, which currently stands at 199.5 GW, is expected to witness total installed capacity addition of 47.86 GW by 2022.

Oil and gas sector is among the eight core industries in India and plays a major role in influencing decision making for all the other important sections of the economy.

India's economic growth is closely related to its energy demand, therefore, the need for oil and gas is projected to grow more, thereby making the sector quite conducive for investment.

India is expected to be one of the largest contributors to non-OECD petroleum consumption growth globally. Crude Oil import rose sharply to US\$ 101.4 billion in 2019-20 from US\$ 70.72 billion in 2016-17.

As of May 01, 2021, the sector's total installed provisional refinery capacity stood at 249.9 MMT; and IOC emerged as the largest domestic refiner, with a capacity of 69.7 MMT.

Energy demand of India is anticipated to grow faster than energy demand of all major economies on the back of continuous robust economic growth. India's energy demand is expected to double to 1,516 Mtoe by 2035 from 753.7 Mtoe in 2017. Moreover, the country's share in global primary energy consumption is projected to increase by two-fold by 2035.

Afzal Kamal  
Electronics Engr.  
Editor-in-chief

Have an insightful reading.  
Your suggestions are most welcome!

Email: [editor@erafamemedia.com](mailto:editor@erafamemedia.com)

*Afzal Kamal*



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20 ▾

Test & Measurement



Editorial Coverage



**26**  
**M N Ravinarayan**  
Taurus Powertronics  
Pvt. Ltd.



**34**  
**Chandmal Goliya**  
Kusam Electrical  
Industries Ltd.



**64**  
**Sharmila Kumbhat**  
K-Lite Industries

54 ▾

capacitors



38 ▾

Transmission & Distribution



68 ▾

Renewable Energy



Editor's Note .....	2
News .....	6-18
Subscription .....	93
Index to Advertisers .....	95



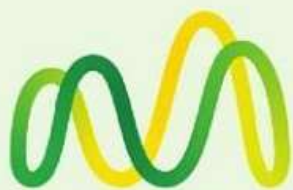


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## Danfoss Power Solutions in India emerges stronger with the addition of Eaton's hydraulics portfolio

■ Danfoss has officially finalized its US\$3.3 billion (approximately €3 billion) acquisition of Eaton's hydraulics business following confirmation of all necessary regulatory approvals and closing conditions. The move will see the Danfoss Group grow in size by a third and establish itself as a global leader in mobile and industrial hydraulics.

Mobile hydraulics has been one of Danfoss' core and most successful businesses for over 50 years. The acquisition of Eaton's hydraulics business is a vital aspect of Danfoss' growth strategy. Eaton's hydraulics business will be combined with the Danfoss Power Solutions business segment, adding approximately 10,000 employees worldwide and US\$1.8 billion (around €1.5 billion) in 2020 global sales. Combining the two organizations will double the size of Danfoss Power Solutions, increasing its innovation capacity twofold.

The strengthened Danfoss Power Solutions will have the broadest selection of mobile and industrial hydraulics products and solutions available on



**Ravichandran Purushothaman**  
President, Danfoss Industries Pvt. Ltd.

the market, with the full line offering including fluid conveyance systems. The company's distribution channels have also been significantly boosted, while

its local application support and geographical reach have increased considerably. All of these benefits will enable Danfoss Power Solutions to become an even stronger technology partner for existing and new customers, plus take the lead in digitalization and electrification.

## ABB recognized once again by FTSE4Good Index Series

■ ABB has been selected once again for inclusion in the FTSE4Good Index Series. With an overall score of 4.2 on a scale from 0 to 5 (5 is the best score), ABB has improved on the previous year's score, in particular due to progress in corporate governance and transparency. The company is ranked among the best performers in the index globally and above sector average.

FTSE4Good is a global sustainable investment index series, designed to identify companies that demonstrate strong Environmental, Social and Governance (ESG) practices measured against international standards. The series is an important tool for a wide variety of market participants when creating or assessing sustainable investment products.

"ABB is proud to be acknowledged as a member of the FTSE4Good Index Series and that our efforts are being recognized."

## ABB India partners with Audi India to provide charging solutions for their newly launched, fully electric Audi e-tron and Audi e-tron Sportback

ABB's Terra AC wallbox charger provides flexibility to customers by enabling convenient charging for Audi e-tron

■ To ensure a premium charging customer experience, the newly launched Audi e-tron and Audi e-tron Sportback are offered with ABB's smart Terra AC wall box charger along with the car to its customers for smart charging at home. The Terra AC wallbox charger is capable

of delivering 11 kW power to the Audi e-tron and complies with all safety standards and necessary certifications.

**Kiran Dutt, President - Electrification business, ABB India, said,** "ABB solutions symbolise how technology leadership is the driving force for solving the challenges that our planet is currently facing. In line with making the global best in class



charging technology available in India, we are pleased to offer our smart EV chargers for Audi India for their fully electric vehicle in India. We offer a range of AC as well as DC fast charging solutions for EVs along with seamless back-end integration for AC chargers

with ChargerSync. It is a reliable and convenient app for ABB Terra AC wall box owners, who are looking to upgrade their charging experience to the next level. With over a decade of experience in EV charging solutions, we aim to support the clean mobility infrastructure in the country and contribute to a sustainable future."





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## Tata Motors joins hands with Common Service Centre Scheme to widen its reach in rural India

Ministry of Electronics and IT's wide network will enable ease in buying of commercial vehicles, under Digital India programme

■ Tata Motors, India's largest commercial vehicle manufacturer, announced the signing of Memorandum of Understanding (MoU) with Common Service Centre Scheme (CSC) e-Governance Services India Limited, in a collaborative effort to bring Tata Motors commercial vehicles to rural customers, across

India. CSC's nationwide network and digital services will further strengthen Tata Motors' reach in rural geographies, including remote areas of the country. The partnership will add impetus to the development of rural India, and remarkably better the last-mile transportation with Tata Motors' modern and efficient commercial vehicle range.

The partnership is curated on the back of Tata Motors' core philosophy of nation-building and providing a means of livelihood to the rural population of the country. Through this initiative, Tata Motors and CSC aim to increase accessibility



in remote regions and help realise the Government of India's Aatmanirbhar Bharat vision.

Speaking on the occasion, **Rajesh Kaul, Vice President, Sales & Marketing, Commercial Vehicle Business Unit, Tata Motors** said, "It is indeed a momentous day for us as we join hands with CSC to make

our vehicles more accessible to our fellow citizens in rural geographies. With the onset of the digital age, this partnership with CSC would play a large role in enabling those living in villages with the power of choice, in opting for a business proposition through our range of commercial vehicles. The CSC Village Level Entrepreneur (VLE) network would be instrumental in taking the proposition to the villages in India. It will further fortify Tata Motors' widest network of sales and service touchpoints and contribute towards the overall development of the rural economy.

## CEAT partners with Tata Power to install a 10MW captive solar power plant at Solapur, Maharashtra

■ Leading Indian tyre manufacturer CEAT Tyres Ltd announced its partnership with Tata Power to establish a 10MW captive Solar Plant at TATA Power's Solapur site for powering CEAT's Bhandup plant unit. Tata Power has created a special purpose vehicle (SPV)-TP Akkalkot Renewable Limited which will be responsible for undertaking the construction, operation & maintenance of this captive solar power plant.

CEAT will own 26% of the captive solar power plant and Tata power will own 74%, as per the captive generation rules. The power generated will be used for captive consumption by CEAT's Bhandup plant. The Plant is expected to generate about 21 MUs of energy per year and will annually offset approximately 17.43 Million Kg of CO<sub>2</sub>.

"We are glad to associate with CEAT Limited and announce our new SPV. Through TP Akkalkot, we aim to continue to build a robust renewables portfolio and expand our horizons in the captive power generation sector," said **Ravinder Singh, Chief-Solar Rooftops Business, Tata Power**.



## L&T Signs Agreement to Divest Singoli-Bhatwari Hydroelectric Project

■ Larsen & Toubro, today announced the divestment of 100% stake in the 3 x 33 MW (99 MW) run of the river hydroelectric power plant owned by its subsidiary L&T Uttaranchal Hydropower Limited (LTUHPL) to Renew Power Services Private Limited, a wholly owned subsidiary of Renew Power Private Limited. This is in line with the declared L&T focus of divesting non-core assets and improving shareholder value.

The transaction is subject to completion of customary closing conditions and closing is expected to take place before 30th September 2021. The sale consideration is ₹ 985 Crs.

"This development is a significant step in our effort to unlock the value of some of our power development assets to streamline and allocate capital to create long term value for our shareholders," said **D K Sen, Whole-time Director**, Larsen & Toubro, describing the sale of the asset. "It represents our strategic effort to increase focus on our core strengths and exit others to move towards becoming a more asset-light organization."



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## Otis India To Offer Online Order-Booking for Gen2® Prime Elevators

■ Otis India has launched a digital portal so customers can now book an order for a Gen2® Prime elevator entirely online. The company is the first major original equipment manufacturer in the vertical transportation industry to release this digital capability. Otis Worldwide Corporation (NYSE: OTIS) is the world's leading company for elevator and escalator manufacturing, installation and service.

Using the company's online portal, customers can customize their order, get a live quote, and book their elevators from their mobile phone or laptops. Once booking is completed the online portal automatically sends a booking confirmation via email to the customer. After this an Otis sales expert will contact the customer to finalise the order and trigger the order fulfilment process.

"To release the industry's first portal where an elevator can be booked online is important to all of us at Otis," said Sebi Joseph, President, Otis India. "India, like much of the world, operates on a digital-first basis. So, we created this system to best meet our customers' needs – especially our customers in Tier-1 and Tier-2 cities."

Sridhar Rajagopal, Director, Sales, Marketing & Strategy said, "The Gen2 Prime covers the low-rise elevator segment across India. With the digital booking process



we have enhanced our coverage and reach, especially in the rapidly growing Tier 2 /3 cities. We are already seeing encouraging results. He continued, "We are taking the lead in disrupting the elevator industry. It is not just a booking website; it is a whole new business model. Our objective is to make elevator purchase as easy as buying an appliance."

The Gen2 Prime is manufactured in India at the company's Bengaluru manufacturing facility. It is an entry level elevator designed for low-rise buildings. The Gen2 Prime is a model within the company's best-selling flagship Gen2® product family.

## OMERS Infrastructure Agrees to Purchase 19.4% Stake in Azure Power

■ OMERS Infrastructure today announced that it has signed a Stock Purchase Agreement to acquire from International Finance Corporation and IFC GIF Investment Company I an approximately 19.4% stake in Azure Power Global Limited (NYSE: AZRE), for a total consideration of approximately US\$219m. Founded in 2008, Azure Power is a leading independent renewable power producer with an asset of operational



located in India, base of ~2 GW capacity and ~5 GW of capacity under construction or awarded.

"This agreement to invest in Azure Power demonstrates OMERS strong global interest in high- quality renewable power and energy transition assets, as well as our interest in India as an investment destination and Asia-Pacific more broadly," said Annesley Wallace, Executive Vice President and Global Head of OMERS Infrastructure.

## Usha International Heleous fan launches on digital

■ Usha International, India's leading consumer durable brand has launched Heleous – An ABS blade fan with BLDC motor for



energy efficiency to augment its fans portfolio. With fans having become an integral part of home décor, the Heleous fan caters to those looking for power-packed performance and a seamless integrated design with a premium finish, to create that perfect look. With a sweep of 1220 mm, the Heleous fan comes loaded with high-tech features including 3D ABS moulded aerodynamic rust-free blades for smoother airflow, super high 260 m<sup>3</sup>/minute air delivery, 310 RPM speed, and whisper-quiet operation. Additionally, Usha's Heleous has an unique bi-directional rotation that helps the fan run in an anti-clockwise direction during hot summer months to blow cool breeze downwards, and clockwise during winter to circulate the warm air trapped closer to the ceiling downwards – making it suitable for use around the year.





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- LT Jointing Kits
- 11 and 33 KV Terminations
- 11 and 33 KV Straight Joints
- Tap Off Connectors for AB Cables
- AB Accessories
- Anti-Track Tubing
- HS Components
- Jointing Services
- Consultancy & Troubleshooting

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## CABLE JOINTING KITS

### KEY COMPONENTS

Frontec manufactures all major HS components inhouse :

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3 Finger Breakouts



Photographs (in clockwise order from top right)

1. Frontec Outdoor Termination Kit ~ 2019
2. Frontec Indoor Termination Kit ~ 2018
3. Frontec Straight Joint during installation
4. Frontec Indoor Termination ~ 2005
5. PILCA Straight Joint Installation ~ 1993
6. 33KV Termination being installed under supervision of Mr Ashok Saigal ~ 1979
7. Frontec Termination Kit at DLF Gateway tower ~ 2003

### - Cable End Termination Kits

### - Straight Through Joints

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- Fully Insulated Silicon (SMVT)
- Shrouded Type (STOC)



Photographs (in clockwise order from top right)  
1. Frontec STOC Typical installation  
2. Frontec SMVT  
3. Frontec Porcelain MVT  
4. Frontec STOC  
5. Installed MVD, Kandhaghat  
6. Typical installation use for Tap Off Connectore



### KEY FEATURES

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## COMPONENTS & SPECIALS

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- Anti-Track Tubing



Due to in-house manufacturing expertise, Frontec is able to innovate and develop products which have immense practical utility and are greatly appreciated by the end user.

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## Mini-grids led Water Treatment Units can add up to USD 600 million annually to the Indian economy

■ As part of Smart Power India's on-ground interventions, it became apparent that a large chunk of the rural population lacks proper access to and is consecutively unaware of the importance of potable water. This is an opportunity for Energy Service Company Outsourcing (ESCOs) to play a greater role in educating the masses towards the benefits of purified water and driving customer uptake. In states like UP, Bihar, and Jharkhand, SPI has been working with ESCOs for the past six years to ensure rural communities receive potable water for consumption.

Less than 50% of the Indian population have access to safe drinking water. According to a 2018 report by the Central Bureau of Health Intelligence (CBHI) and the ministry of health and family welfare, water contamination claims around 2,400 lives due to waterborne diseases a year, crippling the economy with an estimate of USD 600 million. It is also learned that women in rural parts of India spend up to 700 hours each year fetching drinking water.

Water Treatment Units (WTU) provide an opportunity for better access to potable water to the rural masses, not only by improving the quality of life for people but also by improving health outcomes.

## KEC International wins New Orders of Rs. 1,503 crores

■ KEC International Ltd., a global infrastructure EPC major, an RPG Group Company, has secured new orders of Rs. 1,503 crores across its various businesses:

### Transmission & Distribution (T&D):

The business has secured orders of Rs 866 crores for T&D projects in India, SAARC, Africa, and the Americas.

**Railways:** The business has secured orders of Rs 321 crores in conventional/emerging segments in India:

◆ Overhead Electrification (OHE) - Order for Overhead Electrification (OHE) and associated works

◆ Semi High-Speed Rail - Order for 2 x 25 kV Overhead Electrification (OHE) & associated works for speed upgradation

◆ Port connectivity - Orders for Overhead Electrification (OHE) and associated works for port connectivity from a private port operator

**Civil:** The business has secured orders of Rs 176 crores for infra works in the Metals & Mining, Data Centre and FMCG segments in India.

**Cables:** The business has secured orders of Rs 140 crores for various types of cables in India and overseas.

## Ajit Industries launches the eco-friendly green tapes first time in India

■ Ajit Industries Private Limited also known as AIPL, one of the leading Industrial tapes manufacturers in India, has launched one-of-a-kind eco-friendly green tapes first time in India. A pioneer in industrial tapes



and die cuts, Ajit Industries has unveiled a wide-range of new tapes, made from recyclable and biodegradable materials, which include, among others, **Self-Adhesive Kraft Paper Tape, Water Activated Kraft Paper Tape KP 90, Eco Friendly Honeycomb Packaging Paper and Recyclable Bopp Tape.**

AIPL Ajit Industries is a name synonymous with quality and service and is a solution provider to almost all the major organizations and brands across India and beyond. The company's key offerings include more

than 200 types of industrial tapes and die cut solutions. Started with a vision to be the leader in the category, today Ajit Industries holds a place of pride in the industrial landscape of India. Under the astute leadership of Ajit Gupta, it enjoys the reputation of being a game changer in the industry.

## Schneider Electric partners with LIVSPACE to offer Wiser Homes: Smart, Safe and Efficient homes of the future

■ Schneider Electric, the leader in the digital transformation of energy management and automation, has partnered with Livspace, India's leading home interiors and renovation platform, to build smarter homes of tomorrow. Through this partnership, Schneider Electric will offer its Wiser Home Automation Solution Range across Livspace experience centers for its existing and new

customers. Owing to Schneider Electric's legacy and strong R&D, along with Livspace's expertise and market presence in the home space, this collaboration will further empower home owners by offering them a seamless user experience. The customers can now experience and buy the Wiser Home Automation Solution Range from the Livspace Experience Centres.





Approved by:



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## Sterlite Power secures INR 580 crore funding from REC for Udupi Kasargode Transmission Project

■ Sterlite Power, a global developer of power transmission infrastructure, announced the successful financial closure of the project set up by Udupi-Kasargode Transmission Project Ltd (UKTL). It has secured the entire debt funding of INR 580 crores from one of India's largest power sector lenders, REC Limited (REC.).

The project set up by UKTL is an Inter-State Transmission System project spanning across the southern states of Karnataka and Kerala. It is made up of two critical elements including a 1000MVA 400/220 kV Gas Insulated Substation (GIS), one of the first GIS substations to be built at Kasargode in Kerala. In accordance with the Letter of Award received from RECTPCL (REC Transmission Projects Company



Ltd.), the project involves construction of a 400kV (Quad) D/c transmission line, extending over ~240 ckm, from Udupi in Karnataka to Kasargode in Kerala. The project scope also includes supply and installation of two 400kV line bays and bus bar extension at Udupi switchyard.

### Suzlon secures new order of 252 MW from CLP India Private Limited

■ Suzlon Group, India's largest renewable energy solutions provider, today announced its new order win for development of a 252 MW wind power project from CLP India. Suzlon will install 120 units of S120-140m wind turbine generators (WTGs) with a Hybrid Lattice Tubular (HLT) tower, with rated capacity of 2.1 MW each. The project is located in Sidhpur, Gujarat and is expected to be commissioned in 2022.

Suzlon will execute the project with a scope of supply, foundation, erection and commissioning. Suzlon will also provide comprehensive operation and maintenance services post commissioning.

### Hicks launches new eco-friendly, Mercury-Free Thermometer

■ Hicks, a well-established and highly respected household name synonymous with thermometers in India, has launched **Mercury-Free Thermometer**. Considering that Mercury is a hazardous and poisonous substance, Hicks, the **best thermometer company in India** has come up with this exclusive **Mercury-Free Thermometer** that has all the readings and accuracy similar to that of a mercury thermometer.

This eco-friendly thermometer launched by Hicks, the **best healthcare brand in India**, is equipped with an enclosed glass scale that expands and contracts according to the rise and fall in the temperature. While Mercury is a hazardous and poisonous substance even for the environment, it can be life threatening for the patients as well if a Mercury thermometer breaks into the mouth.



### Wärtsilä energy storage system to support Taiwan's ambitious renewable energy targets

■ The technology group Wärtsilä will supply a 5.2 MW / 5.2 MWh energy storage system to provide the frequency regulation in the ancillary service market for the Taiwanese grid as 20 percent of its energy 2025. The order was placed Construction who will facility on behalf of North-Taiwan's state-owned integrated utility, Taiwan Power Company, has opened a day-ahead ancillary service market, including frequency regulation, spinning reserve and supplement reserve services.



the country seeks to achieve from renewable sources by in August 2021 by Shangfa build the energy storage Star International Co., Ltd.



- ★ *Automatic Capacitor Winding Machines for all types of Capacitors like AC, DC, HT, CVT & Electrolytic Capacitors etc....*
- ★ *Capacitor Processing Machines for all types of Capacitors like Surface Brushing & Core Cleaning Machines, Oil Impregnation Plants, Soldering Machines and Assembly Machines etc...*
- ★ *Automatic Capacitor Testing Systems & Test Equipments for all varieties of Capacitors at different stages of process.*
- ★ *Service, Support & Spare parts supply for more than 15 years for all our products.*
- ★ *We also undertake refurbishment of other make Branded Machines & We supply Spare parts.*



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Bangalore - 560061, INDIA, Ph No: +91-80-26396096/26396183  
Email: [marketing@jognics.com](mailto:marketing@jognics.com)/[jognics@gmail.com](mailto:jognics@gmail.com), Website: [www.jognics.com](http://www.jognics.com)



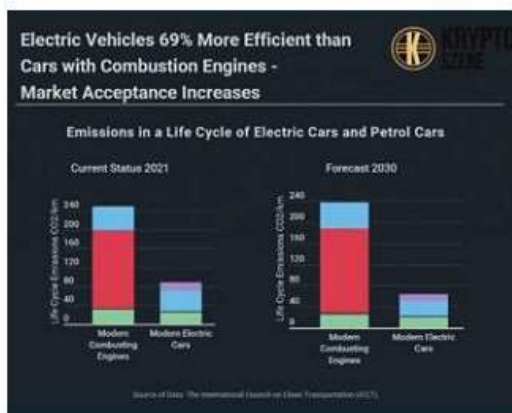
## Infographic: Electric Vehicles 69% More Efficient than Cars with Internal Combustion Engines - Market Acceptance Increases

■ The electric car market's prospects are looking brighter than ever. A new infographic from Kryptoszene.de now reveals that electric vehicles are more environmentally friendly than conventional cars. Even today, the life-cycle emissions of purely electric cars are up to 69% lower than those of modern combustion engines.

### Lower Emissions and More New Registrations

According to the infographic, the average new petrol car in Europe today emits around 250 g CO<sub>2</sub>/km when including manufacturing, maintenance, fuel consumption and fuel production. By contrast, electric cars produce around 80-90 g CO<sub>2</sub>/km, including battery production. Electro mobility should be able to reduce its CO<sub>2</sub> footprint even further in the coming years.

While considerable reservations about electric cars in Germany remain, the number of new vehicles on the road is



rising quickly and steadily. As displayed in the infographic, more than 190,000 electric cars were purchased in Germany in 2020 alone. By comparison, the figure in 2018 was a mere 36,000.

### Share Prices Rise Despite German Scepticism

Major electric car manufacturers' share prices also speak for themselves: demand, acceptance and willingness to buy all are on the rise. Over the last few years, Tesla alone has consistently generated extraordinary returns for its investors.

## NTPC Group total installed capacity touches 66875 MW with new unit of 800 MW at NTPC Darlipali

■ NTPC Ltd, India's largest integrated energy company installed capacity touches 66875 MW after the 2nd Unit of 800 MW capacity (2\*800 MW) at NTPC Darlipali in Odisha has successfully completed its trial operation.

With this completion, the total installed capacity of NTPC group has become 66,875 MW. Currently, NTPC Group has 71 Power stations including 29 Renewable projects. Also the company has set a target to install 60 gigawatts (GW) of renewable energy (RE) capacity by 2032.

## ReNew Power Announces Two Acquisitions Totaling 359 MWs of Renewable Energy Assets

■ In line with its strategy of organic and inorganic expansion, ReNew Power ("ReNew" or "the Company"), India's leading renewable energy company, today announced the acquisition of two assets with a combined enterprise value of INR 28.5 billion (US\$384.0 million), which are expected to generate INR 3.8 – 4.0 billion (US\$ 50.7 – 53.4 million) of EBITDA annually.



ReNew announced that it will acquire L&T Uttaranchal Hydropower Ltd., which owns the Singoli Bhatwari Hydroelectric Project (SBHEP), from L&T Power Development Ltd., a wholly-owned subsidiary of the engineering and construction firm L&T.

## Toshiba Water Solutions Receives a Contract for a Sewage Treatment Plant Project in Bihar

■ Toshiba Water Solutions Private Limited (hereinafter TWS), a wholly owned subsidiary of Toshiba Infrastructure Systems & Solutions Corporation (hereafter TISS), today announced that it has concluded a contract with Bihar Urban Infrastructure Development Corporation Limited (hereinafter BUIDCO) for a project to construct a sewage treatment plant, including a pump station, and operation and maintenance (O&M) of the plant. This project is one of the sewage construction projects led by the Indian Government as part of its efforts to clean the Ganges.



This project involves the construction of a sewage treatment plant in Hajipur, a city located along the Ganges and a 15-year contract for the O&M of the plant. As part of the activated sludge process, the new plant employs the latest technology in order to remove nitrogen and phosphorus from sewage to achieve NGT's latest norms dated 30-Apr-2019.



Attracting Tomorrow



# ThermoFuse™ Fuse Protected Varistors

**Compact overvoltage protection with an integrated fuse**



TDK Corporation has extended its EPCOS ThermoFuse™ family of fuse protected varistors with the new compact NT14 and NT20 series.

- Uniquely designed Disk Varistors that are connected in series with a thermally coupled fuse and are therefore intrinsically safe.
- Patented thermal fuse trips and isolates the varistor from the grid, if the varistor overheats preventing any potential damage to PCB and the equipment, thereby increasing reliability.
- Excellent Surge Current capability
- NT14 Series (Disk diameter 14 mm) is designed to absorb maximum surge currents with 8/20-μs pulse of 6 kA at rated voltages between 130 V<sub>RMS</sub> to 680 V<sub>RMS</sub>
- NT20 Series (Disk diameter 20 mm) has surge current capability with an 8/20-μs pulse of 10 kA at rated voltages between 130 V<sub>RMS</sub> and 750 V<sub>RMS</sub>
- NT14 & NT20 offer max energy absorption upto 220 J and 480 J for 2 ms, respectively
- Available in 2-leaded and 3-leaded types, with third lead used to monitor fuse activation
- Meets UL 94 V-0 requirements, and also listed as Type 4CA in UL 1449 4<sup>th</sup> edition.

## Main Field of Applications

- Ballasts for lighting, home appliances, power supplies, inverters for solar installations, frequency converters for drives, smart meters
- General protection of electrical wiring and installations

## Main Features & Benefits

- Compact size
- Highly reliable fuse design, which prevents reconnection for higher safety
- Wide range of voltages from 130 V<sub>RMS</sub> to 750 V<sub>RMS</sub>
- High surge current capability of up to 10 kA
- UL1449 4<sup>th</sup> Edition listed

For Enquiries Contact: [sales.in@tdk-electronics.tdk.com](mailto:sales.in@tdk-electronics.tdk.com)

## TDK India Private Limited

Sales Head Office:

2<sup>nd</sup> Floor, Tower A, C 28 - 29, Logix Cyber Park

Sector 62, NOIDA - 201 301

Tel: +91-120-450 5801 | Fax : +91-120-450 5818

## Regional Sales Offices:

Noida	Tel: +91-120-450 5801	Fax: +91-120-450 5818
Bengaluru	Tel: +91-80-4039 0600	Fax: +91-80-4039 0603
Mumbai	Tel: +91-22-2575 0800	Fax: +91-22-2575 0810



## Discover Hikvision's latest ColorVu technology: even sharper imaging with brighter color, 24 hours a day

■ Traditional video cameras provide black and white images, which can be grainy and unclear in low-light environments. To help boost security 24x7, Hikvision has created its ColorVu technology, which gives organizations high-resolution, full-color images, even in near-total darkness.

Security breaches are not governed by the seasons, by the weather, and certainly not by the time of day. They can occur at any time, and often under the cover of darkness when traditional, black-and-white security cameras with infrared lighting are unable to capture events clearly enough to collect clear evidence or respond effectively.

Hikvision has expanded its full-color camera range with ColorVu technology. This offers a much better visual experience than traditional cameras, providing accurately rendered color images with balanced brightness at all times of the day or night. Now the camera range with ColorVu technology includes 4k cameras for UHD experience, and varifocal cameras for unparalleled clarity. These innovations



allow organizations and local authorities to monitor outdoor or indoor spaces, identify breaches as soon as they occur, and react in real time to protect staff, employees and members of the public.

### Boosting security with leading-edge technology

Cameras with ColorVu technology are able to capture high-definition, full-color images in low light conditions because of two key technology breakthroughs: advanced F1.0 large apertures, and high-performance imaging sensors.

## Adani Electricity Mumbai Limited establishes USD 2 Billion Global Medium Term Note programme on India INX

■ India INX today welcomed Adani Electricity Mumbai Limited's USD 2 Billion Global Medium Term Note programme on its Global Securities Market (GSM) platform. This takes the total MTN establishment on the GSM platform to USD 52.57 Billion.

Talking about it, and CEO Shri. V. mentioned, "We are



India INX MD Balasubramaniam excited to welcome

AEML's Global MTN programme on our Global Securities Market platform, making it one of fastest growing segment within our exchange. Our competitive listing guidelines and seamless processes have made it possible for more and more issuers to list on our platform. We thank Adani Electricity for reposing its trust on India INX IFSC and it is a step further in achieving the Government of India's vision of making GIFT IFSC the hub for availing all services that were only available off shore so far"

Since, India INX inaugurated Global Securities Market for listing bonds in January 2018, it has emerged as the largest listing platform for bonds at GIFT IFSC.

## Wärtsilä will enable leading Nigerian food company to modernise its power generation facilities to meet everyday production needs

■ The technology group Wärtsilä will supply fuel-flexible dual-fuel engines to extend, improve, and modernise power generation for a captive power plant at Nigeria's oldest and largest food and agro allied company, Flour Mills Nigeria. The company's Lagos-based power plant is needed to ensure sufficient capacity and a reliable electricity supply around the clock to meet its food production requirements, and commitments to its customers. The two received orders were booked by Wärtsilä in March and June.

The first order comprises a 9-cylinder Wärtsilä 34DF dual-fuel engine generator set and is an extension to the existing generating capacity provided by a similar Wärtsilä engine generator set that has been successfully operating since 2017.





# RPP Engineering & Consulting Pvt Ltd

RELIABLE PERFORMANCE WITH PASSION

**Trusted partner for Energy Meter Testing  
& Calibration Solution in Association with**



Three Phase Portable Reference Standard (RS 350) Class 0.05/0.1



Portable Single/Three Phase Reference Standard Class 0.005/0.01/0.02



Ultra Precision 3 Phase Power/Energy Calibration System Class 0.005



Smart Meter Test System – Single /Three Phase



“3 Phase Portable Automatic Meter test System (Integrated reference with source)”



Three Phase Power Calibrator



Three Phase Reference Standard Class 0.05/0.1

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Tel. +91 99711 61199 Email : [marketing@rppindia.in](mailto:marketing@rppindia.in) Web : [www.rppindia.in](http://www.rppindia.in)

Branch Office: 101, First Floor, Aastha Urmil, AB-567, Nirman Nagar, Jaipur-302019, India





“The ongoing digital transformation in automotive industry is boosting the retrofitting of devices and equipment embedded with a wide range of test and measurement equipment such as electrical tester, digital multi-meters, digital oscilloscope, spectrum analyzer, and environmental testers.

The Test and Measurement Equipment market is forecast to grow about @6% by 2025. The ongoing digital transformation in automotive industry is boosting the retrofitting of devices and equipment embedded with a wide range of test and measurement equipment such as electrical tester, digital multi-meters, digital oscilloscope, spectrum analyzer, and environmental testers. The demand for test and measurement equipment from APAC region is growing enormously in telecommunication sector. Countries having dense population such as India and China contributes large market for telecommunication industry.



Photo Courtesy: Fluke Technologies Pvt. Ltd.



“ The data centers utilize various complex electronics devices and thus a large number of test and measurement equipment are deployed in these data center to monitor device condition, signal strength, and data transmission condition.

Plus, with the growing advancement in electronic device, systems are moving towards a complex setup which needs advance test and measurement equipment too.

Moreover, the emergence of “5G,” greater need for interoperability testing and an increase in outsourcing are the top three emerging trends in the global test market for general-purpose test equipment. The growing advanced and integrated technologies like 5G, big data , LTE & 802.11 Wifi standard, IoT, RF testing, high speed digital standards, software models, power applications, environmental testers in major industries like automobile, aerospace,



Photo Courtesy: Testo India Pvt. Ltd.



“ The growing advanced and integrated technologies like 5G, big data , LTE & 802.11 Wifi standard, IoT, RF testing, high speed digital standards, software models, power applications, environmental testers in major industries like automobile, aerospace, medical equipment, electronics, and semiconductor will open up new opportunities in the test and measurement equipment market.

medical equipment, electronics, and semiconductor will open up new opportunities in the test and measurement equipment market.

Data centers, advanced telecom infrastructure, and automotives are some major end-use applications that require advanced measuring equipment to meet modern testing requirement. The data centers utilize various complex electronics devices and thus a large number of test and measurement equipment are deployed in these data center to monitor device condition, signal strength, and data transmission condition.

The test and measurement equipment refers to a device used to stimulate actual inputs to a system under test. They assist the designer to test the real life condition simulations. Various equipment used in a wide variety of applications are electronic test equipment, material testing equipment, laboratory



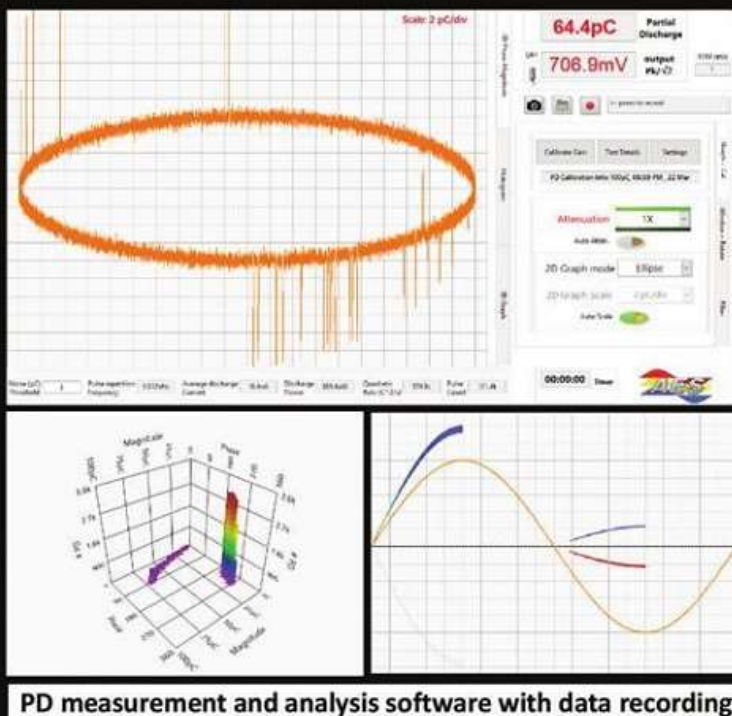
Photo Courtesy: FLIR Systems India Pvt. Ltd.

test equipment, measuring microscope, particle analysis, and others.

The following factors are considered while choosing right measurement equipment - cost & portability, type of material being tested, and which properties need to be measured. To configure automated test and measurement systems several modular instrumentation platforms are used to do quality assurance check, inspect, and production testing of devices. For instance, in the automotive sector, test equipment help to improve functionality and operability of vehicles and its parts. Additionally, safety compliance testing is important for checking the performance of products in the market.



## Partial Discharge Measurement System

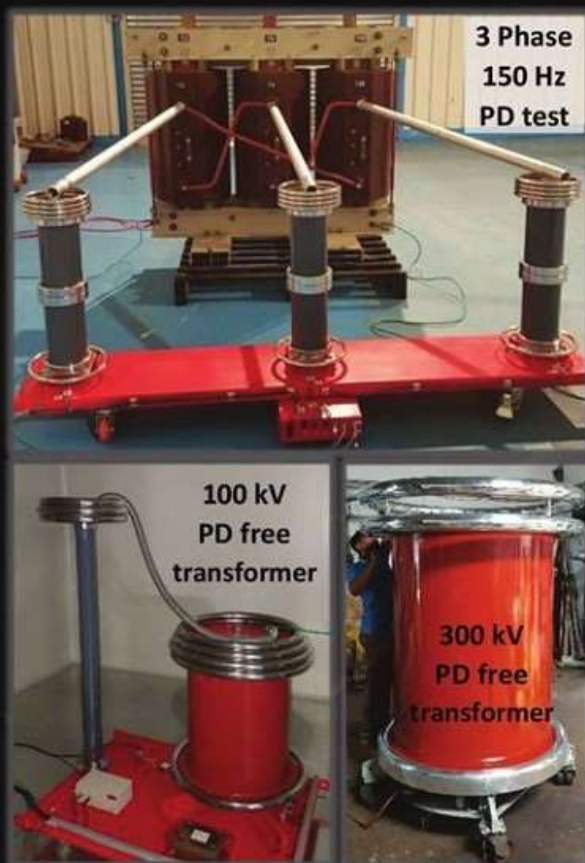


PD measurement and analysis software with data recording

- Advanced Partial Discharge (PD) measurement system designed and manufactured by us in India.
- Automated operation with a powerful software
- Straightforward measurement and data storage for easy integration into production environment
- Advanced analysis options supports your Research and Development work
- Easy to operate and reliable – saves cost on maintenance and personnel training
- Meets requirements of relevant IEC standards

We offer performance and quality at par with imported equipment, at affordable cost. The need to import PD detectors just for sake of impressing clients is not any more, thanks to AES PD detection systems.

## High Voltage Testing Equipment



- We manufacture PD free transformers up to 800kV
- Complete PD Measuring setup including PD free test transformer, HV control panel, PD meter, Isolation transformers, coupling capacitor and Kilo-volt meters
- PD Measurement setup for Oil cooled transformers and PT at 100-200 Hz
- PD test systems for 3 Phase test objects with Multi-Channel measurement & Recording
- RF shielding enclosures
- Impulse Generators and Impulse Analysers
- Advanced High Voltage control panels with data recording and programmable test cycle operation functionality
- Custom products for specific High voltage test requirements

With 43 years of building transformers (formerly as *Power Control Equipment Company*) and 18 years of manufacturing test instruments, we at Akil Electronics Systems deliver the best solutions for all your High Voltage testing requirements.



**Akil Electronics Systems**

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*Proud to be an Indian Manufacturer*



# Thermography that is Smart & Networked!



## This is why you too need a thermal imager.

In contracting as well as in the industrial sector, you profit considerably from the use of a thermal imager:

- You carry out status-oriented servicing work and prevent expensive system downtimes.
- You overcome the limitations of a pyrometer by measuring not just individual points but whole surfaces.
- You deal with jobs such as preventive maintenance of high voltage systems, circuit breakers or mechanical components on plants more quickly than before, thus saving time and money.
- You always provide best quality and ensure the satisfaction of your management or your customers – for example by testing and impressively presenting the faultless fitting or the functionality of system.

“ The App, available for iOS and Android, turns the user’s smartphone into a second display and a remote control for the thermal imager, and serves to create compact reports quickly on site, to save them online and send them by e-mail.

## Convincing features for efficient thermography.

### ■ High resolution and image quality

Up to 320 x 240 pixels – with testo SuperResolution, even up to 640 x 480 pixels. Image quality and resolution are ideal for all applications in both contracting and industry.

### ■ Connection to App and other Testo measuring instruments.

Create and send compact reports on site with the testo Thermography App. Transfer the measurement values of the testo 605i hygrometer and the clamp meter testo 770 wirelessly to the imagers, in order to identify mould/humidity related danger or to complement thermal images with current/voltage values. For example – in solar panels.

### ■ Automatic setting of emissivity

The testo  $\epsilon$ -Assist function automatically sets the emissivity and temperature of the measurement object, thus facilitating precise thermography.

### ■ Objectively comparable images

testo ScaleAssist adapts the thermal image scale to the inner and outer temperatures of the measurement object, and the difference between them. This ensures comparable and error-free thermal images of the thermal insulation behaviour of a building.



### Work smart and networked

testo thermal imager 872 can also be connected to the testo Thermography App. The App, available for iOS and Android, turns the user's smartphone into a second display and a remote control for the thermal imager, and serves to create compact reports quickly on site, to save them online and send them by e-mail. Apart from this, the App offers useful tools for fast analysis on site – for example for inserting additional measurement points, determining the temperature development via a line or adding comments to a thermal image. Also very useful: With the App you can transmit thermal images live to your smartphone/tablet, and can use it as a second display.

**testo Thermography App** for testo 868/871/872  
Download now for iOS or Android free of charge:



### Connectivity with testo Hygrometer and testo Clamp Meter

testo 872 thermal imager can be additionally connected wirelessly with the thermohygrometer testo 605i and the clamp meter testo 770-3. The measurement values of both compact measuring instruments are transmitted to the imagers by Bluetooth. This allows fast and clear identification of where exactly the thermography is to be done in any given climatic condition or at what load a switching cabinet is running.

#### Testo India

With more than 60 years of measurement experience, Testo SE & Co. KGaA is headquartered in Titisee, Germany. Testo India Pvt. Ltd., a 100% subsidiary of Testo SE & Co. KGaA was established in 2006 and has shown phenomenal growth over the last 15 years with its head office in Pune, & a PAN India network.

**Courtesy:** Testo India Pvt. Ltd.

For more info:

Write to [info@testo.in](mailto:info@testo.in) or visit [www.testo.com](http://www.testo.com)



“ testo 872 thermal imager can be additionally connected wirelessly with the thermohygrometer testo 605i and the clamp meter testo 770-3. The measurement values of both compact measuring instruments are transmitted to the imagers by Bluetooth.





“Taurus is Internationally known and accepted, for its innovative and quality products, Taurus is also looking to be a major international manufacturer and supplier to all the nations of the world. This year itself, Taurus plans to break into over a 100 new countries.”

**M N Ravinarayan**  
Managing Director, Taurus Powertronics Pvt. Ltd.

### Currently, what are the main focus areas of operation for TAURUS?

Currently our Main focus Area of operation is in transmission line and Substation. We are also focusing extensively in Distribution Segment. Taurus Powertronics focus is Make in India. We pride ourselves in R&D, Innovation and inventions for the power sector. Taurus stands for Quality, reliability and repeatability.

Besides the demand-generating sectors, the T&M market will be driven by some special trends, as listed below.

**Predictive maintenance:** Increasing awareness about predictive maintenance amongst Indian users is driving the T&M industry.

**Unique feature Equipment the key to Taurus:** The demand from customers to address complex process issues keeps Taurus, innovate continuously, Taurus is one of the pioneers of in-house R&D.

**Taurus provides Multi-functional Testing solutions and Services:** Multi-functional solutions for testing are provided by Taurus Powertronics, including complete line patrolling services. New innovative solutions such as LIDOR, which can be used from the ground while the line is charged, to identify faulty Insulators (Ceramic, Glass and Polymer) is just a few innovative solutions being offered by Taurus Powertronics.

Taurus Powertronics is engaging in testing services: To ensure quality reliability and repeatability, Taurus also offers testing and measuring services, with not only offers current scenario detection but solutions for predictive maintenance.

**Taurus stands for Quality:** Even though cheaper knockoffs and substandard equipment is available in the market Taurus Powertronics prides itself of never compromising on its core value, which is Quality, Reliability and Customer support any where every where.

The demand for electricity across India has been growing at a rapid rate and is expected to increase further in the years to come. To address this, power generation, transmission and distribution companies will have to invest in reliable, accurate and efficient equipment to protect their assets from failure.

Continuous R&D, innovation and Invention is the backbone of Taurus..

Taurus is Internationally known and accepted, for its innovative and quality products, Taurus is also looking to be a major international manufacturer and supplier to all the nations of the world. This year itself, Taurus plans to break into over a 100 new countries.

The potential of India in the testing and measuring industry, is looking bright and Taurus is aspiring and is on its way to become a Billion dollar company.

### Which are the major sectors where you find most of the customers?

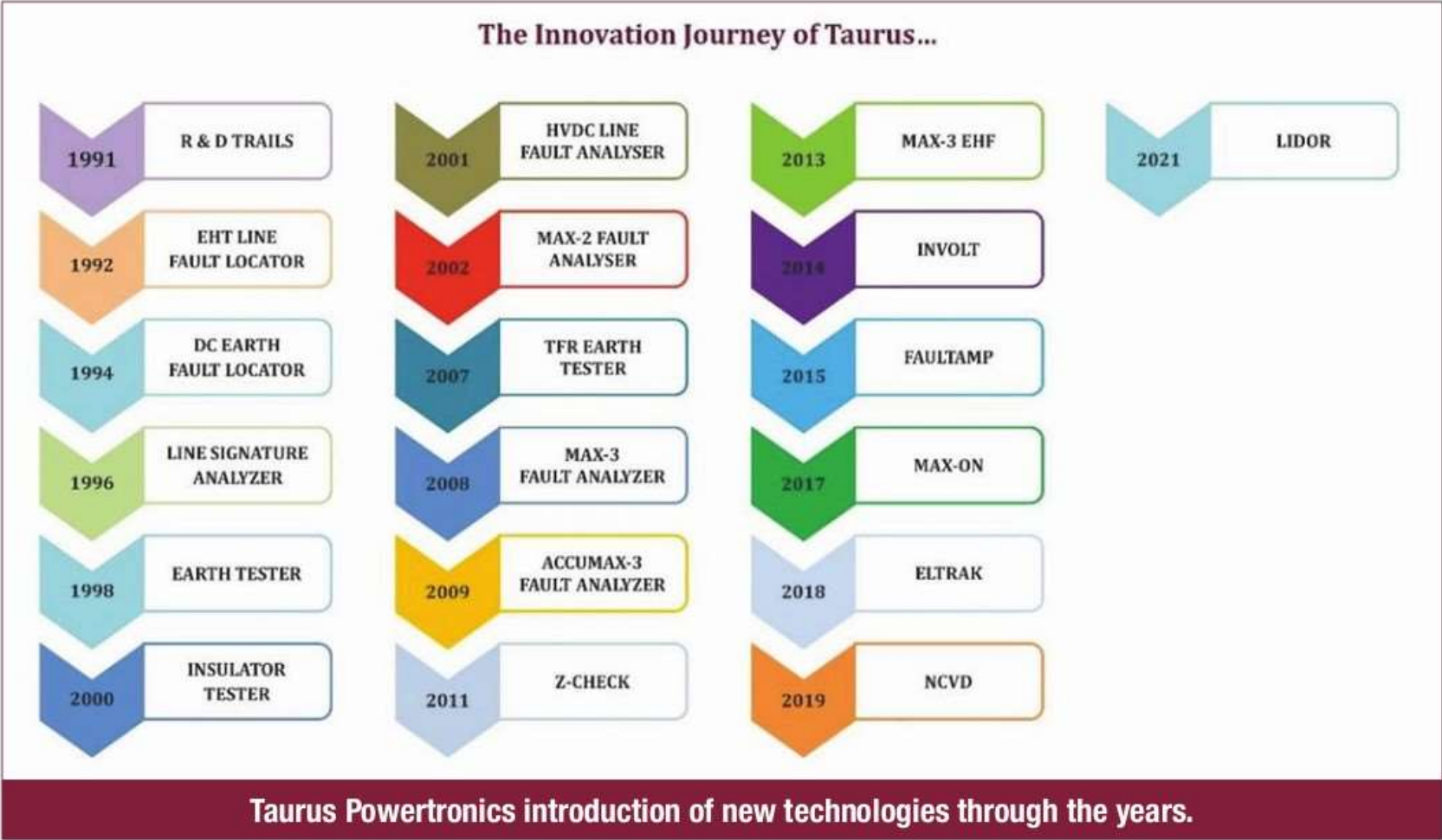
Taurus Powertronics is a major manufacturer and service provider for Transmission and substations testing and measuring, for the power sector in India. We also cater to all industries, for example railways, Defense, Aviation, Naval ports, PAT industries etc.

■ TAURUS POWERTRONICS is uniquely positioned with its innovative products and services offerings .

■ TAURUS POWERTRONICS has its headquarters in Bengaluru and extensive regional presence through ~11 locations across India

■ Indian T&M market is attractive for existing players with moderate competition low threat of new entrants, and Taurus Powertronics is very well placed as an Indian Manufacturer with, Make in India at its core.





Taurus Powertronics introduction of new technologies through the years.

Could you please give an idea of the range of EHV and UHV offer by your company?

EHV /UHV products for Transmission Line are Offline fault Locator, TFR, LIDOR-RZ, NCVD, Corona Camera  
For Substation: LIDOR-UPD, Partial Discharge testers and monitors, Corona Camera, Surge Arresters.

What are the most innovative aspects of your Transmission, Generation and Distribution manufacturing technology?

- Offline Fault Locator
- LIDOR-RZ
- LIDOR-UPD

The **LIDOR** non-destructive inspection system with Advance analyzing software, utilizes Tower Footing Earth Tester, AC/DC Current sensor and Online Portable Partial Discharge Detector, for predictive maintenance. It is a Complete Tool to do the primary Health Check of Lines and switchyard. A Successful Implementation of LIDOR testing and monitoring technique prevents failure, on the lines and substation/Switchyard Equipment. The key to its success besides its amazing accuracy, is the fact that this can be operated online without a shutdown, and from the ground without having to climb the tower to identify, faulty or flashed over Polymer, Glass or ceramic insulators.

■ As Corona imaging camera systems are ideal for Power & Industrial sector usage and applications, highlight some

“ It is a Complete Tool to do the primary Health Check of Lines and switchyard. A Successful Implementation of LIDOR testing and monitoring technique prevents failure, on the lines and substation/Switchyard Equipment. ”

specifications of your range of Corona cameras that can be beneficial for the users.

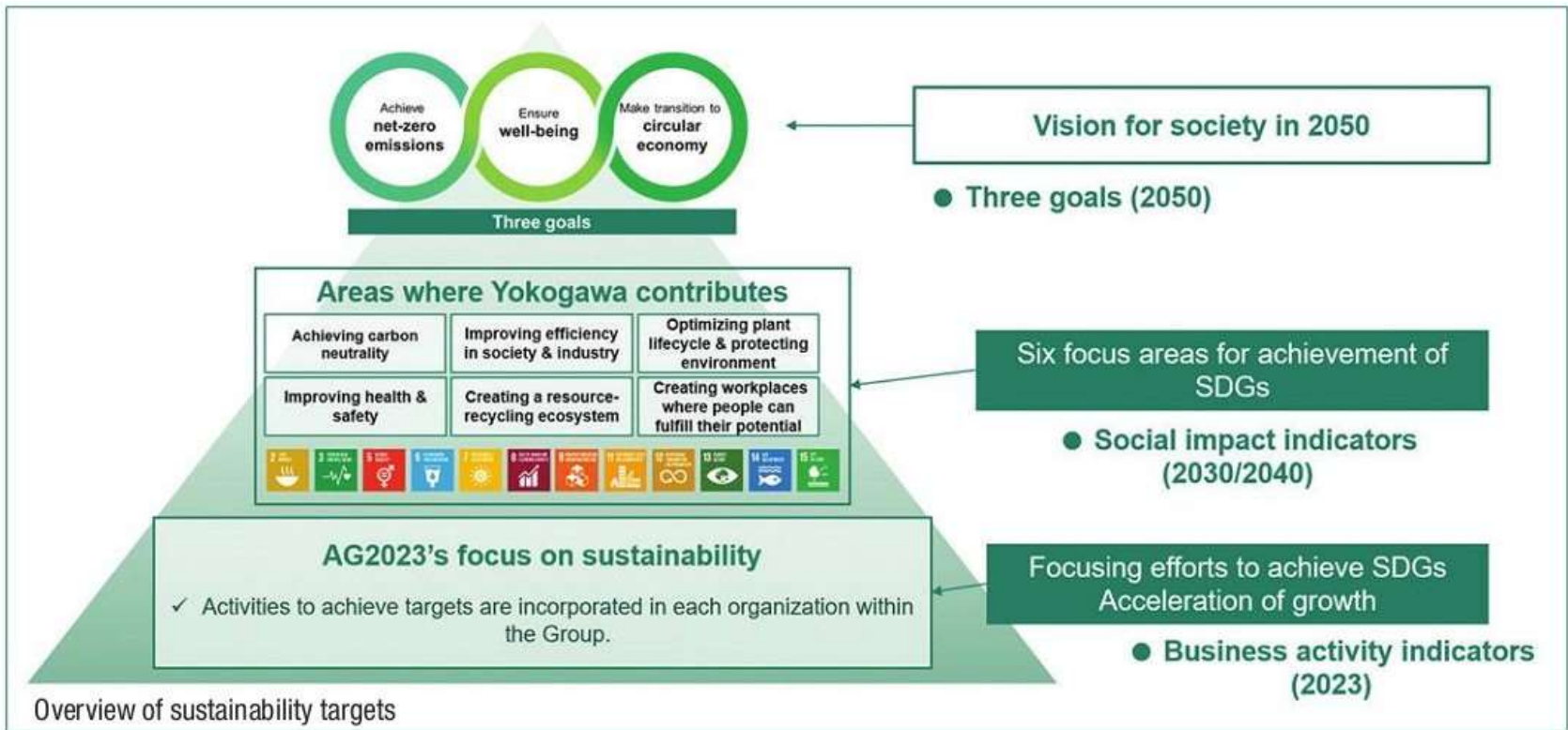
Corona is Luminous Partial electrical discharge due to ionization of Air. It generates UV emission when Electrical field exceeds a critical value of 25kV/cm it causes the failure of the Electrical components in Power Network.

■ NCVD- The VOLTCHek is a variable non-contact voltage detector, A proximity device which detects the presence of an alternating electric or electromagnetic field. It is used by industry professionals for live or dead voltage determination of outdoor overhead or underground at URD test points. It is used as a proximity device to determine live or dead situations and then as a touch device to verify the source has physically reached the zero AC field. This is the only equipment capable of testing all voltage from AC 415V to 765kV all in one, from a distance, beyond arcing zone.



# Yokogawa Sets Sustainability Targets for AG2023 Mid-Term Business Plan

Identifying priority issues and aiming for carbon neutrality by 2040



Yokogawa Electric Corporation (TOKYO: 6841) announces that it has set sustainability targets for its Accelerate Growth 2023 (AG2023) mid-term business plan. For the setting of these mid- and long-term indicators and targets, the company prioritized the issues that it will address to contribute toward the achievement of the United Nations' Sustainable Development Goals (SDGs), and the issues that will reinforce the foundations for its sustainability management. As one outcome of this initiative, the Yokogawa Group will accelerate the reduction of its greenhouse gas (GHG) emissions and aim to achieve carbon neutrality by the year 2040.

## Background to the setting of the sustainability targets

Looking ahead to the year 2050, in 2017 Yokogawa set out its vision for the attainment of a low-carbon, recycling-oriented society in its "Three goals" for sustainability. In 2021, the company established Yokogawa's Purpose, a statement that reads "Utilizing our ability to measure and connect, we fulfill our responsibilities for the future of our planet." Given the close relationship that contributions to society and the environment have to the enhancement of Yokogawa's corporate value, for the AG2023 plan that commences this

“In 2021, the company established Yokogawa's Purpose, a statement that reads “Utilizing our ability to measure and connect, we fulfill our responsibilities for the future of our planet.”

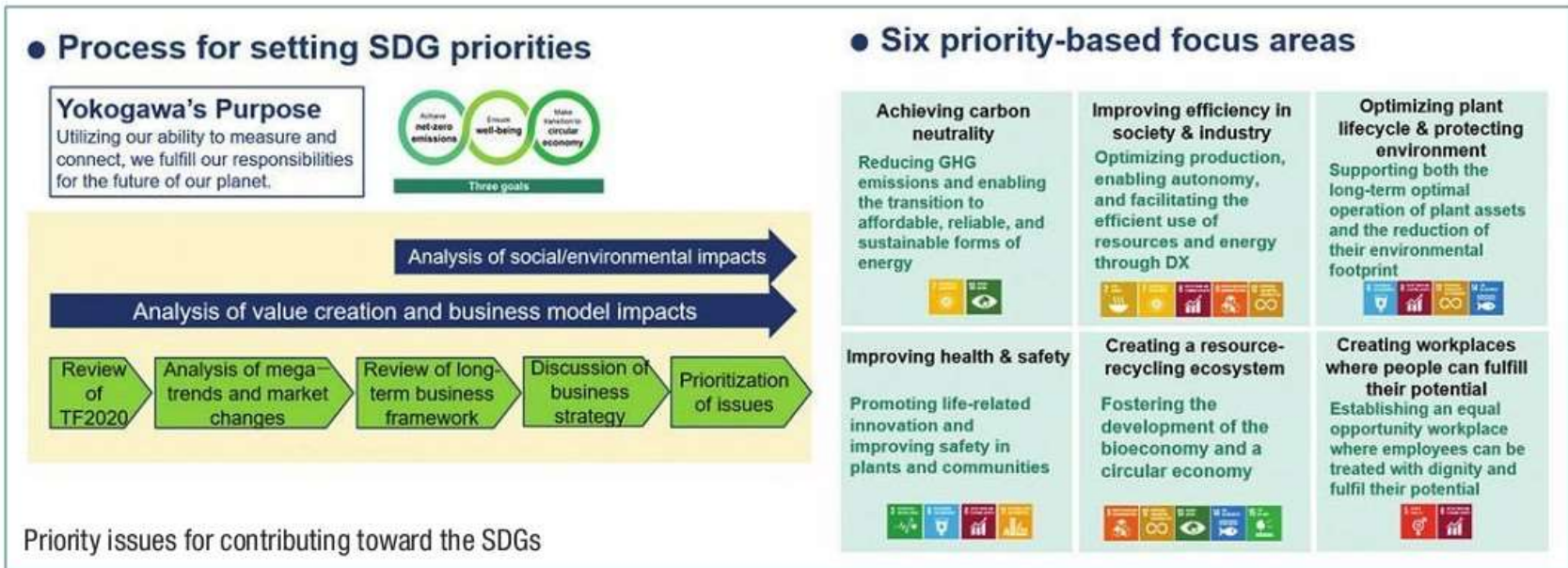
fiscal year the company has prioritized issues for contributing toward the SDGs and issues that will reinforce the foundations for its sustainability management.

## Setting of priority issues

### ■ Priority issues for contributing toward the SDGs

Based on the conduct of a social / environmental impact analysis and a corporate value / business model impact analysis, Yokogawa has defined as follows six areas for contribution toward the SDGs and specified the issues to be prioritized in its business.







# Fluke 393 FC CAT III 1500 V True-rms Clamp Meter with iFlex delivers safe, fast measurements in 1500 V dc environments

*The new meter's thin jaw, CAT III 1500 V safety rating, and IP54 rating for dust and water make it ideal for installation and troubleshooting in solar environments.*



“ The thin jaw allows it to be used in combiner boxes, inverters, and tight spaces making it ideal for solar energy applications.

**Fluke** Corporation introduces the Fluke® 393 FC CAT III 1500 V True-rms Clamp Meter with iFlex, the world's only 1500 V CAT III, IP54 rated, thin jaw clamp meter. With its CAT III 1500 V / CAT IV 6000 V safety rating, the 393 FC provides exceptional safety for work in dc environments up to 1500 volts, like solar arrays, wind power, electric railways, and datacenter battery banks for uninterruptible power



supplies. The thin jaw allows it to be used in combiner boxes, inverters, and tight spaces making it ideal for solar energy applications.

The meter measures up to 1500 V dc, 1000 V ac, and up to 999.9 A dc or ac through the clamp jaw. The included iFlex flexible current probe extends ac current measurements up to 2500 amps. When measuring ac current, the iFlex probe can be twisted through extremely small spaces giving technicians access to cables that would otherwise be difficult or impossible to clamp a probe around.

“The Fluke 393 FC delivers unparalleled safety and performance in 1500V dc environments, like solar energy,” said Susan Isaac, Product Manager for the Fluke 393. “It was designed specifically to address the unique challenges solar technicians deal with every day, and help them get their jobs done faster and safer.”

#### The Fluke 393 FC features:

- IP54 rating for dust and water making it ideal for work outdoors on solar arrays and wind power systems.
- DC power measurement, showing readings in kVA.
- Audio and Visual Polarity to ensure photovoltaic panels are properly installed with the help of an audio beep and a light to indicate correct polarity.
- Visual Continuity that provides a bright green indicator light in the display for working in dark and noisy environments.
- Logging, sharing and reporting of test results via Fluke Connect software.

#### Dedicated tools for solar design, installation, and troubleshooting

The 393 FC is the latest addition to the Fluke portfolio of test tools designed for the solar energy industry. Fluke tools operate reliably in the extreme environments — dusty, wet, cold and hot — that solar professionals work in, and are tested to survive drops that can occur in field work. Fluke tools are designed to keep workers safe in potentially dangerous electrical

“The Fluke 393 FC delivers unparalleled safety and performance in 1500V dc environments, like solar energy,” said Susan Isaac, Product Manager for the Fluke 393. “It was designed specifically to address the unique challenges solar technicians deal with every day, and help them get their jobs done faster and safer.”

environments, meeting or exceeding all recommended safety standards.

For more information on the Fluke 393 FC CAT III 1500 V True-rms Clamp Meter with iFlex, visit: <https://www.fluke.com/en-in/product/electrical-testing/clamp-meters/393-fc>

#### Fluke Corporation

For information on Fluke tools and applications, or to find the location of a distributor, contact Fluke India e-mail [info.india@fluke.com](mailto:info.india@fluke.com), call toll free 1-800-419-3001 or visit the Fluke Web site at [www.fluke.com/india](http://www.fluke.com/india)

#### About Fluke

Founded in 1948, Fluke Corporation is the world leader in compact, professional electronic test tools and software for measuring and condition monitoring. Fluke customers are technicians, engineers, electricians, maintenance managers, and metrologists who install, troubleshoot, and maintain industrial, electrical, and electronic equipment and calibration processes.





**MOISTURE METER AND THERMAL IMAGER WITH MSX®**

**FLIR MR265™**

The FLIR MR265 is a combination pin and pinless moisture meter with thermal imaging designed to show building and facilities maintenance professionals exactly where to investigate issues related to moisture, air leaks, and insulation voids. Featuring FLIR IGM™ (Infrared Guided Measurement) technology, the MR265 helps users quickly scan and target problem areas, visually guiding them to the spot where they can confidently take measurements, analyze readings, and ensure that problems are fixed. FLIR MSX (Multi-Spectral Dynamic Imaging enhancement) technology makes it easy to recognize where issues are located by embossing visual details from the built-in visual camera onto thermal images. Using FLIR Thermal Studio™, inspectors can then create and share professional reports that include findings and proof of repairs – giving customers peace of mind that mold, rot, or moisture challenges have been resolved.

[www.flir.com/MR265](http://www.flir.com/MR265) [www.flir.in/MR265](http://www.flir.in/MR265)



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- Eliminate guesswork with MSX, which enhances image quality by embossing visible light details onto thermal images in real time for greater edge and outline detail
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- Use the included pin probe resistive sensor for quantifiable moisture measurements
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- Inspect in dimly lit areas using the bright, built-in worklight



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Hence the demand is limited to buying essential items required for running the plant. We are trying to promote our products to all our existing customers and also exploring new avenues of business.

**Chandmal Goliya**

Director, Kusam Electrical Industries Ltd.

**What is keeping you busy these days? Currently, what are the main focus areas of operation for KUSAM MECO?**

Due to the Covid pandemic business is slow. Many organizations are not working to full capacity. Hence the demand is limited to buying essential items required for running the plant. We are trying to promote our products to all our existing customers and also exploring new avenues of business.

**Which are the major sectors where you find most of the customers?**

The major sectors where our customers are in the Power sector, Railways, Engineering plants, Electronic Manufacturing Industries, Chemical, Petroleum industries.

**Could you please give an idea of the range of Digital Multimeters, and Clampmeters offer by your company?**

KUSAM-MECO has a large range of High Safety Digital Multimeters & Clampmeters. The instruments offered by us have self-extinguishing Polycarbonate Casing which can withstand high temperature above 200 degrees Centigrade. They have Surge protection upto 6-12 KV. Multimeters have high energy fuses which prevent the instrument from explosion or

damage to the circuit and the user. The Multimeters are provided with heavy duty holster which keeps the Multimeter safe even if it accidentally drops on the floor. It has splash proof casing. Some models of Clampmeters are designed with special clamp jaws by which very low currents can be measured accurately. These features are not available in other Multimeters and Clampmeters available in India including 'phoren' brands.

**What is your vision for the future?**

The vision of the Company is to be the ONE SOURCE FOR QUALITY TEST & MEASURING INSTRUMENTS IN INDIA.

KUSAM-MECO has a large range of High Safety Digital Multimeters & Clampmeters. The instruments offered by us have self-extinguishing Polycarbonate Casing which can withstand high temperature above 200 degrees Centigrade.



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# Reverse engineering: More than a practical and cost-effective solution

In the world of high-tech machinery, software or hardware for that matter, it often happens that purchasing a replacement part or component from an original equipment manufacturer (OEM) is not an option. Also, amidst the persisting Covid-19 pandemic situation, many customers are hesitating to order materials from overseas. Moreover, in case the components are imported, they may have exorbitant prices and the customer, in such cases, often keeps searching for the indigenous source.

This is where reverse engineering, which is sometimes referred to as back engineering, comes into the picture. The process often involves disassembling something (a mechanical device, electronic component, computer program, or biological, chemical, or organic matter) and analysing its components and workings in detail.

## MAKING A DIFFERENCE

For instance, in the case of pumps, customers sometimes face difficulties in finding replacement parts for their old or obsolete pumps. Even if available, the delivery time or commercial term for such parts is unfavourable sometimes. This is where Kirloskar Brothers Limited (KBL), which is the first and largest pump engineering company in India, makes all the difference. The re-engineering capabilities of KBL provide a suitable and reliable alternative with the best-in-class service assurance, which is a benchmark. The company has dedicated state-of-the-art facilities duly backed by the experienced engineering team to offer a customer model solution customised exactly as per their requirements. The company can produce parts for API, non-API pumps with materials of construction (MOCs) ranging from cast-iron to super duplex. KBL takes pride in the in-house casting of R55, Alloy20 and other grades of critical MOCs prominently among all



pump manufacturers across the globe.

In fact, the mother plant at Kirloskarvadi in the Sangli district of Maharashtra houses Asia's largest hydraulic research centre, wherein pumps of duty parameters up to 5,000kW and 50,000 m<sup>3</sup>/hr can be tested. The centre has a testing facility that ensures that the pump performance meets specifications before installation, irrespective of the size or type of the KBL pump. It also provides a rigorous testing ground for new pump design, development and improvement of existing pumps. Besides, KBL offers expertise in computational fluid dynamics (CFD) analysis with a professional Research and Development (R&D) team.

KBL is the only pump manufacturer in India to have a dedicated 3D printing machine, which helps it replicate a part or create a product prototype to a high degree of accuracy. The parts or product may be turned or cast, a process that is critical in reverse engineering. For casting, KBL has Replicast, a precision foundry process that enables an improved product finish and reduces the overall costs. Its dedicated Replicast team



works closely with the engineering team to ensure 100% precision. With such technological capabilities, KBL is well equipped to re-engineer pumps and valves of any age and manufacturer.

**TESTIMONY TO DISTINCTION**

KBL is the only pump manufacturer in India to receive the prestigious ESCO Certification, which is testimony to an organisation’s distinction in energy audits through superior design and retrofitting capabilities. It specialises in undertaking detailed quality pump auditing using sophisticated auditing instruments by experienced and certified energy auditors. KBL caters to the requirements of some renowned companies and Government bodies for reverse engineering work. KBL has undertaken reverse engineering projects in all major industry segments including Municipal Corporations, Leading Power Generation Plants, Petroleum Industries, Oil & Gas

“This is where reverse engineering, which is sometimes referred to as back engineering, comes into the picture. The process often involves disassembling something (a mechanical device, electronic component, computer program, or biological, chemical, or organic matter) and analysing its components and workings in detail.”

Refineries, Cement and Chemical Industries, among others. These projects are done in both Indian and International locations. Moreover, reverse engineering is also an integral step towards boosting the ‘Make in India’ and ‘Atmanirbhar Bharat Abhiyan’ models.

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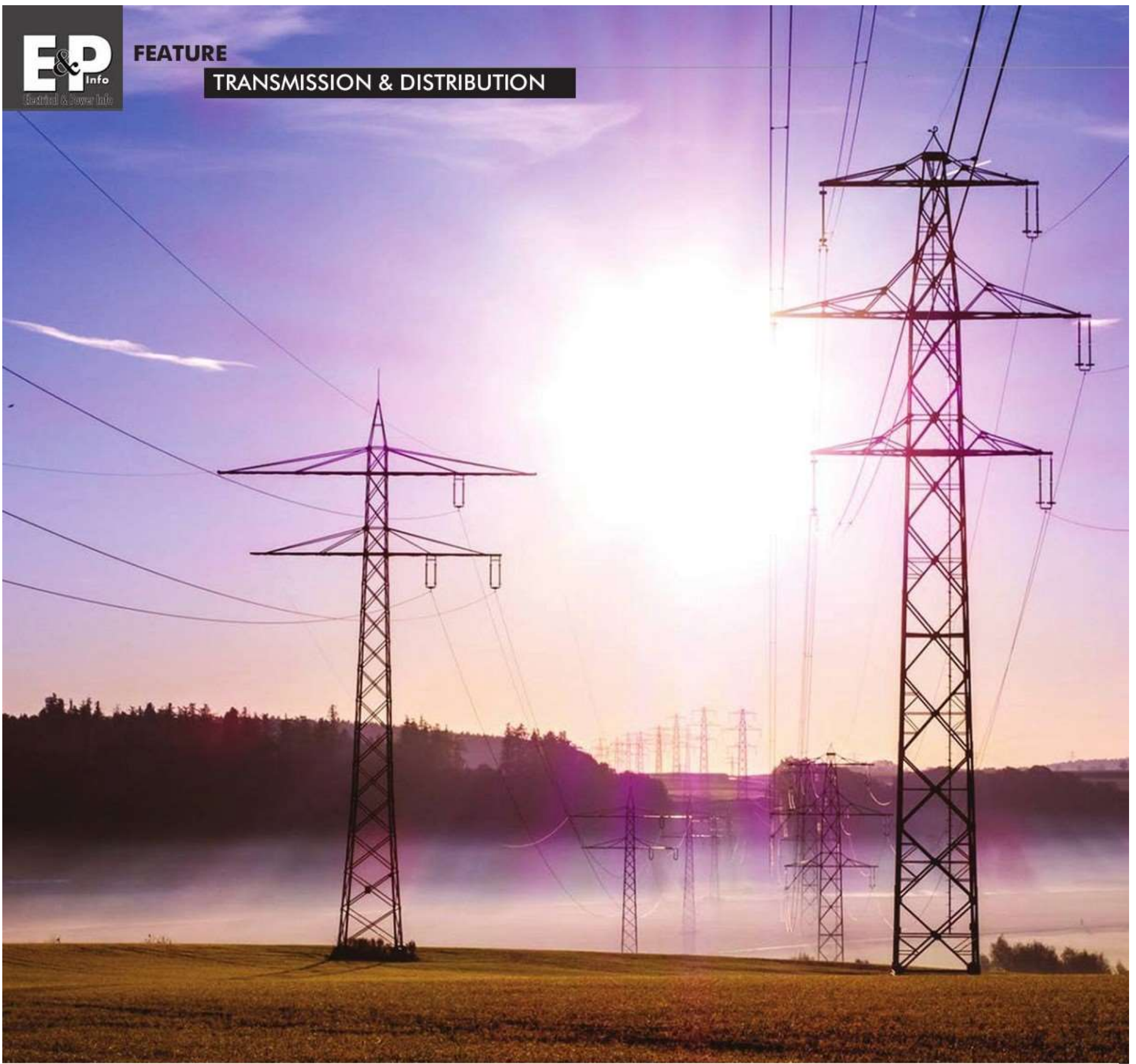
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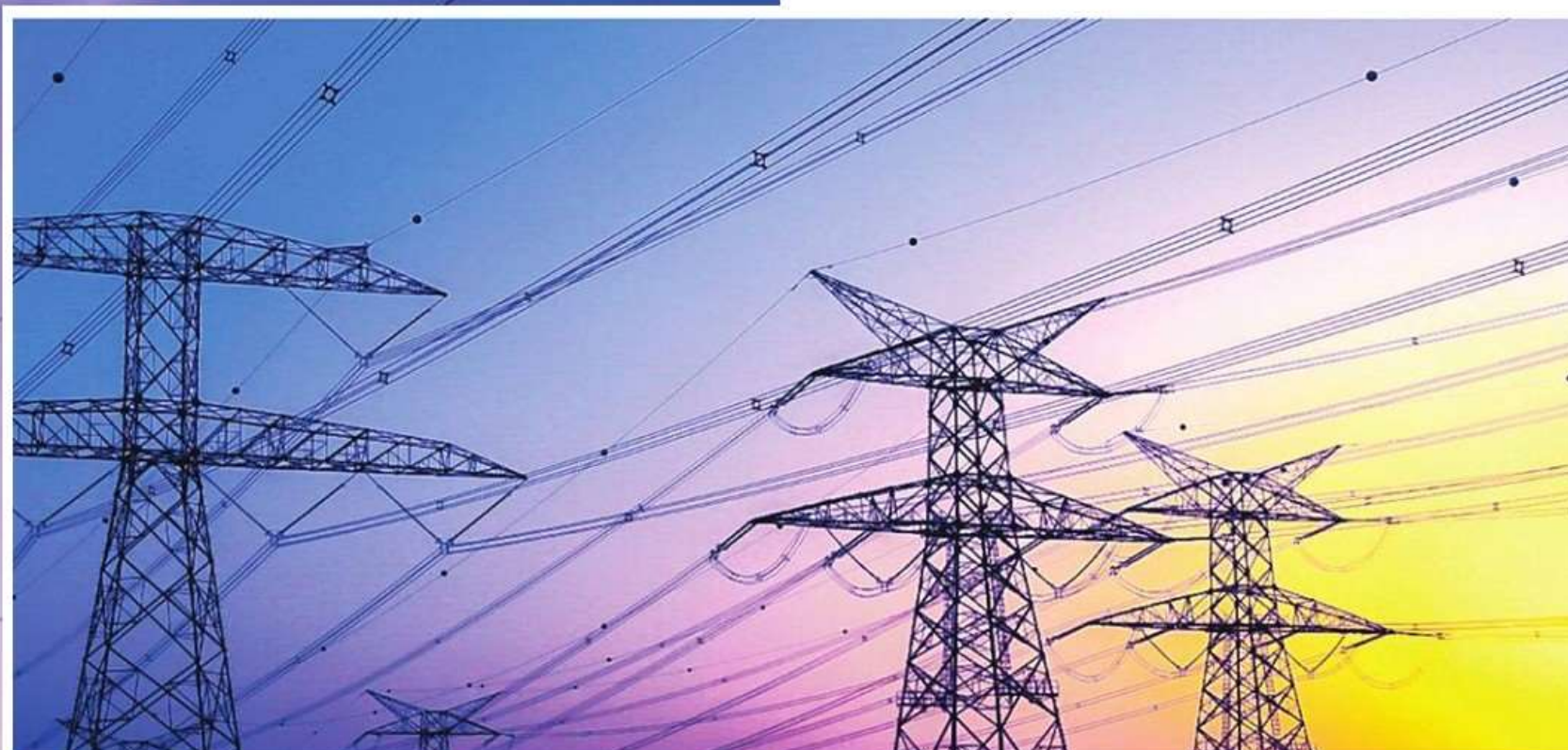
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**“ Electricity demand in the country has increased rapidly and is expected to rise further in the years to come. In order to meet the increasing demand for electricity in the country, massive addition to the installed generating capacity is required.**





Indian power sector is undergoing a significant change that has redefined the industry outlook. Sustained economic growth continues to drive electricity demand in India. The Government of India's focus on attaining 'Power for all' has accelerated capacity addition in the country.

India's power sector is one of the most diversified in the world. Sources of power generation range from conventional sources such as coal, lignite, natural gas, oil, hydro and nuclear power to viable non-conventional sources such as wind, solar, and agricultural and domestic waste. Electricity demand in the country has increased rapidly and is expected to rise further in the years to come. In order to meet the increasing demand for electricity in the country, massive addition to the installed generating capacity is required.

In May 2018, India ranked fourth in the Asia Pacific region out of 25 nations on an index that measured their overall power. India was ranked fourth in wind power, fifth in solar

power and fifth in renewable power installed capacity as of 2018. India ranked sixth in the list of countries to make significant investments in clean energy at US\$ 90 billion. India is the only country among the G20 nations that is on track to achieve the targets under the Paris Agreement.

### Market Size

Indian power sector is undergoing a significant change that has redefined the industry outlook. Sustained economic growth continues to drive electricity demand in India. The Government of India's focus on attaining 'Power for all' has accelerated capacity addition in the country. At the same time,



the competitive intensity is increasing at both the market and supply sides (fuel, logistics, finances, and manpower).

By 2022, solar energy is estimated to contribute 114 GW, followed by 67 GW from wind power and 15 GW from biomass and hydropower. The target for renewable energy has been increased to 227 GW by 2022.

In FY22 (until May 2021), the total thermal installed capacity in the country stood at 234.72 GW. Installed capacity of renewable, hydro and nuclear energy totalled 95.65 GW, 46.21 GW and 6.78 GW, respectively.

### Investment Scenario

Between April 2000 and March 2021, the industry attracted US\$ 15.33 billion in Foreign Direct Investment (FDI), accounting for 3% of total FDI inflow in India.

Some major investments and developments in the Indian power sector are as follows:

■ In June 2021, the NTPC floated a global tender for setting up a 1,000-megawatt hour (MWh) grid-scale battery storage system. The plan involves designing, building and operating such a system and also offers a co-investment partnership.

■ In April 2021, GE Renewable Energy announced to supply 42 units of 2.7-132 onshore wind turbines, totaling 110 MW for onshore wind hybrid projects to CleanMax.

■ In March 2021, Actis LLP, a private equity firm, planned to invest US\$ 850 million to build two green energy platforms in India.

✓ According to the firm, the first platform will focus on setting up grid-connected solar and wind power parks, while the second platform will tailor to the commercial and industrial segment.

■ In January 2021, TOTAL acquired a 20% stake in Adani Green Energy. In addition, as a part of this deal, TOTAL undertook 50% in 2.35 GW portfolio of operating solar assets in Adani Energy Limited. The combined deal amount was worth US\$ 2.5 billion.

■ In December 2020, the Asian Development Bank (ADB) and the Government of India signed a US\$ 100 million loan to modernise and upgrade the power distribution system for enhancing the quality and reliability of electricity supply in Bengaluru, Karnataka.

■ In January 2021, Tata Power received a letter of award (LOA) from Kerala State Electricity Board Limited (KSEBL)

**In FY22 (until May 2021), the total thermal installed capacity in the country stood at 234.72 GW. Installed capacity of renewable, hydro and nuclear energy totalled 95.65 GW, 46.21 GW and 6.78 GW, respectively.**



to develop a 110 MW solar project. With this, Tata Power's renewable capacity will increase to 4,032 MW, out of which 2,667 MW is operational and 1365 MW is under implementation, including 110 MW won under this LOA.

■ In December 2020, the foundation stones of India's largest hybrid renewable energy park having 30 GW capacity was laid in Gujarat at Vighakot village in the district of Kutch. The estimated cost of this project is -Rs. 1.5 lakh crore (US\$ 20.44 billion).

■ In December 2020, The Asian Development Bank (ADB) and Government of India signed a US\$ 132.8 million loan to strengthen and modernise the distribution network and improve quality of power supplied to households, industries and businesses in Meghalaya.

■ In March 2020, the Central Government signed virtual agreement to conclude strategic sales in Kamarajar Port Ltd, THDC India Ltd and North Eastern Electric Power



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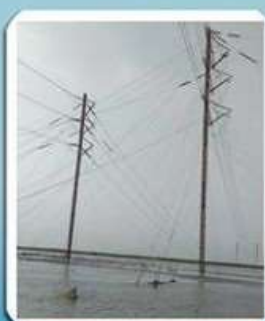
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Corporation Limited (NEEPCO), and it will receive Rs. 13,500 crore (US\$ 1.93 billion) from these deals.

■ In December 2019, NTPC announced investment of Rs. 50,000 crore (US\$ 7.26 billion) to add 10GW solar energy capacity by 2022.

■ In August 2019, Sembcorp Industries, the Singapore-based energy firm, made an equity infusion of Rs. 521 crore (US\$ 101.6 million) into Sembcorp Energy India Ltd.

■ Brookfield will invest US\$ 800 million in ReNew Power.

■ In September 2019, Adani Transmission planned to acquire the entire stake in Bikaner Khetri Transmission.

■ ReNew Power and Shapoorji Pallonji will invest nearly Rs. 750 crore (US\$ 0.11 billion) in a 150 megawatt (mw) floating solar power project in Uttar Pradesh.

■ The Government of India expected to offer nearly 20 power transmission projects worth Rs. 16,000 crore (US\$ 2.22 billion) for bidding in 2019.

### Government Initiatives

The Government of India has identified power sector as a key sector of focus to promote sustained industrial growth. Some initiatives by the Government to boost the Indian power sector are as below:

■ In June 2021, the Export-Import Bank of India (Exim Bank) announced that it has extended a line of credit (LOC) worth US\$ 100 million to the Sri Lankan government for the purpose of funding projects in the solar energy sector and assure that the country's 70% power requirements are met by

The Government of India has identified power sector as a key sector of focus to promote sustained industrial growth. Some initiatives by the Government to boost the Indian power sector are as below:

renewable energy sources by 2030.

■ In April 2021, the Ministry of Power (MoP) released the draft National Electricity Policy (NEP) 2021. The MoP has created an expert committee including members from state governments, the Ministry of New and Renewable Energy (MNRE), NITI Aayog and the Central Electricity Authority (CEA).

■ As per the Central Electricity Authority (CEA) estimates, by 2029-30 the share of renewable energy generation would increase from 18% to 44%, while that of thermal is expected to reduce from 78% to 52%.

■ On November 17, 2020, Energy Efficiency Services Limited (EESL), a joint venture of PSUs under the Ministry of Power and Department of New & Renewable Energy (DNRE), Goa, signed a memorandum of understanding to discuss roll-out of India's first Convergence Project in the state.

■ In October 2020, the government announced a plan to set up an inter-ministerial committee under NITI





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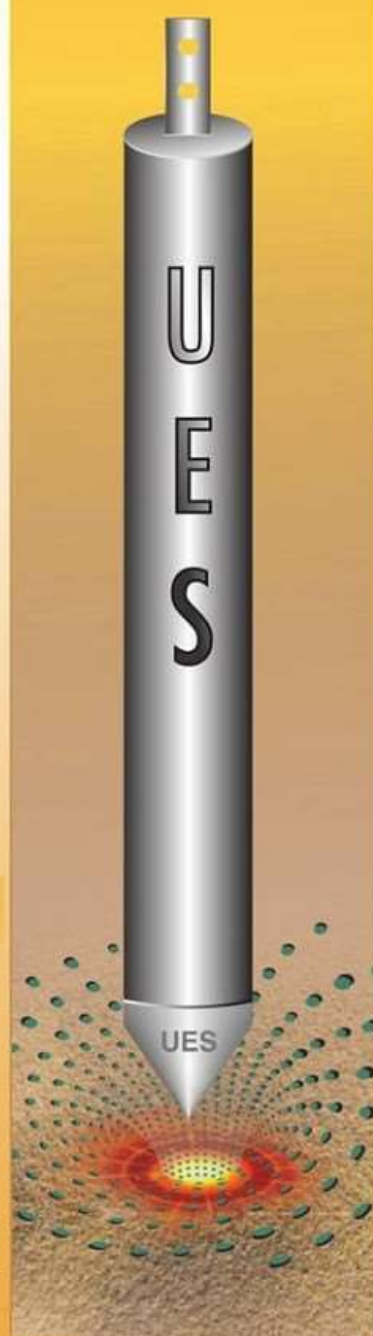
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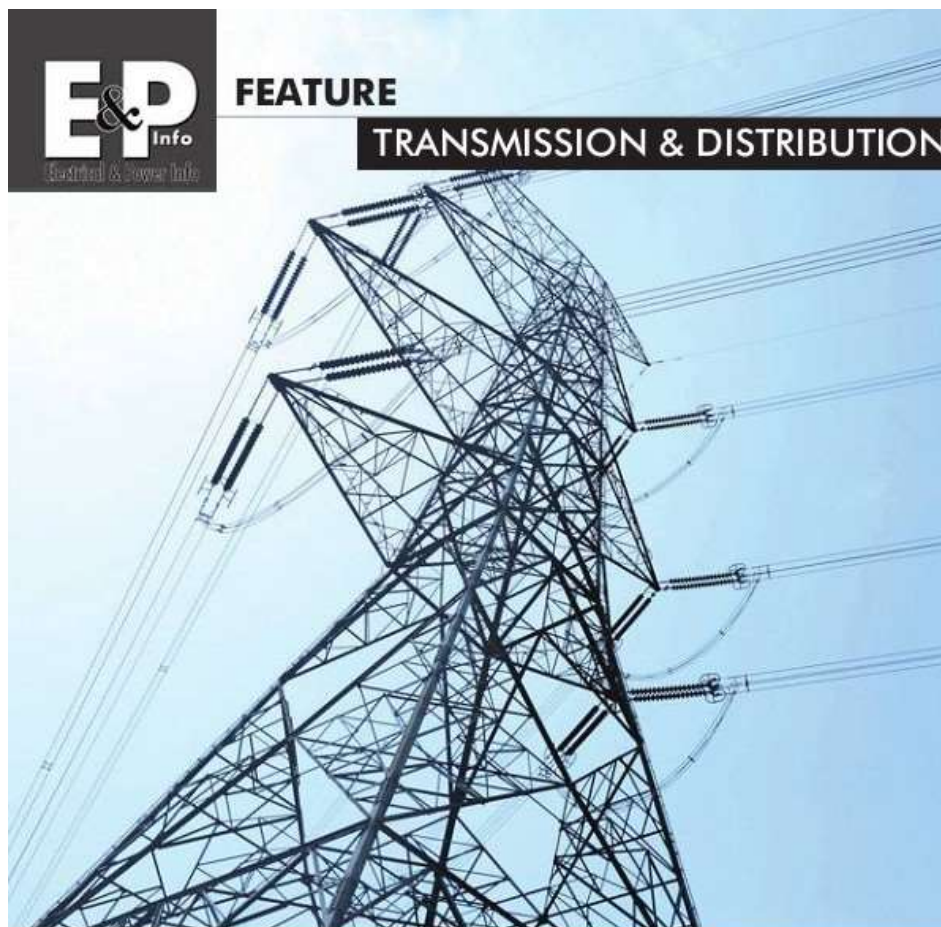
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■ The Government of India has allocated Rs. 111 lakh crore (US\$ 1.4 trillion) under the National Infrastructure Pipeline for FY 2019-25. The energy sector is likely to account for 24% capital expenditure over FY 2019-25.

■ Government plans to establish renewable energy capacity of 500 GW by 2030.

■ Pradhan Mantri Sahaj Bijli Har Ghar Yojana-Saubhagya was launched by Government of India with an aim to achieve universal household electrification by March 2019.

■ In September 2018, a draft amendment to Electricity Act, 2003 was introduced. It discussed separation of content & carriage, direct benefit transfer of subsidy, 24\*7 power supply as an obligation, penalisation on violation of PPA, setting up smart meter and prepaid meters along with regulations related to the same.

■ Ujwal Discoms Assurance Yojana (UDAY) was launched by the Government to encourage operational and financial turnaround of State-owned Power Distribution Companies (DISCOMS) with an aim to reduce Aggregate Technical & Commercial (AT&C) losses to 15% by FY19.

### Achievements

Following are the achievements of the Government in the past four years:

■ According to the Union Budget 2021-22, 139 GW of installed capacity and 1.41 lakh circuit km of transmission lines were added and 2.8 crore households were connected in the past 6 years.

According to the Union Budget 2021-22, 139 GW of installed capacity and 1.41 lakh circuit km of transmission lines were added and 2.8 crore households were connected in the past 6 years.

■ Solar tariffs in India have reduced from ~Rs. 7.36/kWh (US 10 cents/kWh) in FY15 to Rs. 2.63/kWh (US 3.57 cents/kWh) in FY20.

■ As December 2020, over 36.69 crore LED bulbs, 1.14 crore LED tube lights and 23 lakh energy-efficient fans have been distributed across the country, saving ~47.65 billion kWh per year.

■ Power consumption grew at 12.6% in the first week of June to 25.36 billion units (BU), indicating slow recovery in the commercial and industrial electricity demand.

■ For FY21, electricity generation attained from conventional sources was at 1234.44 BU, comprising 1,032.39 BU of thermal energy; hydro energy (150.30 BU) and nuclear (42.94 BU). Of this, 8.79 BU was imported from Bhutan.

■ NTPC Ltd.'s oldest unit in Singrauli, Uttar Pradesh, has achieved the highest Plant Load Factor (PLF) of 100.24% among all thermal units in the country between April 2020 and December 2020.

■ India's rank jumped to 22 in 2019 from 137 in 2014 on World Bank's Ease of doing business - "Getting Electricity" ranking.

■ Energy deficit reduced to 0.7% in FY20 from 4.2% in FY14.

■ As of April 28, 2018, 100% village electrification was achieved under Deen Dayal Upadhyaya Gram Jyoti Yojana (DDUGJY).

### The Road Ahead

The Government of India has released its roadmap to achieve 227 GW capacity in renewable energy (including 114 GW of solar power and 67 GW of wind power) by 2022. The Union Government of India is preparing a 'rent a roof' policy for supporting its target of generating 40 gigawatts (GW) of power through solar rooftop projects by 2022.

Coal-based power-generation capacity in India, which currently stands at 199.5 GW, is expected to witness total installed capacity addition of 47.86 GW by 2022.



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# Hitachi ABB Power Grids commissions groundbreaking UHVDC project in India

*Raigarh-Pugalur link is accelerating the Country's clean energy transition by contributing to a resilient and reliable electricity network*



Hitachi ABB Power Grids in India (listed on Indian stock exchanges as “ABB Power Products and Systems India Limited”) has successfully commissioned one of India’s longest ultra-high voltage direct current (UHVDC) transmission links for Power Grid Corporation of India Limited.

The +/-800 kilovolt (kV), 6,000-megawatt (MW) link has the capacity to meet the electricity needs of more than 80 million people and stretches 1,800-kilometers to connect Raigarh in Central India to Pugalur in the southern state of Tamil Nadu. Reliable power can now be transmitted in

“Hitachi ABB Power Grids worked with the customer, government agencies, local authorities and suppliers to deliver the link during the COVID-19 pandemic. Responsible project execution with health and safety at the forefront were key to this achievement.”



either direction depending on demand, with exceptionally low power losses and minimal environmental footprint. The link supports the Indian government's mission and the UN Sustainable Development Goal No. 7 of increasing access to affordable, reliable, sustainable, and modern energy for all.

Hitachi ABB Power Grids worked with the customer, government agencies, local authorities and suppliers to deliver the link during the COVID-19 pandemic. Responsible project execution with health and safety at the forefront were key to this achievement.

"We strive to be a socially responsible business. Supporting society and protecting our people is at the center of our operations," said N Venu, Managing Director and CEO, Hitachi ABB Power Grids in India. "With the commissioning of this groundbreaking UHVDC link, we have kept our promise to enable more clean and reliable power for millions of people, helping to build a future where electricity will be the backbone of the entire energy system. During the entire project, the health and safety of our customers, employees and partners remained our top priority."

The link strengthens grid resilience and stabilizes the power infrastructure by combining traditional and renewable power generation. It enables further development and integration of sustainable energy, supporting the government's goal of reaching 450 gigawatts (GW) of renewable energy by 2030.

Using HVDC helps to conserve the environment by only occupying about one-third of the land compared to a traditional AC link. In this case, that amounts to a saving of approximately 130 square kilometers – equal to a quarter of the area of Mumbai.

The consortium of Hitachi ABB Power Grids and state-owned engineering and manufacturing firm BHEL won the order in 2016 from Power Grid Corporation of India Limited. Hitachi ABB Power Grids has been responsible for delivering the UHVDC converter stations, including design, engineering, construction, installation, and commissioning, as well as major equipment, including 800 kV converter transformers, converter valves, high-voltage products and control and protection technology.

“With the commissioning of this groundbreaking UHVDC link, we have kept our promise to enable more clean and reliable power for millions of people, helping to build a future where electricity will be the backbone of the entire energy system. During the entire project, the health and safety of our customers, employees and partners remained our top priority.”

Hitachi ABB Power Grids is the global market leader in HVDC technology. The company has an impressive HVDC track record in India, where it introduced the technology with the Vindhyachal project in 1989. Raigarh-Pugalur is the company's sixth HVDC project in India and the second UHVDC installation, following the multi-terminal North-East Agra link.

#### About Hitachi ABB Power Grids Ltd.

Hitachi ABB Power Grids is a global technology leader with a combined heritage of almost 250 years, employing around 36,000 people in 90 countries. Headquartered in Switzerland, the business serves utility, industry and infrastructure customers across the value chain, and emerging areas like sustainable mobility, smart cities, energy storage and data centers. With a proven track record, global footprint and unparalleled installed base, Hitachi ABB Power Grids balances social, environmental and economic values. It is committed to powering good for a sustainable energy future, with pioneering and digital technologies, as the partner of choice for enabling a stronger, smarter, and greener grid. <https://www.hitachiabb-powergrids.com>

Hitachi ABB Power Grids India operates under the legal entity name ABB Power Products and Systems India Limited and is listed on the National Stock Exchange of India Limited (NSE) and BSE Limited (BSE) as POWERINDIA, Scrip code 543187.



# IoT Communications & Data Analytics Startup Probus raises \$5,00,000 in bridge round led by Unicorn India Ventures

Delhi based IoT Communications & Data Analytics Startup Probus Smart Things, focused on Smart grid applications has raised \$500,000 in a bridge round led by Unicorn India Ventures. The round also saw participation from prominent angels like Anuj Khanna of Trimaster, Kiran Alla, Theia Ventures, Devdutt Shah, Kuntesh Chandaria, Urmin Group and Anmol Rastogi. The company plans to use the funds to scale up their team and operations within India and abroad.

Probus develops integrated hardware and software solutions for utility providers and helps digitize their distribution grid and have a clear visibility of their network through Probus integrated end to end IoT platform. A powerful IOT solution for electricity distribution utilities that helps them achieve distribution grid analytics and automation which subsequently enables a much more efficient distribution of electricity along with quicker restoration of electricity after power disturbances. Probus further enables reduced operations and management costs for utilities, and ultimately lower power costs for consumers. Probus has won Seedstars World's India edition in 2019 & Awards from Indian Smart Grid Forum twice.

**Anand Singh, Co-founder CEO, Probus Smart Things, says,** "This past year, we have been working closely and continuously with our partner utilities to help save them money in distribution networks by leveraging our communications and analytics solutions. Even during the challenging times of the second COVID wave during peak summers, our field teams had worked as essential



**Anand Singh**  
Co-founder CEO, Probus Smart Things

services to keep the network up and running.

In early 2021, we introduced India's first DLMS compliant RF product offering for smart meter integrations. We are strongly positioned to meet the upcoming requirement of smart metering in both India and abroad by providing our RF mesh products.

In addition to the trust of Unicorn India Ventures, this bridge round also sees participation from some well-known industry experts, who have been mentoring us for quite some time. With the current funding round, we will be expanding our team and product offerings while looking to fulfill our order pipeline."

**Anil Joshi, Managing Partner, Unicorn India Ventures, says,** - "We invested in Probus last year and have seen first-hand the impact it is making on the ground. Leveraging IoT to improve electricity distribution and bringing down grid failure rate by giving discoms insights right at the distribution level is cutting edge work. The bridge round being led by Unicorn India is a testimony to our belief in Probus and the change it is pioneering in the utility segment."

For the next 12 months, Probus plans to build strong partnerships with various utilities, System Integrators and meter manufacturers for catering to various AMI (Automatic Metering Infrastructure) and loss reduction opportunities.

The Indian distribution sector is plagued with minimal real-time information of distribution asset performance, outage information and man-power utilization are still not implemented. Digitization of the distribution grid



through IoT enabled technology is the only way forward to drive change. Post COVID, the need for a digital grid has been re-enforced. Various interventions have been planned, both at state and national level to overcome these challenges. Probus, with its agnostic Communications and Data analytics offerings, is helping utilities companies save money in the last mile power distribution.

#### About Probus Smart Things

Probus Smart Things Private Limited is in the business of developing integrated hardware and software solutions for utility providers. Current scope of solutions encompasses asset management, outage management, energy management, operations management and smart metering. It aims to increase the per capita consumption of electricity in India by 10X, which is presently 1/3 of the global average- by reducing the distribution losses in the Indian electricity distribution grid.

#### About Unicorn India Ventures

Unicorn India Ventures is a Mumbai-based early stage fund house started in 2015 by Anil Joshi and Bhaskar

**“This past year, we have been working closely and continuously with our partner utilities to help save them money in distribution networks by leveraging our communications and analytics solutions.”**

Majumdar. The Fund has also launched a UK India cross border fund for funding UK startups looking to enter India and have invested in 7 UK startups. From its first Fund, UIV has invested in 18 companies like Inc42, Sequaretek, Pharmarack, Genrobotics, NeuroEquilibrium, SmartCoin, Open Bank, Open app to name a few. Unicorn India has also announced Fund II, which is a Rs 400 crore fund launched in 2019 which has invested in 8 companies so far.

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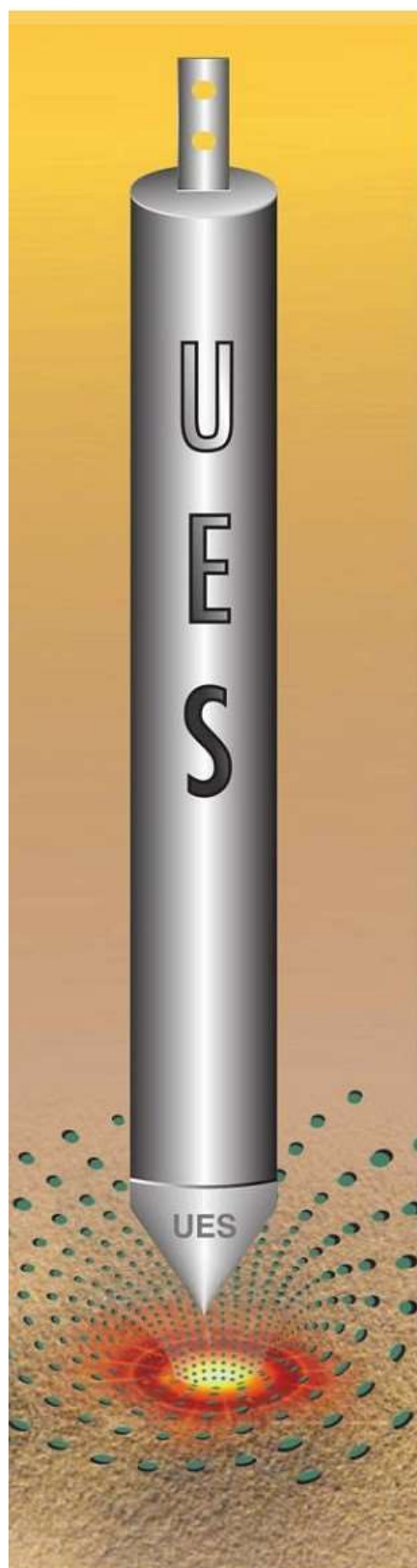
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Established in 1996, the company has a rich experience in the electrical safety industry for more than 25 years and has been constantly striving to implement new technologies through its highly experienced R&D engineering team. We have invested heavy amount and time to develop our international standard “UES” Brand Earthing Electrode and Mineral Filling Compound, to suite electricity users all around the globe.

The company aims to become the front face of electrical safety and will constantly strive to bring in newer and innovative technologies into Indian market.

The Innovative product manufactured by us under the Brand of “UES” bearing the firm name as, UNIVERSAL EARTHING SYSTEMS PRIVATE LIMITED, Chennai.

We are the only Manufacturer and marketer of ‘UES’ Brand Safe Earthing Electrode in G.I., Copper Strips along with Mineral Filling Compound.

Electricity is one of the most wonderful discoveries of the world and, is a foundation for today’s developments and its equipments.

On the contrary, nothing much has been done to protect from the ill effects of electricity, anything in excess to the required amount, proves to be a hazard. Yes!... You would understand that the same electricity which is very useful to mankind when consumed with proper safety

“One of the most important and simplest thing that is required to handle electricity safely is “EARTHING / GROUNDING” as we have said earlier, nothing much has been done to improve the quality of earthing from the past 165 years.”

measures, however proves fatal, when released in large quantity uncontrolled without providing proper safety measures.

No Major breakthrough has been done in inventing a gadget which will properly ‘Earth’ the excessive release of current. Not only high voltage currents, even the gadgets using small voltages of electricity can be harmful if they are properly not grounded.

One of the most important and simplest thing that is required to handle electricity safely is “EARTHING / GROUNDING” as we have said earlier, nothing much has been done to improve the quality of earthing from the past 165 years.

So we are here now with our new innovated product safe Earthing Electrodes and Mineral filling compound “UES” Brand, which is all set to revolutionize the world of earthing.



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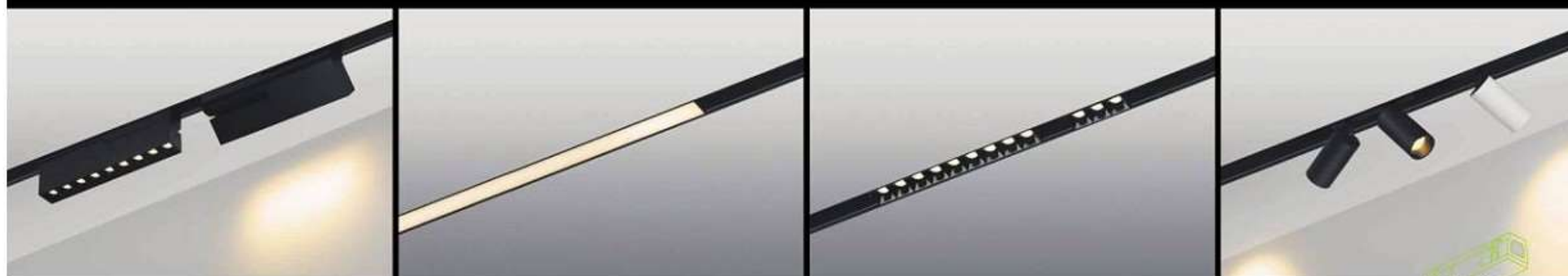
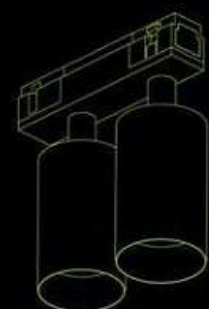


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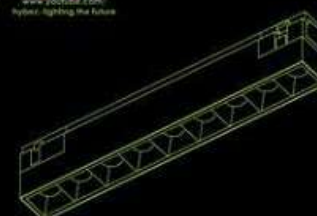


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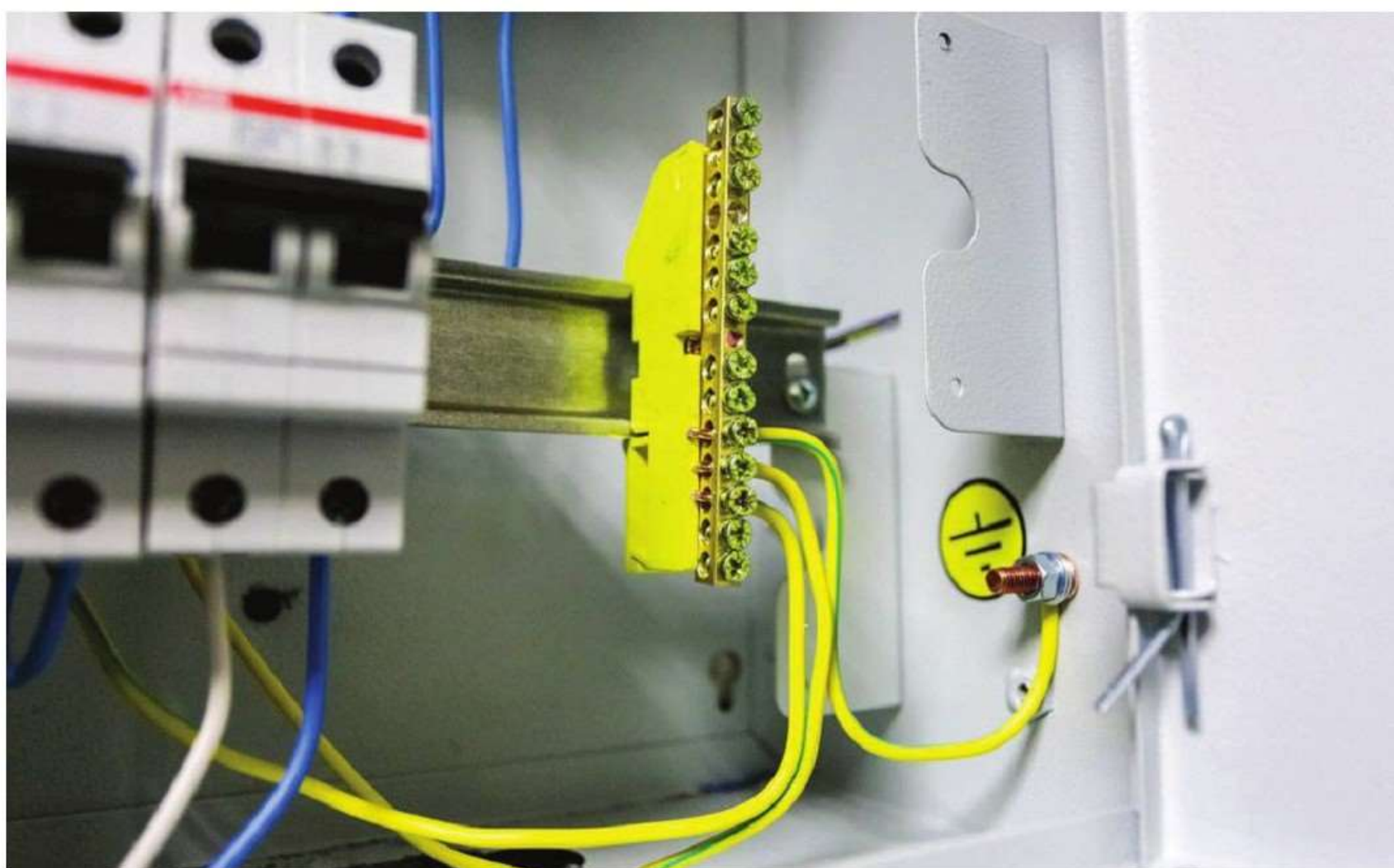




# The New Paradigm Shift in Electrical Earthing & Lightning Protection

***Earthing or grounding is the process of transferring the immediate discharge of electricity directly to the earth plate, by means of low resistance electrical cables or wires.***

*A 2.5 metre deep pit is dug into the ground and a Galvanised Iron (GI) plate is placed inside along with charcoal and sand for the purpose of maintain low resistance around the plate. An earth wire, which is of GI or tinned copper, is bolted to the plate before burying it by means of nuts, bolts and washers.*



## Setting the right basis with foundation and ring earth electrodes

Whether existing or new buildings, a functioning earth-termination system is the prerequisite for protecting people from dangerous high voltages and for the safe operation of electric systems in buildings.

An earth-termination system forms the basis for the proper function of the:

- electric systems (power supply)
- electronic systems (information and data technology)

- functional equipotential bonding
- lightning protection system
- surge protection
- electromagnetic compatibility (EMC)
- antenna earthing.

**Earthing is the main requirement of any building to protect electrical equipment's & shock**

To connect the metallic (conductive) Parts of an Electric appliance or installations to the earth (ground) is called Earthing or Grounding.



In other words, to connect the metallic parts of electric machinery and devices to the earth plate or earth electrode (which is buried in the moisture earth) through a thick conductor wire (which has very low resistance) for safety purpose is known as Earthing or grounding.

To earth or earthing rather, means to connect the part of electrical apparatus such as metallic covering of metals, earth terminal of socket cables, stay wires that do not carry current to the earth. Earthing can be said as the connection of the neutral point of a power supply system to the earth so as to avoid or minimize danger during discharge of electrical

Difference between Earthing, Grounding and Bonding.

Let me clear the confusion among earthing, grounding and bonding.

Earthing and Grounding is the same terms used for earthing. Grounding is the commonly word used for earthing in the North American standards like IEEE, NEC, ANSI and UL etc while, Earthing is used in European, Common wealth countries and Britain standards like IS and IEC etc.

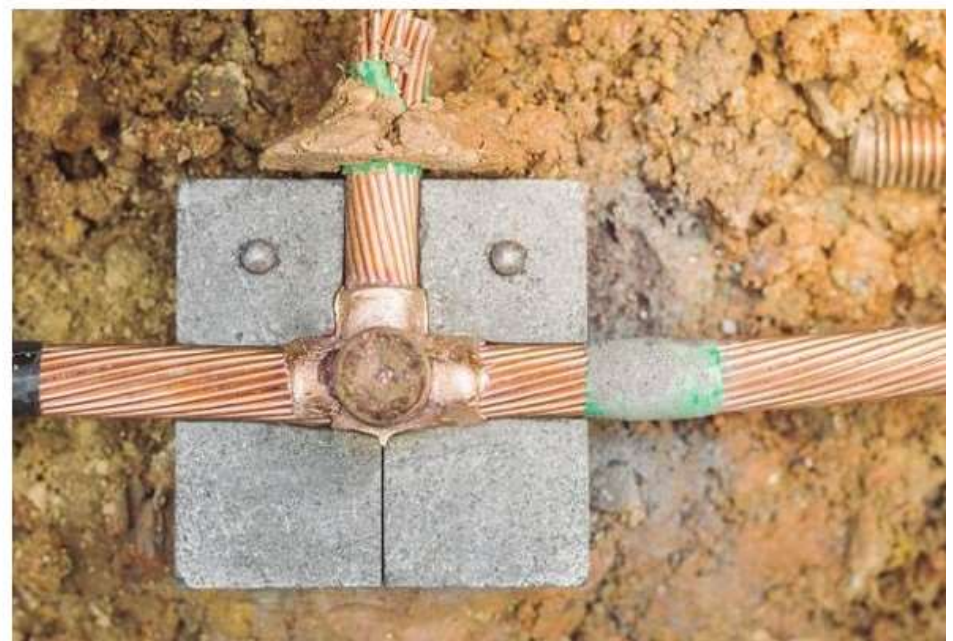
The word Bonding used for jointing two wires (as well as conductors, pipes or appliances together. Bonding is known as connecting the metallic parts of different machines which is not considered to be carrying electric current during normal operation of the machines to bring them at the same level of electric potential.

### Need Of Earthing Or Grounding. Why Earthing Is Important?

The primary purpose of earthing is to avoid or minimize the danger of electrocution, fire due to earth leakage of current through undesired path and to ensure that the potential of a current carrying conductor does not rise with respect to the earth than its designed insulation.

When the metallic part of electrical appliances (parts that can conduct or allow passage of electric current) comes in contact with a live wire, maybe due to failure of installations or failure in cable insulation, the metal become charged and static charge accumulates on it. If a person touches such a charged metal, the result is a severe shock.

If the house is not earthed, **people could get electrocuted**. Without an earth connection, the safety switches will not work and an electrical fault could cause a house or appliances to become 'live' as the current flows to earth. Earth stakes often do not work because: ... the earth stake is corroded or damaged.



“ The word Bonding used for jointing two wires (as well as conductors, pipes or appliances together. Bonding is known as connecting the metallic parts of different machines which is not considered to be carrying electric current during normal operation of the machines to bring them at the same level of electric potential. ”



# Capacitor Market Update and Review

Introduction Power capacitor is basically an electrical device used for improving power factor of the electrical power system when the load is inductive







Most of the industries use induction motors, which results Low power factor in the neighbouring distribution line. This causes big KVAR loss and wastage of energy. Therefore, Improvement of power factor is considered to be one of the important measures of energy conservation. Use of power capacitors improves the power factor of the line to which they are connected and thereby improving power factor for neighbouring industry also. In certain applications, capacitors are used to store energy also, but with limited use. Market Potential Almost all the Electricity authorities have now made compulsory to install L.T. Power Capacitors in the case of all industrial loads. This implies for every induction motor, LT power capacitor is a must. Due to massive rural electrification and use of electric pumps in irrigation and industrial purposes the motor load is increasing day by day. Hence, demand for power capacitors is increasing. At present, there are a number of units manufacturing LT power capacitors. However,

as the demand for this item is ever increasing, there is scope for more units to come up. Basis and Presumptions i) The basis for calculation of production capacity has been taken on single shift basis on 75% efficiency. ii) The maximum capacity utilization on single shift basis for 300 days a year. During first year and second year of operations the capacity utilization is 60% and 80% respectively. The unit is expected to achieve full capacity utilization from the third year onwards.

How electronic components were on the threshold of the next "Gilded Age," and that the future of consumption in mass produced parts would be one of value and not necessarily one of volume; and that the heady days of 11% unit growth per year in support of transitioning electronics to portability, volumetric efficiency and function; were at an end, and that the next phase of demand for capacitors would begin to focus on their value as a dielectric, and their unique ability to hold a lot of energy in a small space.

**Market Potential**  
Almost all the Electricity authorities have now made compulsory to install L.T. Power Capacitors in the case of all industrial loads. This implies for every induction motor, LT power capacitor is a must.



This requires almost two trillion parts to satisfy real-time global printed circuit board production and more than four trillion capacitor body production starts to fulfill on an annual basis

Since the 2017 EDS speech, and as I reported at my presentation at the ECIA Statistics Conference in Atlanta in June 2018, the markets for all surface mount capacitors have exhibited tremendous volatility in the months between May 2017 (EDS Show) and June 2018 (ECIA Atlanta).

The greatest source of the current volatility in the 2018 capacitor supply chain is in the market for multilayered ceramic chip capacitors (MLCC). MLCC are considered the “workhorse” of the electronics industry. They are used in large volumes in all electronic devices to provide energy on demand, decoupling of signals and filtering of noise and you cannot have an electronic circuit without capacitance. MLCC are the product of choice in almost 90% of slot choices requiring faradaic capacitance in the world today. This requires almost two trillion

parts to satisfy real-time global printed circuit board production and more than four trillion capacitor body production starts to fulfill on an annual basis. The human requirement for capacitance, bandwidth and energy density is increasing in accordance with electronic content and functionality, especially in the end-markets for communications and transportation, and this is placing a strain on unit output for MLCC.

### **The Nature of the Current Parts Shortage is Somewhat Three-Dimensional**

Primary sources from Japan, Korea and China had advised me on face-to-face meetings and written discussions in late 2017 that the nature of the shortage in MLCC was based on the lack of available “multi-layered” stacking capacity for ceramics and metals in the world.





Therefore, as logic dictated, MLCC production began to pool in the areas where the market offered the greatest profitability.

This location of perfect volume and value is generally in the higher capacitance MLCC markets, especially in the X7R type MLCC to 22 microfarads and the X5R MLCC to 470 microfarads. In pursuit of these higher priced, more profitable segments of the market, a vacuum was created in the lower layer count segments that had been “abandoned” for their lack of sufficient or even competitive profitability. The value of this “rendered” MLCC segment tripled rapidly, as is shown in the tables in this MarketEYE installment.

Also, recent buying patterns in passives suggest a further discussion of value proposition as design engineers switch references and attempt to cover parts shortages by buying up all the available capacity in alternative surface mount product lines. What is important for the reader to understand is that the OEM customers in the supply chain as well as authorized distributors (and speculators) are buying up parts in specific channels, such as ultra-small case size tantalum chips in the A and sub-A case sizes that overlap high capacitance MLCC, as well as shifts in demand for DC film chips (PET, PPS, PEN) that overlap NPO type (COG) MLCC consumed in clock functions. The showstopper in these trends is that the economies of scale to produce alternatives to MLCC are very, very limited. Production starts for an MLCC manufacturer for example, are hundreds of billions of pieces per month, while production starts for tantalum chips would be tens of millions and production starts for DC film chips would be in the thousands or tens of thousands of pieces. Therefore, the economies of scale are not adequate to fill in any large gaps in MLCC supply.

What is important for the reader to understand is that the OEM customers in the supply chain as well as authorized distributors (and speculators) are buying up parts in specific channels, such as ultra-small case size tantalum chips in the A and sub-A case sizes that overlap high capacitance MLCC, as well as shifts in demand for DC film chips (PET, PPS, PEN) that overlap NPO type (COG) MLCC consumed in clock functions. The showstopper in these trends is that the economies of scale to produce alternatives to MLCC are very, very limited.

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The impact on the tantalum chip capacitor markets is because of the overlap with higher capacitance MLCC which are in short supply.



At press time, and as is shown in the subsequent tables below, we noted that the lead time for RF SMD chip coils also skyrocketed in June. This is because the shortage is truly three-dimensional and the available capacity for ceramic chip inductors, for example, is going to MLCC instead because of the higher price points in 2018 and the greater profitability.

The following support data from the Paumanok Monthly Report on Passive Components shows how the shortage in the MLCC markets is impacting the tantalum chip capacitor markets and the RF ceramic chip inductor markets. The impact on the tantalum chip capacitor markets is because of the overlap with higher capacitance MLCC which are in short supply. The impact on the availability of RF inductors is because the ceramic stacking capacity dedicated to multilayered chip inductors is being channel toward the stacking of MLCC, which are more profitable right now because of their short supply. This process is known as repurposing of existing equipment for a more profitable supply chain.

During the month of June 2018, global lead times for passive components, otherwise known as the time it takes in weeks for a component to leave the factory and reach the customer, began to increase again in accordance with a short-supply of parts, coupled with a move toward the holiday building season for 2018. Paumanok archives reveal for example, that the 2011 parts shortage had been rectified by June 2011, and represents one of the “short-lived parts shortages,” while the 2018 parts shortage has been consistently behaving in a similar fashion as the 2000 and 2001 parts shortage which was clearly related to fundamental availability of parts. In the 2000 and 2001 cycle the parts shortage was more clearly related to a limitation of key raw materials; while the 2018 parts shortage is more clearly associated with a lack



of a clear availability of ceramic stacking techniques.

The lead-time chart for June 2018 shows an increase across the board for all MLCC. This “roaring back” of demand was anticipated as it is seasonal. Of course, this time there is an MLCC shortage that has impacted the high capacitance business, the low capacitance business and is now subsequently spilling over to impact ALL SURFACE MOUNT capacitors to some degree.

We note that in June that even the bulky V-chip aluminum capacitors are increasing their lead times as customers look for ways to provide much needed capacitance by changing reference designs. The use of V-chip aluminum to replace MLCC is possible in certain instances (especially in power supply output filtering) but because of the size difference suggests a technical level of desperation.

The reader should understand that lead times for high capacitance BME MLCC in X5R from 47 to 470 microfarad, and X7R MLCC in the 10 to 22 microfarad range remain the area where the number of available vendors is not adequate. Moreover, vendor movements away from low layer count picofarad type MLCC to pursue more profitable segments of MLCC have left a vacuum in the Y5V space (across the whole Y5V spectrum).





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# Linxon award Kirby Seagreen mechanical and electrical package

**Linxon has awarded Kirby Group Engineering a subcontract for the onshore substation mechanical & electrical installation and building services works as part of the Seagreen Offshore Wind Farm Substation package.**

The works include the installation of the onshore primary and secondary HV power equipment including the super-grid transformers, switchgear, dynamic reactive compensation, shunt reactors, harmonic filters and protection & control systems as part of the Linxon engineered system solution. Utilising its local delivery model, Kirby expects to employ approximately 60 people from the local Angus / Scottish region to deliver these works.

Linxon is supporting Petrofac to deliver the turnkey onshore substation and supply, install and commission the HVAC equipment for the offshore substation of the Seagreen offshore wind farm project. Seagreen 1 is a joint venture between SSE Renewables and TotalEnergies. When complete, Seagreen 1 will be Scotland's largest offshore wind farm, able to provide around 1 million homes with renewable electricity each year. Linxon and Kirby have a long-term relationship, delivering some of the UK's largest electricity substation projects and are exploring opportunities to expand this collaboration across new markets. The two organizations are taking steps to ensure that they are prepared to support developers in UK and Ireland to realise their projects.

"Building upon the works being undertaken on the Seagreen project, we look forward to growing our relationship with Kirby Group Engineering to target key opportunities in target markets", said Derek Duggan, General Manager, Linxon UK & Ireland. "Kirby's M&E installation capability and local knowledge complements Linxon's EPC substation capability and that of our Tier 1 strategic partners."

"Our appointment to the Seagreen project is one which sees Kirby continue to build on its world-class reputation of being a trusted leader in the delivery of high voltage substation installation and commissioning services. Working closely with our client, Linxon, with our aligned values, efforts and goals, we will once again deliver best in class services for the end customer. With this essential piece of infrastructure, we will help build an offshore wind farm that will contribute to Scotland's 2045 net-zero target", said Daniel Greenan – UK & Ireland Business Development Manager, Kirby T&D.



Linxon was incorporated in 2018 by Hitachi ABB Power Grids and SNC-Lavalin to deliver turn-key High Voltage Alternating Current (HVAC) substation projects across the globe. This is complimented by Kirby which has established High Voltage Mechanical & Electrical Installation and Commissioning capability in its native Irish market, the UK and mainland Europe.

## About Seagreen project:

The 1,075MW Seagreen Offshore Wind Farm project is located 27km off the coast of Angus in the North Sea firth. A £3bn joint venture between TotalEnergies (51%) and SSE Renewables (49%), Seagreen will be Scotland's largest and deepest offshore wind farm when complete. The project secured a 15-year CfD contract in 2019, for 454MW. The project reached Final Investment Decision on 3 June 2020 and will built out to 1,075MW capacity (up to 114 turbines). Seagreen will provide enough green energy to power more than 1.6 million homes, equivalent to two-thirds of all Scottish homes. Seagreen will displace over 2 million tonnes of carbon dioxide from electricity generated by fossil fuels every year – similar to removing more than a third of all of Scotland's annual car emissions and making a significant contribution to Scotland's net-zero ambition by 2045\*.



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# HONEYWELL WINS INDUSTRY HONORS AT THE PRESTIGIOUS ZINNOV AWARDS 2021

*Earns 'Great Place to Innovate' and the 'Next Generation Women Leaders' awards in recognition of organizations that are focused on value creation in India*

Honeywell today announced that it won two awards at the 12th Zinnov Awards 2021, including **'Great Place to Innovate'** and **'Next Generation Women Leaders.'** The Zinnov Awards recognize champions of change, visionaries and trailblazers from the Indian technology community.

The **'Great Place to Innovate'** award is a coveted recognition among Indian multinationals and technology companies as it honours organizations that are focused on value creation in India and make concerted efforts across five key areas: organization charter, culture, internal programs and processes, external linkages, and innovation metrics.

Honeywell won for relentlessly driving innovation and technologies developed in response to the pandemic. These solutions were engineered in India, with teams working collaboratively through the lockdown.

The category recognizes women leaders who have excelled at mentoring upcoming talent and serve as an inspiration for the industry. Honeywell's senior director for Human Resources, Dr. Urmi Chatterjee, won for her exemplary work in nurturing I&D and developing the next generation of women leaders. She helps spearhead Honeywell inclusion and diversity (I&D) initiatives in India and globally. At Honeywell, I&D is the foundation of a performance culture that promotes respect, understanding and appreciation of different perspectives, backgrounds and experiences.

"Innovation is a part of our DNA, and the diversity of people and their experiences are our ultimate differentiator. Honeywell's India commitment is evident in three state-of-the-art manufacturing and engineering operations and four global centers of excellence for technology development and innovation," said **Samuel Pratap, President, Honeywell Technology Solutions.** "This recognition is an inspiration to continue pushing the boundaries of technology and develop state-of-the-art products and software that help solve our customers' toughest challenges."

The 12th edition of Zinnov Awards focused exclusively on global centers of excellence in India, especially those whose mettle was tested due to COVID-19.

Honeywell, a Fortune 100 software-industrial leader, has a strong engineering presence in India through Honeywell Technology Solutions (HTS). For more than 25 years, HTS engineers have developed cutting-edge products and solutions

“ This recognition is an inspiration to continue pushing the boundaries of technology and develop state-of-the-art products and software that help solve our customers' toughest challenges.

in aerospace, building technologies, safety and productivity solutions, and performance materials. HTS leverages the country's diverse top engineering and technology talent to support Honeywell's businesses globally.

## About Honeywell Technology Solutions

Honeywell Technology Solutions drives relentless innovation with strong roots across the country. Its strong talent pool delivers futuristic technologies with leadership commitment and purpose-led-approach across a range of industry sectors such as Artificial Intelligence (AI), cybersecurity, Blockchain, Machine Learning (ML) and big data among others. Apart from creating a developed environment for the innovators in the country, Honeywell has also been preparing the future leaders for the workforce.

## About Honeywell India

Honeywell ([www.honeywell.com](http://www.honeywell.com)) is a Fortune 100 technology company that delivers industry-specific solutions that include aerospace products and services; control technologies for buildings and industry; and performance materials globally. Our technologies help everything from aircraft, buildings, manufacturing plants, supply chains, and workers become more connected to make our world smarter, safer, and more sustainable. All of Honeywell's global businesses have a strong legacy in India, built over the last eight decades. Honeywell's India commitment is evident in three state-of-the-art manufacturing and engineering operations, and four global centers of excellence for technology development and innovation. Honeywell employs ~13,000 people across different locations including Bengaluru, Chennai, Dehradun, Gurugram, Hyderabad, Madurai, and Pune





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“K-lite has broken into international markets , progressed tremendously and the company’s turnover has increased by more than four hundred percent under her directorship. In 2017-2018, she went to Dubai and won “Asia One- World’s Greatest Brands” for K-lite’s architectural lighting & poles.”

**Sharmila Kumbhat**  
Director, K-Lite Industries

**Sharmila Kumbhat** , Director , K-Lite Industries, Chennai started her professional career at the early age of sixteen in a grill manufacturing unit “Metal Craft” supporting her father Mr. Dilip Kumbhat. At the age of nineteen she won “Best Female Entrepreneur Award” presented to her by the Chief minister of Tamil Nadu . Later, she studied in U.S., Parsons School of Design in New York. Widely traveled around the world and gained further experience and understanding from different cultures; which continuously influenced her design and business acumen. While living in the United States, she started and ran two very successful export oriented companies Due to her urge to come home in order to be more directly involved in homeland, coupled with the emotional quotient of bringing up her children in India, she joined K-lite in 2011 and within a short span of time, she was able to prove herself, earning title of “Director of New Business Development”. K-lite has broken into

international markets , progressed tremendously and the company’s turnover has increased by more than four hundred percent under her directorship. In 2017-2018, she went to Dubai and won “Asia One- World’s Greatest Brands” for K-lite’s architectural lighting & poles.

In 1977 K-LITE began a long journey of innovation in lighting products, chasing the dream of light. Light allows us to realize the possibilities of our imagination. The quality of light influences the quality of life and it is clear that light must combine technique and emotions contemporaneously, defining new values, meanings, feelings, culture, comfort etc., overcoming the simple light - dark dichotomy. K-Lite, through their innovative outlook, have showcased a whole range of new products under various portfolios. The range is all the more very special because of the light source viz., energy saving, environment friendly “green” lighting with LED. The application with innovative design using LED includes retail lighting, office lighting, consumer luminaires, architectural lighting, facade lighting, pathway lighting, in-ground luminaire, tree-uplighter, up-down lighting, billboard lighting, vertical light bars, wall washers, area lighting poles and above all, street lighting with sleek polar lighting solutions, an instant hit. The creative and innovative designs are there to see for yourselves in our outdoor luminaires.

The range of outdoor luminaires are very popular and extensively used in many prestigious locations throughout the country. Street Lighting at Amritsar Golden Temple Complex, Varanasi City , Chandigarh- Mohali Highway etc., are standing proofs of our outstanding outdoor lighting projects. K-LITE has the expertise to manufacture ‘custom



Varanasi City



built' luminaires. Almost since inception, we are closely associated with the Indian Railways, catering to their wide range of Luminaire requirements. Proximity of Indian Railway's most prestigious Passenger Coach Building Unit, Integral Coach Factory, and our capability to manufacture and test the custom-built luminaires enabled K-Lite to be in the forefront of their developmental activities and cater to the specially designed luminaire requirements of prestigious Rajdhani Express, Shatabdi Express, "Palace on Wheel" EMUs, Jaipur Metro, Delhi Metro, Bangalore Metro and above all the latest Kolkata-Metro and Sri Lankan Metro coaches.

Globally, lighting as an industry is growing at an alarming pace with projected value of around 2000 million USD. The coming decade is going to witness phenomenal changes in the field of lighting. The last decade thrust was energy saving measures, which gave rise to the LED lighting to replace all other conventional lighting. Application of solid state devices as a source of lighting has given way to new concepts in lighting control and automation. In such a context, automation in lighting is a major thrust area for



GMADA Golden Temple, Amritsar

the lighting designers as well as manufacturers/ traders. The order of the day is smart (green) concept in every field viz., smart home, smart city, smart pole, smart lighting, etc., With regard to lighting, Smart lighting technology may include high efficiency fixtures and automated controls that make adjustments based on conditions such as occupancy or daylight availability through Lighting control system with an intelligent networked system of devices. These devices may include relays, occupancy sensors, photocells, light

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# ABB India launches premium range of switches

ABB India is electrifying the country with a smart, safe, and sustainable range of switches as it launches the Millenium and Zenit range



“ABB’s latest Millenium and Zenit switches range is ISI marked offering control, functionality, and comfort to customers in smart buildings and premises that can be easily upgradable with the latest smart home automation solutions. These switches, tailored to both homes and commercial buildings, allow customers to switch from conventional lighting to an eco-efficient intelligent alternative.”

With an increasing number of megacities evolving in India, the demand for space-saving electrical solutions such as easy-to-install, contemporary switches, is rising. The Indian Modular Switch market is expected to be \$ 1 billion by 2022 with CAGR growth of 20%.

ABB’s latest Millenium and Zenit switches range is ISI marked offering control, functionality, and comfort to customers in smart buildings and premises that can be easily upgradable with the latest smart home automation solutions. These switches, tailored to both homes and commercial buildings, allow customers to switch from conventional lighting to an eco-efficient intelligent alternative.

The Zenit and Millenium range of switches will be manufactured in India at ABB’s state of the art Smart Buildings factory in Bengaluru. The factory is one of the first in India to introduce assembly of switches using ABB’s YuMi® cobot, a dual arm collaborative robot designed to work safely alongside humans without the need for fences. The factory has the capacity to manufacture over 1,000,000 switches in a year, owing to the increased efficiency achieved by the application of robotics and automation in the facility.

Kiran Dutt, President, Electrification business, ABB India Ltd, said, “Technological innovation and digitalization are playing an increasingly vital role in accelerating the shift to a low-carbon and eco-efficient economy. Customer needs now go beyond design, as they are also looking for increased functionality and value in all products. ABB’s Millenium and Zenit switches come in a sustainable design, are easy-to-install and suit any type of need, including homes, hotels, offices, and shops, owing to their modular concept. This smart range comprises of light and blind controls, hospitality solutions, international KNX standards for building control, and wireless control applications.”

The new range will also feature ABB-free@home



solutions and the flexibility to combine all essential functions of home automation into a single wireless system. These premium ranges of switches are also compatible with ABB i-bus® KNX, a smart system through which all devices in a building can communicate with one another to ensure seamless and intelligent control of the building for improved comfort, safety, and energy savings.

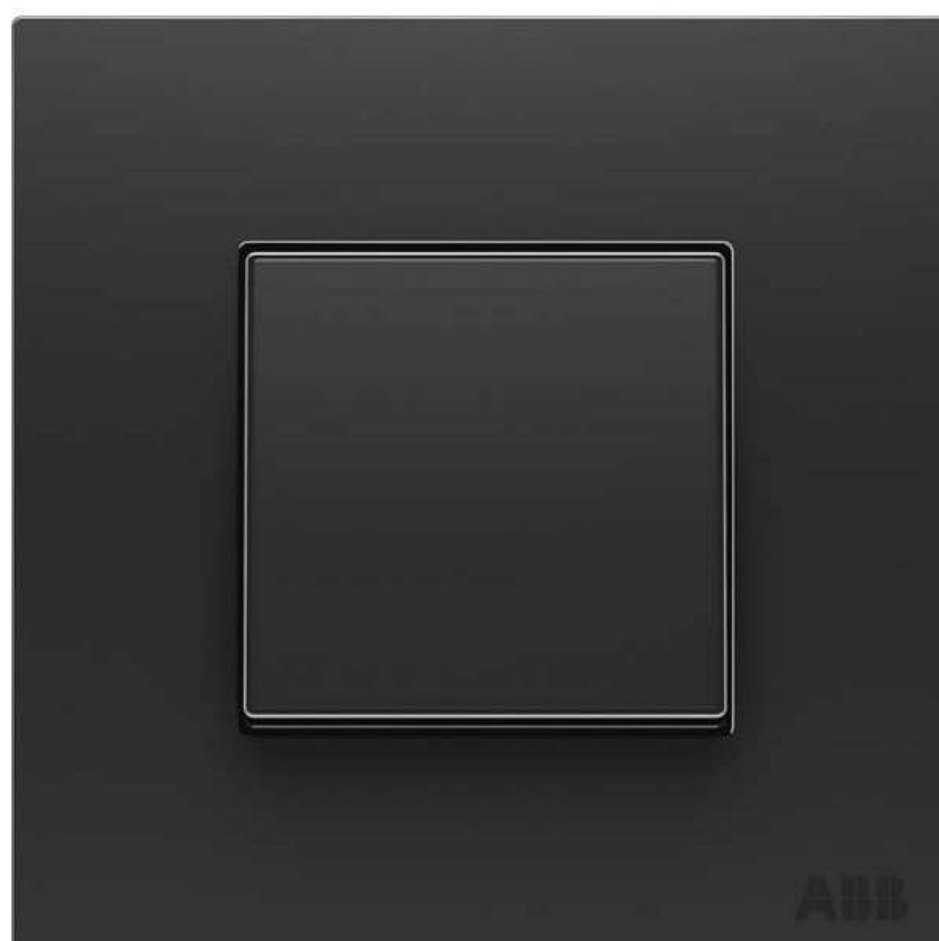
The Millenium series offers an ultra slim design and sleek finish and more than 50 premium functions encompassing building and home automation solutions in the modular range.

Based on LED technology, ABB Millenium switches offer a striking design that also delivers up to 50% reduced energy consumption for the user. They include recyclable packaging options to reduce raw material consumption and have additional features such as access control for hotels and thermostats for building temperature control.

Zenit range of switches are available with additional features like multi-room audio solutions including FM radio and alarm options, and music from any device using Bluetooth. Available in four colors with more than 130 functions, Zenit switches blend into the building environment, are easy to use, energy-efficient, and incur minimal cost when compared to conventional electrical installations. Screwless and metallic mounting grids for conventional systems as well as home automation solutions make Zenit switches stand out and can be installed quickly. From medium-sized businesses to large corporations, Zenit can provide designs in any modern finish offering the best options in office design and space planning.

Both Zenit and Millenium range of switches come with ten years warranty on standard parts and two years warranty\* on electronics.

**ABB** (ABBN: SIX Swiss Ex) is a leading global technology company that energizes the transformation of society and industry to achieve a more productive, sustainable future. By connecting software to its electrification, robotics, automation and motion portfolio, ABB pushes the boundaries of technology to drive performance to new levels. With a history of excellence stretching back more than 130 years, ABB's success is driven by about 105,000 talented employees in over 100 countries.



“Technological innovation and digitalization are playing an increasingly vital role in accelerating the shift to a low-carbon and eco-efficient economy. Customer needs now go beyond design, as they are also looking for increased functionality and value in all products.”

**ABB's Electrification Business Area** is a global leader in electrical products and solutions, operating in more than 100 countries, with over 200 manufacturing sites. Our 55,000+ employees are dedicated to delivering safe, smart and sustainable electrification. With ABB Ability™ enabled digital solutions at its core, our portfolio protects, connects and optimizes the flow of electrical energy, including the integration of renewables and energy storage for smarter electricity distribution for utilities, industry, infrastructure and transportation. For more information visit <https://go.abb/electrification>



**The UK and India are set to launch a global Green Grids Initiative (GGI) at the COP26 climate conference in November.**



**A new renewable energy partnership between India and the UK has opened the door to Indian green energy businesses wishing to establish offices in Britain**



“

The new UK immigration regime which was enacted after Britain left the European Union is particularly geared to attract investors, businesses and individuals with specialisms in engineering, science, IT and tech and the Sole Representative Visa provide a perfect route into the UK market.

”

of governments, financiers, experts and power system operators, to accelerate the construction of the new infrastructure needed for a world powered by clean energy.

Immigration specialist Yash Dubal, Director of London-based AY & J Solicitors, says that the partnership, combined with a new UK immigration system designed to attract global tech, engineering, science and IT expertise to Britain provides an ideal opportunity for any renewable energy businesses in India looking to open an office in the UK. Indian businesses can take advantage of the Sole Representative Visa, which allows representatives of qualifying overseas businesses to live in the UK while establishing a subsidiary office.

Mr Dubal explained: “The GGI partnership is another example of the closer economic and business ties between India and the UK, which is eager to have a full trade deal with India. This climate of collaboration, together with the impetus towards renewable energy investment that will be a theme at COP26, provides a perfect environment for Indian renewable energy pioneers wishing to expand internationally.

“The new UK immigration regime which was enacted after Britain left the European Union is particularly

The UK and India are set to launch a global Green Grids Initiative (GGI) at the COP26 climate conference in November. The international event will be hosted by the UK in Glasgow, Scotland. Last month, as a prelude to the conference, the UK and Indian partnership was showcased at a meeting of the Energy Transition Council, which is made up of 19 countries. The virtual meeting heard how India and the UK are committed to working together on the GGI, which aims to bring together a global coalition





geared to attract investors, businesses and individuals with specialisms in engineering, science, IT and tech and the Sole Representative Visa provide a perfect route into the UK market.”

COP26 President-Designate, and Co-Chair of the Energy Transition Council, Alok Sharma, said: “Through our partnership with India, a country with huge commitments to renewable energy, we will work with international partners to rapidly scale up smart green grids to trade renewable electricity.

“In the build-up to COP26, I want countries to show real ambition on clean energy transition and to harness the power of international collaboration to make this happen.”

Has set itself an ambitious target of having 175 gigawatts (GW) of renewable energy by 2022 and USD 70 billion has been invested in renewable energy across the country in the past seven years. Globally, the country was ranked fifth in wind power, fifth in

“

In the build-up to COP26, I want countries to show real ambition on clean energy transition and to harness the power of international collaboration to make this happen.

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solar power and fourth in renewable power installed capacity, as of 2019.

The 2021 United Nations Climate Change Conference, also known as COP26, is the 26th United Nations Climate Change conference. It is scheduled to be held in the city of Glasgow from 31 October to 12 November 2021 under the presidency of the United Kingdom.



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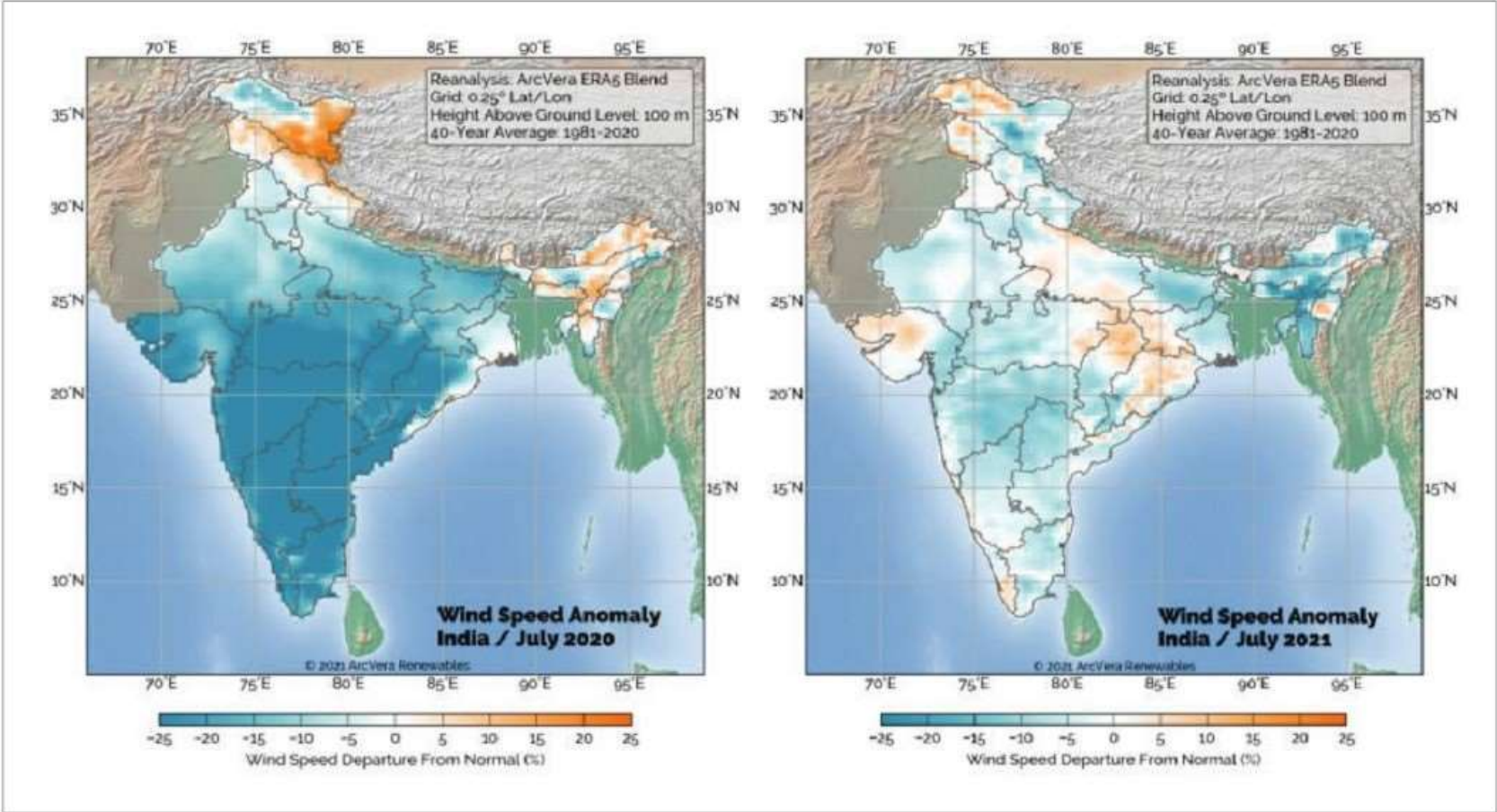
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# ArcVera's analysis shows India's July 2021 monsoon wind energy production's strong rebound from last year's lows



After the shockingly low winds in July 2020, the Indian wind energy market has been on-edge and with good reason regarding July 2021's winds. ArcVera Renewables recently published the July 2021 India Wind Anomaly Map showing Gujarat-based wind farms likely experienced a turnaround, and all other Indian wind-producing states have experienced much better winds in July 2021.

Using just-released anomaly maps for July 2021, ArcVera's anomaly map analysis confirms that July's wind speeds recovered substantially and were above average in some cases. The following July 2020 and July 2021 anomaly map visualizes the improvement in July 2021 (right side) compared to July 2020 (left side):

ArcVera's analysis reviewed each of the Indian states

with significant operational wind projects installed, and the following table provides a breakdown of typical values of the wind speed anomaly in percent (individual site values may differ) for July 2020 and July 2021, demonstrating the vast improvement in July 2021:

"ArcVera Renewables recognized the statistical anomaly represented by the 2020 Southwest Monsoon season in a series of analyses and research studies internally and for proprietary purposes. While it was statistically unlikely that the Southwest Monsoon season of 2020 would be repeated in 2021, our internal long-term climate forecasts, as well as earlier months already documented, bode well for the India wind energy through the remainder of this important season," said Greg Poulos, Ph.D., ArcVera CEO and Principal



INSTALLED CAPACITY (MW)	STATE	2020 - DEVIATION - MIN	2020 - DEVIATION - MAX	2021 - DEVIATION - MIN	2021 - DEVIATION - MAX
9366	Tamil Nadu	-15%	-25%	0%	-10%
8390	Gujarat	-10%	-25%	+10%	-10%
5432	Karnataka	-20%	-25%	0%	-10%
4607	Rajasthan	-5%	-20%	0%	-10%
4461	Andhra	-20%	-25%	0%	-10%
2675	Madhya	-15%	-25%	+5%	-10%

Atmospheric Scientist, “While this recovery does not eliminate the energy production and deep financial sting of July 2020, or indeed the entire Southwest Monsoon season of 2020, ArcVera analysis revealed the Southwest Monsoon’s winds of 2021 are thus far much more favorable for wind energy than last year,” Poulos concluded.

ArcVera, a leading international provider of consulting and technical services for wind, solar, and energy storage projects, provides comprehensive wind and solar resource anomaly maps at the beginning of each month for several countries, including India. The anomaly maps enable wind and solar plant owners and operators to conduct a first-view analysis of the impact of resource variations on the power output of their assets.

“Since the extremely poor wind resource during India’s 2020 monsoon season, my clients were very concerned that climate change was permanently reducing the wind energy value of the monsoon season. The anomaly maps provide a quick way to see today that the 2021 wind resource is much closer to the long-term norm, and this is helping my clients stay focused on longer-term project development,” said Anbalagan CRA Ramasamy, Director of Business Development, Asia-Pacific & Middle East.

The ArcVera Renewables’ maps are freely accessible on the ArcVera website. A new map is posted for the preceding month in the first week of each month, including quarterly and Monsoon-period anomaly maps. Anomaly maps for April, May, and June of

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2021 are also more favorable than 2020. These and all ArcVera Anomaly Maps issued to date may be viewed at [arcvera.com](http://arcvera.com).

About ArcVera Renewables

ArcVera Renewables provides finance-grade consulting and technical services for wind, solar and storage projects worldwide. For the last four decades, ArcVera Renewables is dedicated to delivering next-generation innovation in renewable energy to meet the needs of landowners, project developers, investors, project owners and operators globally. We provide technically sound and accuracy-driven technical services, including prospecting and resource assessment, independent technical and financial engineering, as well as plant optimization, operations and repowering.

For more information, please visit [www.ArcVera.com](http://www.ArcVera.com).



# Birla Carbon announces aspiration of 'Net Zero Carbon Emissions by 2050'

- *A first in the carbon black industry*
- *Aligned to The Paris Agreement along with its customers and suppliers' commitments*
- *4Rs approach – Research, Reduce, Replace, Repurpose*

**Birla Carbon**, one of the leading manufacturers of carbon black globally, has announced its intent to bring down its net carbon emissions to zero by 2050. The announcement is seen as a natural progression in Birla Carbon's leadership in the area of Sustainability and circularity. Birla Carbon recently announced the availability of Sustainable Carbonaceous Materials (SCM) through the launch of its Continua™ brand.

Birla Carbon's net zero announcement aligns with The Paris Agreement, signed as part of the United Nations Framework Convention on climate-change mitigation, adaptation, and finance. It also aligns with the World Business Council for Sustainable Development's Tire Industry Project SDG Roadmap aimed at addressing health and environmental impacts associated with the life cycle impact of tires towards a sustainable future. Within the Aditya Birla Group, Birla Carbon is collaborating with sister companies to develop decarbonization initiatives through the Aditya Birla Science and Technology Center.

Over 160 years of extraordinary innovation in the carbon black industry coupled with decades of focus on achieving Sustainability makes this net zero goal not just aspirational, but achievable. Creating a league of partnerships with leading sustainability solution providers, Birla Carbon is exploring new and advanced technologies that will be used to achieve its goal. Birla Carbon will also reference the Science-Based Target Initiative (SBTi). Over the next 12 months, Birla Carbon will commit to evaluate and release interim targets that are in alignment with the SBTi.

Sharing his thoughts on this announcement, Dr. Santrupt B. Misra, Group Director, Carbon Black; Director, Chemicals and Director, Group HR, Aditya Birla Group, shared, "Climate change is the biggest challenge we face today as a human race, and the burden of it will be carried by our future generations, unless we choose differently. By setting its aspiration to be Net-Zero by 2050, Birla Carbon is making its choice with the rest of the industries that have chosen to

“Climate change is the biggest challenge we face today as a human race, and the burden of it will be carried by our future generations, unless we choose differently. By setting its aspiration to be Net-Zero by 2050, Birla Carbon is making its choice with the rest of the industries that have chosen to step up to the challenge.

step up to the challenge.” He further added, “Sustainability has always been a key driver and a symbol of our success. We will focus on Sustainable Operational Excellence (SOE), combined with sustainable materials for our customers, and many more solutions to make our aspiration a reality in the years to come. Birla Carbon is rooted in its Purpose to – ‘Share the Strength’, and we hope that our peers and the industry at large, recognize our efforts and partner with us. I wish the entire leadership team the very best as they begin this journey.”

Speaking at the announcement, John Loudermilk, Chief Executive Officer, Birla Carbon, said, “All businesses have a responsibility to drive improvements for the global environment; however, only by working hand-in-hand with our customers, suppliers, and partners through the supply chain can we truly build a greener and brighter future.” He further added, “By the nature of our business, we at Birla Carbon have our own carbon stewardship responsibility and we are choosing to lead through bold commitment and industry-first initiatives for a more sustainable tomorrow. Our aim is to constantly innovate and evolve our capabilities



through our purpose, ‘Share the Strength’, to have a positive impact on the ecosystem and society at large.”

Commenting on the announcement, Joe Gaynor, Chief Sustainability Officer, Birla Carbon, said, “As a responsible industry leader, Birla Carbon is fully committed to help mitigate the effects of climate change. For us, it was never a question of if, but when? We already laid the foundation for this commitment, some of which can be seen through our sustainability and circularity efforts over recent years.” He further adds, “The launch of Continua™ 8000, a Sustainable Carbonaceous Material, opened our doors to the possibility of a net zero world. We are confident we will achieve this goal along with our customers.”

Birla Carbon will focus on all three scopes in the measurement, reduction, and offsetting of carbon emissions. A majority of its carbon footprint reduction is expected to come from Scope 1 and 2 based on its direct and indirect emission reduction initiatives. A smaller portion of its reduction will come from scope 3 based on the operations of upstream and downstream industries in the value chain.

Birla Carbon’s goal of net zero carbon emission by 2050 will be achieved by focusing on four over-arching segments. These 4R segments are;

#### **Research** - to discover new ways for the capture and conversion of carbons

A significant part of Birla Carbon’s net zero target will come from future technologies that will capture and convert carbon dioxide into valuable carbon products. Birla Carbon will focus on the investment and development of such technologies and assets.

#### **Reduce** - the dependence on traditional processes in manufacturing

Emphasis on process efficiencies that will convert carbon to carbon black. In addition, Birla Carbon will continue to prioritize energy efficiencies throughout its operations. To date, 80% of its manufacturing facilities are housing co-generation facilities for conversion of waste gases to energy for export to the electrical grid.

#### **Replace** - with alternative energy and feedstock

Some Birla Carbon locations have introduced renewable energy sources to power parts of their facilities; the focus moving forward will be on adding renewable energy solutions towards Leadership in Energy and Environmental Design (LEED) certification.

Birla Carbon is also pursuing the development of new

process technologies that will shift a portion of its production to include alternate feedstocks derived from biomass as a key contributor to net zero.

#### **Repurpose** - carbon solutions for Sustainability through circularity

Through its Continua™ brand, Birla Carbon will lead sustainability and circularity programs at scale, enabling our customers to develop the next generation of sustainable products. For example, Birla Carbon recently announced the availability of low-carbon footprint Sustainable Carbonaceous Materials (SCM) through the launch of its brand Continua™, a game-changer for the industry.

Birla Carbon is in the process of mapping its existing and future technologies. The next steps will be the development of partnerships with customers and suppliers, engage experts, and create long-term associations and programs, including its collaboration within the Aditya Birla Group, to achieve the goal of net zero carbon emissions by 2050.

#### **About Birla Carbon**

Birla Carbon is a leading global supplier of carbon black. As one of the flagship businesses of the leading Indian multinational conglomerate, the Aditya Birla Group, Birla Carbon provides innovative sustainable carbon black solutions that enhance the performance of paints and coatings, inks and toners, plastics, adhesives, sealants, textile fibers, mechanical rubber goods, and tires. The company’s footprint extends across 12 countries with 16 manufacturing facilities and two state-of-the-art technology centers in Marietta (USA) and Taloja (India), providing industry-leading innovation. Its Sustainable Operational Excellence (SOE) strategy focuses on employee safety, environmental stewardship, efficient use of carbon sources, and operating in a socially and ethically responsible manner.

“ All businesses have a responsibility to drive improvements for the global environment; however, only by working hand-in-hand with our customers, suppliers, and partners through the supply chain can we truly build a greener and brighter future.



# Railroad sector: Outstanding award for HARTING Zhuhai

IRIS-Certification / Customer acknowledge quality standards

The railway sector has featured as a key target market for the HARTING Technology Group for years. Now the quality management at the Zhuhai site in China has been awarded the silver level of the IRIS-Certification (International Railway Industry Standard).

Out of the approximately 2,200 participating companies worldwide only 2 % achieve this result. "The certification demonstrates the high-quality standards according to which our products are developed, manufactured and tested, as well as the consistent orientation of our processes to the needs of our customers," says Stephan Middelkamp, General Manager Quality and Technologies.

“ The IRIS Silver-status was introduced only last year. As part of an audit of the integrated management system, this was the first opportunity for HARTING Zhuhai to receive this award.

“The team at our Zhuhai location has done an excellent job.”

## Requirements defined for the quality management systems of railway companies

With the International Railway Industry Standard (IRIS), the Brussels-based Association of the European Railway Industry (UNIFE), is through the International Rail Quality Board (IRQB) in close cooperation with the leading rail operators, system integrators and manufacturers. UNIFE has developed and issued internationally applicable requirements for the quality management systems of railway companies. And what is more, their suppliers of equipment components as well as the relevant engineering service providers can also obtain their own certificates. IRIS is based on the requirements of ISO 9001 and comprises additional railway-specific requirements.

The IRIS Silver-status was introduced only last year. As part of an audit of the integrated management system, this was the first opportunity for HARTING



**Caption:** Silver level of the IRIS-Certification.





**Caption:** The entire team at HARTING Zhuhai in China is delighted with the award.

Zhuhai to receive this award.

HARTING first entered China's market in 1988 and established the Zhuhai manufacturing plant in 1998. Recognising the growing markets demand of the Asia railway market, HARTING has been enhancing the railway services capabilities.

#### **About HARTING:**

The HARTING Technology Group is one of the world's leading providers of industrial connection technology for the three lifelines of Data, Signal and Power and has 14 production plants and 44 sales companies. Moreover, the company also produces retail checkout systems, electromagnetic actuators for automotive and industrial series use, charging equipment for electric vehicles, as well as hardware and software for customers and applications in automation technology, mechanical and plant engineering, robotics and transportation engineering. In the 2019/20 business year, some 5,500 employees generated sales of EUR 759 million.

“The certification demonstrates the high-quality standards according to which our products are developed, manufactured and tested, as well as the consistent orientation of our processes to the needs of our customers,” says Stephan Middelkamp, General Manager Quality and Technologies. “The team at our Zhuhai location has done an excellent job.”



# LANXESS completes acquisition of Emerald Kalama Chemical – Portfolio for industrial applications expanded

- Acquisition strengthens business in specialty chemicals for industrial applications
- Portfolio for the plastics, paint and varnish and adhesives industries significantly expanded



specialty chemicals company LANXESS completed the acquisition of Emerald Kalama Chemical on August 3. The U.S.-based company is a world-leading manufacturer of specialty chemicals. LANXESS signed a purchase agreement on February 14, 2021. All required regulatory approvals have been received. LANXESS financed the purchase price of around USD 1.04 billion (EUR 870 million) from liquid funds.

In 2020, Emerald Kalama Chemical generated global sales of around USD 425 million (EUR 375 million) and EBITDA pre-exceptionals of around USD 90 million (EUR 80 million). Seventy-five percent of sales were attributable to business with specialty products for the consumer care market, especially products for flavors and fragrances, as well as preservatives for use in food, household products and cosmetics. One quarter of sales originated from business with specialty chemicals for industrial applications. With the closing of the transaction, LANXESS grows by around 470 employees and the three production sites in Kalama/

“In 2020, Emerald Kalama Chemical generated global sales of around USD 425 million (EUR 375 million) and EBITDA pre-exceptionals of around USD 90 million (EUR 80 million).”

Washington (USA), Rotterdam (Netherlands) and Widnes (Great Britain).

## Acquisition strengthens portfolio for the plastics, paints and coatings as well as adhesives industries

The second-biggest acquisition in LANXESS's history sees the company expanding its range of specialty chemicals for industrial applications, especially for the plastics, paints and coatings as well as adhesives industries.

One important addition to the new LANXESS portfolio is the K-Flex range of non-phthalate plasticizers and coalescents



for adhesives, coatings, sealants and vinyl applications. K-Flex plasticizers optimize production processes and end product properties. They are highly compatible with polar polymers in water-based adhesive systems and improve film formation in paints and coatings. During the manufacture of PVC articles, the rapid-gelling dibenzoates can help to speed up processing.

“The new products broaden the existing LANXESS range and offers growth opportunities in the area of non-phthalate plasticizers which meet the most modern requirements of the plastics processing industry,” underlines Dr. Thomas Facklam, Head of Global Application Technology in the Polymer Additives business unit.

Other important additions to the overall portfolio for industrial applications include Kalama Vitroflex plasticizers for the manufacture of polysulfide sealants and Modulast modifiers, which were developed for use in reactive polyurethane systems.

Last but not least, benzoic acid, benzaldehyde and benzoate salts supplements the LANXESS offer in future. These are used as intermediates, building blocks and additives in a number of industrial applications, e.g. for the production of esters, alkyd resins or corrosion inhibitors.

Detailed information about the company's products can be found at [www.lanxess.com](http://www.lanxess.com).

Euro figures based on exchange rate EUR/USD = 1.14 (average rate in 2020). The purchase price was converted using current exchange rate EUR/USD = 1.19.

LANXESS is a leading specialty chemicals company with sales of EUR 6.1 billion in 2020. The company currently has about 14,800 employees in 33 countries. The core business of LANXESS is the development, manufacturing and marketing of chemical intermediates, additives, specialty chemicals and plastics. LANXESS is listed in the leading sustainability indices Dow Jones Sustainability Index (DJSI World and Europe) and FTSE4Good.

### Forward-Looking Statements

This company release contains certain forward-looking statements, including assumptions, opinions, expectations and views of the company or cited from third party sources. Various known and unknown risks, uncertainties and other factors could cause the actual results, financial position, development or performance of LANXESS AG to differ materially from the estimations expressed or implied herein. LANXESS AG does not guarantee that the assumptions underlying such forward-looking statements are free from errors, nor does it accept any responsibility for the future



“ The new products broaden the existing LANXESS range and offers growth opportunities in the area of non-phthalate plasticizers which meet the most modern requirements of the plastics processing industry.

accuracy of the opinions expressed in this presentation or the actual occurrence of the forecast developments. No representation or warranty (expressed or implied) is made as to, and no reliance should be placed on, any information, estimates, targets and opinions contained herein, and no liability whatsoever is accepted as to any errors, omissions or misstatements contained herein, and accordingly, no representative of LANXESS AG or any of its affiliated companies or any of such person's officers, directors or employees accepts any liability whatsoever arising directly or indirectly from the use of this document.

### Information for editors:

All LANXESS news releases and their accompanying photos can be found at <http://press.lanxess.com>. Recent photos of the Board of Management and other LANXESS image material are available at <http://photos.lanxess.com>.

You can find further information concerning LANXESS chemistry in our digital magazine “Inside LANXESS” at <http://inside.lanxess.com>.



# Green Homes - New Relevance Amid Environment Alarm Bells

According to a very recent UN Intergovernmental Panel on Climate Change report, global warming will increase the planet's temperatures by as much as 1.5 degrees Celsius in the next 20 years. Indian coastal cities like Mumbai, Chennai, and Kolkata have been put 'on notice', but all our cities will be affected to some or the other extent. The global warming issue is no longer futuristic - it will affect us in our lifetime.

Global warming has several reasons, but they all come down to one major factor - the unsustainable way we build and run our cities, live our lives and exploit the planet without giving enough back.

With the alarm bells ringing loudly, going 'green' is no longer just a buzzword among scientists and politicians. We must all take sustainability very seriously; it has become vitally important for each one of us to live the most eco-friendly life possible.

Real estate developers shoulder a major responsibility. An increasing number of homebuyers are willing to buy 'green' homes, but somebody has to build them. In fact, in the future, developers must only build genuinely green and sustainable habitats - for us today and for the coming generations.

## The Scenario in India

In India, the rate at which we are depleting our natural



**Anil Pharande**  
Chairman, Pharande Spaces

resources is alarming. Most of the buildings being developed here even today are extremely wasteful and environmentally damaging. Globally, regular (read unsustainable) real estate consumes almost 40% of a country's available energy, 30% of its existing natural resources, 20% of its available groundwater, and accounts for 20% of the land use.

Besides using precious water and energy, urban real estate across the world generates 40% of a city's carbon emissions, releases 30% of its solid waste, and adds 20% of its overall water effluents into rivers and seas.

In India, around 70% of the buildings to be completed by 2030 are still only on paper. In the UK, more than 80% of the buildings to be built by 2050 are already completed. With almost 70% of India's building stock still to come up, we are using up natural resources much faster than the developed countries.

We are staring at tremendous environmental damage if things don't change. Indian real estate developers and policymakers must wake up now. The need of the hour is to stop creating environmentally destructive real estate and build more green buildings instead.

No doubt, India's green footprint is slowly rising. From just 20,000 sq. ft. of green built-up area in 2003, today there are more than 6,781 green buildings projects (covering over 7.86 billion sq. ft. area) registered with the Indian Green Building Council (IGBC). Of these total green building projects, 33% are already certified and fully functional.

But is it enough? Not at all. These green buildings represent only 5-7% of the total building stock in the country.

## Reaping 'Green' Benefits

Green buildings have both tangible or intangible benefits. Reduction of water and energy consumption is a tangible benefit - green buildings use anywhere between 20-30% less energy and 30-50% less water.

Some of the intangible benefits are improved air quality, proper ventilation, healthy use of daylight and natural ventilation instead of electrical lighting and cooling, and

“ We are staring at tremendous environmental damage if things don't change. Indian real estate developers and policymakers must wake up now. The need of the hour is to stop creating environmentally destructive real estate and build more green buildings instead.



improved occupants' overall health.

And, equally if not more importantly, they slow down the process of environmental degradation - buying us a few more precious years to stop and reverse the damage we are causing with our real estate, our lifestyles, and our industrial policies.

So, if there are so many benefits to green buildings, why are we not building more of them?

### A Wakeup Call

One reason is the all-around lack of awareness. Indians need to educate themselves about the benefits of living in green homes, and developers need more incentives to build such homes. Such incentives can include (but are not limited to) an easier approval process, making land for green buildings available at lower rates, and providing GST benefits on raw materials used in green buildings.

Homebuyers must also become more aware of the benefits of sustainable living. There is a general perception that the cost of constructing a green building is exorbitant, which means that the cost of homes in such a building is also very high. This is a completely wrong perception.

The cost is just 10-20% higher than for normal homes, depending on the types of materials used and the extent of sustainable features included in the project. This extra cost is easily compensated for in the mid to long run by lower water and electricity bills, lower property taxes (if provided by the local authorities) - and reduced healthcare bills.

The benefits are much higher in integrated townships, where the entire ecosystem is built on and around sustainability principles. Because of the economies of scale, such townships deliver much more green benefits to their residents than smaller projects do.

### What's the Government Doing?

The problem is obviously a national one that involves industrial policies and overall economic decisions. However, land and land use is a state subject - in other words, each state is individually responsible for its environmental impact.

At the local level, some state governments have been pushing certain mandatory rules concerning sustainability. For example, civic bodies like the Pune Municipal Corporation (PMC) and the Pimpri Chinchwad Municipal Corporation (PCMC) have since long made rainwater harvesting provisions and facilities compulsory for standalone buildings and housing societies.

The newer integrated townships have all the required sustainability features, as a matter of course. In all other cases, all new buildings with more or equal to 150 flats need a sewage treatment plant in the project. But more often than not, the installation and operation of green features are not taken seriously.

Even if solar panels, rainwater harvesting, water/sewage



treatment, and natural composting have been set up, many housing societies do not maintain them properly.

### Tackling India's Larger Environmental Challenge

Addressing the sustainability imperative does not end with green buildings. The major task of local governing bodies is to make cities and human settlements more inclusive, resilient, safe, and sustainable in the long run. Already, development authorities like the PMRDA are working to take a greener path by implementing environment-friendly green technologies for infrastructure development. Green infrastructure reaps not only economic benefits but also ecological ones.

In some better-planned Indian cities, transit-oriented development is now the new norm for future urban centers. Thanks to reforms in land-use regulations, developers are given more freedom to construct mixed-use and higher-density developments.

While the government has laid down several rules for maintaining ecological balance, it is also the prerogative of local authorities to check if they are being implemented at the ground level. They need to efficiently weigh the economic impact of a particular project vs. its ecological impact.

India's future cities must be built as per geographical requirements, achieve optimal residential density, integrate transportation and land-use, ensure motor vehicle-free areas, depend more on locally-owned and operated stores, and have walkable neighbourhoods within their urban planning designs.

In simple terms, urban planners must expand on the model of integrated townships and start creating integrated cities. But even before that happens, we can make a difference with how we choose to live.

When more citizens prefer green homes in sustainable projects, the market will respond to the increased demand with more supply. Each one of us can begin to make a positive difference to the environment - today.



# Standby diesel generators: Steps to ensure yours works when you need it most

*As a leading provider of reliable diesel engine power for generating sets, Perkins knows a thing or two about maintaining your standby generator engine, so that it will work when you need it most. Here Pankaj Jha, South Asia general sales manager at Perkins, takes us through some simple steps to keep your standby generator engine in good working order.*

Standby generators play a very important role providing uninterrupted power in mission-critical operations. You will have thought hard before purchasing yours, investing so you are confident your operation—be it a data centre, healthcare facility or residential tower—will continue smoothly, when your main power grid fails.

That shouldn't happen often, but if it does, you need to be sure your standby generator will be ready to kick-in flawlessly. There are a few simple steps you can take to keep your standby generator engine in good working order, so that when you need it, it's there for you.

## General servicing and maintenance

- Service your generator set regularly. If you aren't using the engine very often, it can be tempting to skip services, but this could cause problems later.

Changing engine oil and filters is particularly important if your generator is not in a controlled environment. Dust can impact the engine's operation and condensation can collect in the engine and react with contaminants in used oil.

- Maintain the fuel and fuel supply. It is very important to ensure fuel supply remains fresh and condensation is regularly drained from the fuel tank. It's also important to change the fuel filters as prescribed even if the engine is not being used. Bacterial growth can permeate the fuel system leading to clogged filters which will impact the gensets ability to start when needed.

- Regularly check the batteries and starting system are at full charge and ready when needed. Insufficiently charged batteries is one of the leading reasons backup generators don't start when needed.

**“That shouldn't happen often, but if it does, you need to be sure your standby generator will be ready to kick-in flawlessly. There are a few simple steps you can take to keep your standby generator engine in good working order, so that when you need it, it's there for you.”**

- Top off the cooling and oil reservoirs to leave less room for condensation to collect and cause corrosion.

- Ensure that the start switch is switched back to automatic mode after completing a service. This can avoid a costly no start condition when the genset is needed in an emergency.

- Regularly check the condition of the air filters. Remove any dust or blockages that may have accumulated on the air filter covers due to standby periods.

## Regular testing

- Regularly test the engine, but don't only run it at no or light load.

### ✓ Testing at no load or light load

Operation at no load or light load should be avoided. If your schedule includes weekly or monthly exercising at no load or light load, the operating period should be kept down to minutes, or until the battery charging rate returns to normal.

On engines with light load profiles, we recommend regular oil sample analysis and corresponding oil





changes. This will help detect excessive fuel dilution and general oil deterioration avoiding premature engine component wear.

Contact your local distributor if you experience a failed start/stop event. It's important to complete a thorough check, particularly, inspecting the exhaust system for unburnt fuel and draining accordingly. This should be followed up with a minimum of four hours operation at full load.

#### ✓ **Testing at full load**

It's best to set up a regular programme where you run the generator at full load for a minimum of four hours. This will keep the battery in good working order, burn off any build-up of carbon in the engine and exhaust system and allow your team to practise their processes for switching back to prime power after the generator has been in use. Your generator Operation Maintenance Manual (OMM)

**“Contact your local distributor if you experience a failed start/stop event. It's important to complete a thorough check, particularly, inspecting the exhaust system for unburnt fuel and draining accordingly.”**

should provide guidance on recommended timescales for your specific machine.

Load should be built up gradually from zero over the first hour and the balance completed at full rated load.

For more information on how we can support your power needs visit [www.perkins.com/india](http://www.perkins.com/india) or email [IPSD\\_India@perkins.com](mailto:IPSD_India@perkins.com)



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# Tata Steel pioneers the deployment of Electric Vehicles for transportation of finished steel in the country

- Endeavour to create a responsible supply chain
- First batch of Electric Vehicles (EVs) flagged off at the Company's Pilkhuwa Stockyard in Uttar Pradesh
- Plan to deploy 27 EVs, resulting in GHG footprint reduction by ~3500 tCO<sub>2</sub>e every year

As part of its sustainability initiative, Tata Steel has tied up with an Indian start-up to pursue its aspiration of deploying Electric Vehicles for its steel transport. This endeavour marks the first-ever deployment of Electric Vehicles by any steel producer in the country for transportation of finished steel.

Tata Steel has contracted for 27 EVs, each with a carrying capacity 35 tonnes of steel (minimum capacity). The Company plans to deploy 15 EVs at its Jamshedpur plant and 12 EVs at its Sahibabad plant. The first set of EVs for Tata Steel are being put in operation between Tata Steel BSL's Sahibabad Plant and Pilkhuwa Stockyard in Uttar Pradesh.

At a virtual ceremony organised on July 29, Tata Steel formally flagged-off the loaded vehicle at the Pilkhuwa Stockyard to move to the Sahibabad plant, 38 kms away.

**Dibyendu Bose, Vice President, Supply Chain, Tata Steel,** said: "It is a great occasion for us today as we are launching Electric Vehicles to move steel on the JRD Tata's 117th birth anniversary. This initiative is aimed at reduction of GHG emissions and will help protect the environment in the long run. It was our CEO & MD who gave us the inspiration to go for electric vehicles and contribute towards achieving our sustainability goals. I am glad to see our team's commitment to have made this possible and to find the right partner that has enabled us to deploy EVs in our supply chain. It is the beginning of a new era for Tata Steel and the supply chain division and I wish them all success."

**Peeyush Gupta, Vice President Supply Chain (Designate),** said: "Tata steel has been a pioneer in introducing path-breaking initiatives in the past as well. While we have multiple initiatives focussed on customer service, this is a definitive step towards our commitment to environment. This initiative is also aligned to the Government's larger climate agenda and will surely serve as a cornerstone and a way forward for the industry to follow."

**Sanjiv Paul** congratulated the supply chain division for this momentous achievement and expressed his desire to see in future, an ecosystem which is developed to support the long-distance movement as well.

**Subodh Pandey** shared his thoughts on this new initiative



and remarked that there are many more opportunities and we will all have to work together to make the dream of going green a reality.

The EVs being deployed comprise a 2.2 Ton 230.4 kWh Lithium ion battery pack with a sophisticated cooling system and a battery management system giving it capability to operate at ambient temperatures upto 60 degrees Celsius. The battery pack would be powered by a 160-kWh charger setup which would be able to charge the battery from 0 to 100% in 90 min. With zero tail-pipe emission, each electric vehicle would reduce the GHG footprint by more than 125 tCO<sub>2</sub>e every year.

Tata Steel's vision is to be the global steel industry benchmark in Value Creation and Corporate Citizenship. Sustainable business practices are key enablers to achieving this vision. The "Responsible Supply Chain Policy" of Tata Steel lays down "Environmental Protection" as an integral sustainability principle for all its Supply Chain decisions and processes.

## About Tata Steel

Tata Steel group is among the top global steel companies with an annual crude steel capacity of 34 million tonnes per annum. It is one of the world's most geographically diversified steel producers, with operations and commercial presence across the world. The group recorded a consolidated turnover of US \$21.06 billion in the financial year ending March 31, 2021.



# ABB expands manufacturing capacity for Low Voltage (LV) motors at its Faridabad facility, powered by renewable energy

The expansion will increase plant capacity by more than 20 percent and will further strengthen ABB's presence in the region and global markets. The Faridabad facility has been at the forefront of promoting sustainable practices and is adopting renewable energy usage and improving energy efficiency across the plant.

Expanding its current capacity for manufacturing of low voltage motors, ABB has added a new manufacturing line at its Faridabad plant. The new line will develop energy efficient motors up to 55kW for customers operating in different industrial segments such as F&B, water & wastewater, cement, metals and mining, HVAC, textiles, rubber and others. ABB's LV motors are compactly designed to minimize space and total cost of ownership. Offering greater flexibility to meet specific customer requirements, ABB's LV motors help in operating critical processes with minimum downtime.

"This expansion further reinforces our commitment to the 'Make in India' initiative. The new line will not only meet the growing demands of domestic market, but also help us boost exports to other significant markets like Middle East and Africa. Our state-of-the-art manufacturing facilities will continue to manufacture world-class motors that are reliable and energy efficient," said Sanjeev Arora, President, ABB Motion India.

As roughly 75% of industrial motors are used to run pumps, fans, and compressors, usage of energy efficient motors play a vital role in reducing energy consumption. ABB is manufacturing Super Premium efficiency motors in India that meet the IE4 standard, which specifies energy losses about 15% lower than those delivered by IE3 motors. These motors are robust,



customizable, reliable, and suitable for use in numerous industries and applications, as well as in some of the most demanding conditions.

## State-of-the-art facility focused on sustainability

In an endeavor to enable a low carbon society, ABB is continuously working towards achieving RE100 commitment and reduction of carbon footprint at its Faridabad manufacturing unit. In 2020, the unit contributed to 100% CO2 emission reduction (scope 2 emission) through inhouse solar power generation and purchase of energy attribute certificates (I-REC). Various energy efficiency improvement activities are carried out in line with EP100 commitment such as adoption of energy efficient lighting, high efficiency IE 3/IE4 motors and enhancement of energy efficiency potential of compressors.

In 2020, ABB had launched a new series of high-output motors for its industrial customers in India with compact design, reducing the overall size of equipment and total cost of ownership. Manufactured at ABB's Bengaluru and Faridabad factories, the made-in-India



motors helped in bolstering ABB's presence in the domestic market.

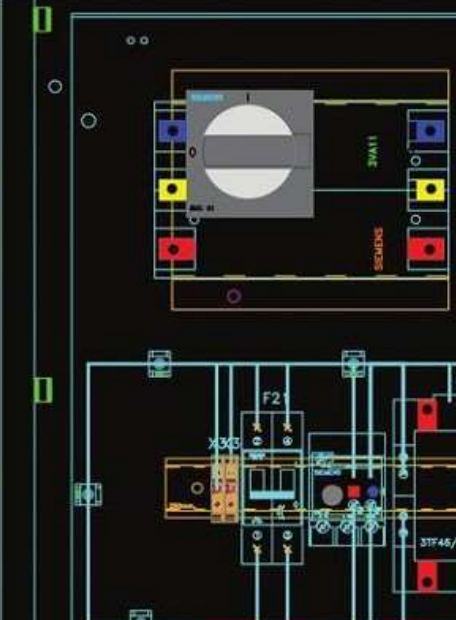
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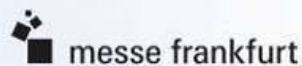
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# India's leading warehousing & logistics show launches India Warehousing Show Digital Week 2021

“In-person events will remain the quintessential way of conducting business across sectors, however, we believe that digital platforms in the near future will play a pivotal role as it offers the prospect of online business opportunities for logistics companies.”

**India Warehousing Show** is gearing up to bring the first digital edition, Digital Week from **6-10 September 2021** - A specially curated week paving way for an online warehousing and logistics community. It is a world class web-based offering a blend of B2B activities such as virtual exhibition, e-conference, product showcase, launches, business matchmaking and Go Connect tool.

In 2021, the way businesses are conducted is evolving and leveraging the power of digital is essential to be competitive and to continue on the growth trajectory.

Digital Week is designed while keeping in mind the present industry needs, it offers booth space for exhibitors along with knowledge based sessions to network, learn, engage, promote, launch, showcase and share insights with their target buyers. In addition, it provides extraordinary benefits such as planning, promoting and following up with one another from anywhere at any time to both presenters and attendees.

**Anuj Mathur, Chief Operating Officer of Reed Exhibitions India**, said: “In-person events will remain the quintessential way of conducting business across sectors, however, we believe that digital platforms in the near future will play a pivotal role as it offers the prospect of online business opportunities for logistics companies.

Going forward, as we embrace digital mediums, we are launching India Warehousing Show Digital Week 2021 to help our customers boost business connections and enhance their brand reach.”

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We look forward to welcoming you at India Warehousing Show Digital Week 2021.

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# Gautam Solar installs solar pumps around 1500 at different locations for farmers in Haryana under the Pradhan Mantri Kusun Yojana

- By May Gautam Solar installed 1000 solar pumps in Haryana.
- Due to good quality of their product and high demand among the farmers, by August, Gautam Solar bagged order of around 1500 more solar pumps from Haryana farmers.

To reduce farmers' reliance on diesel-based generators and make it easier for them to access electricity, Gautam Solar, one of India's leading solar manufacturers, has installed solar pumps of 7.5 and 10 HP capacity at 1500 different locations in Haryana under the Pradhan Mantri Kusun Yojana. The government has set a target of installing 22,000 standalone solar pumps in Haryana within the first year of the scheme.

Gautam Solar is going to be a crucial part of the Pradhan Mantri Kusun Yojana. In May 1000 solar pumps were installed in different locations of Haryana. The farmers who installed the solar pumps were satisfied with how the product performed as it convenient and lessens their dependability on unclean energy. The word of mouth spread and in August 2021 Gautam Solar again got a new project of 1500 solar pumps to install in different locations of Haryana. Gautam Solar has been farmer's first choice wherever they have introduced their product. It reflects the trust they have managed to build among the community.

The scheme was launched by the Ministry of New and Renewable Energy (MNRE) in 2019. It seeks to provide subsidies on solar pumps to the farmers of our country. Under this scheme, the farmers only have to bear 40% of the pump's cost, while the central and state governments subsidize the remaining 60% for solar pumps that have a capacity of up to 10 HP. However, in states like Haryana, the state governments have provided additional top-up on the subsidies, which has reduced the farmer's share to less than 25%. This step has made the scheme more attractive for farmers and could contribute massively to the success of the project. Being the only solar manufacturer in the country that produces all the solar pumps components in-house, Gautam Solar, 2nd largest manufacturer in north India of solar products, can maintain a steady supply as per the demand and serves as a single point of service for the farmers so they do not have to run from vendor to vendor. The management at Gautam Solar firmly believes in the idea of "Aatmanirbhar Bharat" and seeks to

**//** At Gautam Solar, we've always emphasized the importance of spreading eco-consciousness and we believe that for substantial change to occur, we need to start at the grassroots i.e. our farmers. While farmers have been using diesel-based generators for quite some time, they've been doing so because of the lack of options. **//**

reduce India's dependency on countries like China for the procurement of materials that are necessary for production.

"At Gautam Solar, we've always emphasized the importance of spreading eco-consciousness and we believe that for substantial change to occur, we need to start at the grassroots i.e. our farmers. While farmers have been using diesel-based generators for quite some time, they've been doing so because of the lack of options. In practice, diesel-based generators not only cause pollution but are also costly in the long term. This problem will only be compounded in the future as fossil fuel sources are becoming scarce. Pradhan Mantri Kusun Yojana is a wonderful scheme that will catalyze the adoption of solar energy as the primary power source in the rural areas of the country. So far, we've worked with the farmers of Haryana and Rajasthan, who have shown great interest in the new solar technologies and have embraced the change wholeheartedly. We look forward to working with farmers in the other regions of the country as well and help them in their noble pursuit by gearing them with clean, efficient, and cost-effective irrigation equipment," said **Gautam Mohanka, MD, Gautam Solar.**



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# INDEX TO ADVERTISERS

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Company Name	Page no.
Al Earthing	45
Akil Electronics Systems	23
<b>Apar Industries Limited</b>	<b>Back Cover</b>
Atlas Filtration	94
Axis Electrical Components (I) Pvt. Ltd.	5
Cable and Wire Fair Expo	92
Chemie Resin	49
Clariant Power System Limited	61
E2 Forum	88
FLIR Systems	33
Fluke Technologies Pvt. Ltd.	3
Frontier Technologies Pvt Ltd	11
Hammond Power	57
HYBEC	51
Iconic Techno Solutions Pvt. Ltd.	87
Isa Advance Instruments India Pvt. Ltd.	9
Jognics	15
<b>K-Lite Industries</b>	<b>Front Cover Inside</b>
Kusam-meco Import Export Pvt. Ltd.	35
KVTEK Power Systems Private Limited	53
LED Expo	71
Madhav Capacitor	65
Maxwell Scientific Corporation	37
Mecc Alte India Private Limited	1
Multipressings	63
Neo Tele-tronix Pvt. Ltd.	89
Neutronics Manufacturing Company	37

Company Name	Page no.
<b>Next Gen Equipments Private Limited</b>	<b>Back Cover Inside</b>
RPP Engineering & Consulting Pvt. Ltd.	19
S. H. BHOPATKAR	94
Shree Trading Syndicate	63
Sonel Instrument	96
Supreme & Co. Pvt. Ltd.	41
Techno Associate Vidyut	94
Testo India Private Limited	7
Transfield Transformers and Electronics Pvt. Ltd	65
True Power Earthings Private Limited	13
Universal Earthing Systems Pvt Ltd	43
Vishay Components India Pvt. Ltd.	59



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