



UPSavesEnergy

News Letter

UPSDA's Energy Efficiency endeavors towards achieving a Net Zero status for Uttar Pradesh

Quarterly News letter

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Case Study

Uttar Pradesh New and Renewable Energy Development Agency (UPNEDA) under the provisions of the Energy Conservation Act-2001, have been nominated as State Designated Agency to coordinate, regulate and enforce the provision of the Energy Conservation Act-2001 and implement schemes under the said Act within the State of Uttar Pradesh. UPNEDA is working as UPSDA since July 2015.

The 4th Global RE-INVEST Renewable Energy Investors Meet & Expo, organized by the Ministry of New and Renewable Energy (MNRE), Government of India held from 16 – 18 September 2024 at Mahatma Mandir, Gandhinagar, Gujarat, India. The 4th edition of RE-INVEST highlighted India's ambitious commitments and its rising leadership in the global renewable energy transition, from cutting-edge sustainable solutions to breakthrough innovations. The 4th edition of the -

RE-Invest2024 Expo showcased the trends shaping the future of renewable energy. Leading developers, manufacturers, and suppliers came together to display the latest technologies redefining the global energy landscape.

The event unites key players in the renewable energy sector, including government officials, industry leaders, investors, researchers, and policymakers. Financial institutions have pledged \$386 billion towards achieving India's 2030 renewable energy goal. It also features global participation with over 25,000 delegates, 250 international speakers, and 363 companies. At the Pavilion of UP, The Prime Minister applauded the efforts of the Government of Uttar Pradesh for its remarkable work towards achieving renewable energy goals and promoting sustainability.



Vision: To make a long-term commitment to energy efficiency and conservation through harnessing the vast energy saving potential in Uttar Pradesh by exploring all possible pathways for minimizing overall carbon footprints.



Mission: The mission of the UPNEDA as State Designated Agency is to assist in developing policies and strategies with a thrust on self-regulation and market principles, within the overall framework of the Energy Conservation Act, 2001.

Energy Efficiency Programs in UP

Workshop on Scaling-up Energy Efficiency/ Renewable Energy Technologies Implementation in MSME- AGRA Cluster

On 07th Aug 2024, A Workshop on Scaling-up Energy Efficiency/Renewable Energy Technologies Implementation in MSME-Agra Cluster was organised in Agra by PGS Energy .The event aimed to enhance awareness and implementation of energy-efficient practices and technologies among MSME units, particularly within the foundry sector, with a



Workshop on Scaling-up Energy Efficiency/ Renewable Energy in MSME

focus on decarbonization. Key addresses were made by officials from BEE, UPNEDA, and MSME representatives, emphasizing the objectives and benefits of energy-efficient initiatives. Presentations covered best practices in the foundry sector, technology upgrades, and the introduction of the Carbon Credit Trading Scheme (CCTS). The workshop also featured presentations from technology providers and financial institutions, highlighting solutions and support for MSMEs.

Workshop on "Net Zero Roadmap for Micro-Small-Medium Enterprise"

A workshop was held during the meeting of Uttar Pradesh Corrugated Box Manufacturers Association (UPCBMA), on 22nd September 2024 in Ayodhya, focused on promoting lean manufacturing and energy efficiency in the packaging sector. The event included presentations and discussions on several critical topics relevant to sustainable practices for SMEs. The meeting witnessed participation from multiple corrugated box manufacturers across Uttar Pradesh, representing various regions including Kanpur, Varanasi, Moradabad, Lucknow, and Ayodhya. The event concluded with a call to action, urging attendees to actively pursue decarbonization and enhance efficiency in their operations. It also paved the way for future collaborations between UPNEDA and UPCBMA chapters through hand-holding programs and energy audits.



Mr. Ramakant Verma, Energy Auditor (SME Cell, UPSDA), presentation on Net Zero roadmap at UPCBMA meeting held in Ayodhya

Walk through Energy audit of Corrugated Box Manufactured Industry: UPSDA SME team conducted a Walk-through Energy audit of **Mohanah Enterprises** at TalKatora Rd, Lucknow. The objective was to provide actionable recommendations for reducing energy usage, optimizing processes, and promoting sustainable practices for benefits for the enterprise. After the walk through audit a detailed energy audit is proposed.



Webinar- (PAT Cell): Capacity Building of Industries:

The workshop on **Power Quality Issues & Solutions**, held on 29th August 2024 by UPSDA, focused on addressing key challenges such as harmonics, reactive power, load imbalance, and voltage fluctuations. These issues lead to equipment failures, overheating of transformers and cables, increased energy bills, and frequent plant shutdowns. In Phase Power Technologies presented innovative solutions, including active and hybrid harmonic filters, Smart Hybrid Active Filters (SHAF), and



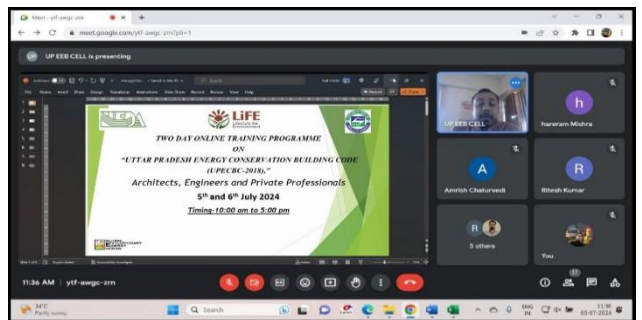
Webinar on Power Quality Issues & Solutions

IGBT-based voltage source converters, emphasizing their effectiveness in maintaining system stability and efficiency. The workshop also highlighted technological trends and InPhase’s achievements in power management across sectors like steel, cement, and automotive. The event concluded with discussions on real-world challenges, offering participants insights into advanced technologies and collaborative opportunities to enhance power quality.

BUILDING ENERGY EFFICIENCY (ECBC): This quarter, the EEB Cell conducted training programs for various Development Authorities and building sector.

Key programs included:

- An online 2 days training program for private stakeholders in the building sector was conducted from 5th to 6th July 2024. The two-day session highlighted the Government of India's ECBC initiatives and their objectives in promoting energy conservation across the country, with 30 participants attending the program.
- A Half-Day online awareness training program organized on dated 16th July and 18th July for the private stakeholders of the building sector, professionals, and students, focusing on the Uttar Pradesh Energy Conservation Building Code-2018 (UPECBC). Highlights were given to the participants about the work which has been done till date in the state of Uttar Pradesh for the effective implementation of Energy Conservation Building Code for Commercial Buildings in Uttar Pradesh.



ECBC Online training Programme



Case Study 1. Implementation of Energy Management System (EMS) at PPGCL

Prayagraj Power Generation Company Limited is a coal-based, 3 x 660 MW, Super Critical Thermal Power Plant located in Bara Tehsil in Prayagraj District, Uttar-Pradesh. PPGCL is committed to contribute to reduction of power shortage in UP as well as India. Major COD milestones are, Unit-I: Feb 2016, Unit-II: Sep 2016 and Unit-III: May 2017. The Annual Gross Generation of the plant in FY 2023-24 was 12699 MUs.

EMS Implementation at PPGCL:

Prayagraj Power Generation Company Limited (PPGCL) implemented an advanced Energy Management System (EMS) in collaboration with Tata Power Trading Company to optimize energy consumption and improve operational efficiency. The EMS integrates real-time monitoring tools, IoT

The multi-layered EMS architecture seamlessly integrates with existing systems like ERP and DCS, providing a comprehensive view of the plant' energy performance. This implementation has enabled PPGCL to reduce operating costs, improve equipment reliability, and meet sustainability goals through better energy management. The EMS positions PPGCL as a leader in energy efficiency, ensuring regulatory compliance while driving operational excellence in the power generation sector.

2.Harmonic Mitigation and Reactive Power Compensation using Smart Hybrid Active Filter (SHAF)- Case study of Telangana (Presented during the Webinar organised by UPSDA)

Mishra Dhatu Nigam Limited, abbreviated as MIDHANI, is a specialized metals and metal alloys manufacturing facility in India, located in Hyderabad, Telangana. MIDHANI is the only producer of Titanium in India. MIDHANI specializes in manufacturing a wide range of superalloys, titanium, special purpose steels.

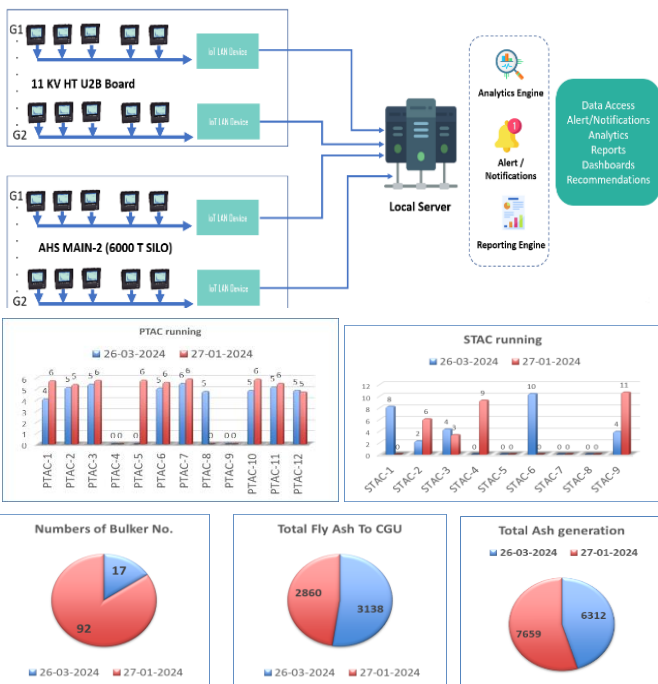
Issues faced by MIDHANI:

Plant has a Hydraulic Press unit with a total rating of 1.5 MW. It is operated using multiple motor each rated around 100kW – 150kW. The press is used to cut and shape the special metals at a very high temperature into desired dimensions as required.

- In a matter of 2-3 secs the load varies from 200kW to 1400kW and back to 200kW.
- Reactive power compensation using Capacitor banks is not possible due switching delay and nature of load.
- Power factor is as low as 0.170 during low load condition and reaches 0.890 during peak load.

Telangana State Electricity Regulatory Commission (TERC) follow kVAH billing methodology.

In-Phase engineers carried out a power quality study at the load to provide the best power quality solution. improve operational efficiency.



Real time Dashboard

gateways, and analytics to track energy usage across 314 energy meters installed throughout the plant. Key features of the system include energy tracking, comparison of consumption patterns, KPI monitoring, predictive maintenance, and custom alerts helping PPGCL to reduce its carbon footprint.



Real Business Results:

As Capacitor banks can only operate in steps and have switching delay, they cannot be used for highly dynamic loads which require response in milliseconds. In Plant

there was a constant requirement of 600 kVAR during normal loading and 1000 kVAR during peak loading condition. In-Phase implemented SHAF (Smart Hybrid Active Filter) which is combination of active and passive technology. SHAF incorporate the advantages of both technologies by offering the fast response of an active filter and cost-effective nature of passive filter.

The rating was split into 50% active

SHAF Applications

- KVAH Billing Reduction
- Dynamic Reactive Power Compensation
- Achieving Unity PF
- Floating Grid PF compensation

SHAF Advantages

- Cost Effective
- High Efficiency
- Less Maintenance
- Monitor From Mobile
- Quick Reaction
- Smoother Voltage
- PF & Harmonics

(720A or 500 kVAR AHF) and 50% passive (500kVAR Capacitor bank).

The same rating and solution is installed at two different transformer to maintain power factor from 0.99 to unity.

Results:

Before:	After:
Low Load condition	Low Load condition
PF = 0.170	PF = 0.994
Peak Load condition	Peak Load condition
PF = 0.890	PF = 0.997

ROI (Investment = 45Lakh & ROI in months = 6) was achieved through savings in reduction of kVA & unit consumed.

**Uttar Pradesh New & Renewable Energy Development Agency
(UPNEDA)**

**उत्तर प्रदेश नवीन एवं नवीकरणीय ऊर्जा विकास अभिकरण
(Department of Additional Sources of Energy)**

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