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# THERMAL ENERGY DECARBONIZATION TED INDIA - 2025

Awake - Arise - Decarbonize:  
Current Landscape and the Road Ahead

25 - 26 September 2025  
Scope Convention Centre - New Delhi

**Organised By**



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## Thermal Energy Decarbonization - 2025

Awake - Arise - Decarbonize: Current Landscape and the Road Ahead

*Exclusive Peer-to-Peer Two Days Conference*

100+

CONFERENCE  
ATTENDEES

25+

EXPERT  
SPEAKERS

10+

TECHNICAL  
SESSIONS

2+

NETWORKING  
LUNCHES

+

EXCLUSIVE  
LEARNINGS

+

OPEN HOUSE  
DISCUSSIONS

As India progresses towards its net-zero emissions goal by 2070, decarbonizing the thermal power sector—currently responsible for over half of the nation's electricity generation—remains a critical challenge. Despite significant strides in renewable energy, coal continues to dominate, necessitating a multifaceted approach to reduce carbon emissions while ensuring energy security.

India's thermal power sector remains the backbone of its electricity system, providing over half of the nation's power supply. However, with the increasing urgency of climate change, decarbonizing this sector has become critical to achieving India's ambitious net-zero carbon emissions target by 2070. The transition towards cleaner, more efficient thermal power generation is not just a technical necessity but a strategic imperative for sustainable economic growth.

India's installed power capacity is approximately 475 GW, with thermal energy contributing about 52%, primarily from coal-fired plants. While renewable energy capacity has surged, coal remains entrenched due to economic and energy security considerations. This dependence results in a carbon intensity of approximately 713 grams CO<sub>2</sub> per kWh — significantly above the global average — underscoring the urgent need for decarbonisation.

As India maintains its position as the fastest growing major economy in the world, its surging electricity demand, expected to rise by 8% this year, reflects the nation's rapid digital transformation and economic expansion. The country's ambitious target of deploying 500 GW of renewable energy showcases its commitment to sustainable growth, having already achieved universal electricity access and added 27.62 GW of renewable energy in 2024-2025.

India's energy transition is driven by a vision for a **sustainable, inclusive future, leveraging clean technologies, decentralized solutions, and strong policies**. While progress is seen in renewable energy scaling, decentralized access, and private sector involvement, challenges like **grid instability, coal dependence, and energy access gaps remain**. By investing in smart grids, energy storage, and innovations like green hydrogen, India can build a more resilient energy system. Prioritizing just transitions for coal-dependent states and improving energy efficiency will ensure broad benefits, supporting both national growth and global sustainability goals.

The **Thermal Energy Decarbonization (TED) India 2025** conference serves as a pivotal platform bringing together policymakers, industry leaders, scientists, and innovators to explore actionable pathways for transforming India's thermal power landscape.



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## Current Landscape: Thermal Power in India

**Installed Capacity** As of March 31, 2025, India's total installed power generation capacity stands at 475.2 GW, with thermal sources (coal, lignite, gas, diesel) accounting for approximately 52% (246.9 GW)

**Electricity Generation** In FY 2024–25, India generated 1,821 billion units (BU) of electricity, marking a 5% year-on-year growth. Thermal power generation, however, saw its slowest growth rate of 2.8% since the COVID-19 period, indicating a gradual shift towards cleaner energy sources

**Coal Dependency** Coal remains the primary source, contributing to three-quarters of the electricity generated in 2023, making India's electricity generation more carbon-intensive (713 grams CO<sub>2</sub> per kWh) than the global average (480 gCO<sub>2</sub>/kWh)

Aging thermal plants with lower efficiencies  
Environmental compliance and pollution control  
Integrating variable renewables with inflexible coal plants  
Limited adoption of carbon capture and utilization technologies  
Financial and technical barriers to retrofitting and modernization

## **CHALLENGES - NEEDS** **A STRONG DELEBERATON**



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## Government Policies and Incentives: Steering the Transition

India's policy landscape for decarbonizing thermal power generation is increasingly aligned with its long-term climate goals, particularly the 2070 net-zero target. Some of the key policy initiatives include:

### National Electricity Plan (NEP) 2023–2027

The NEP provides a clear roadmap for electricity generation capacity addition and highlights a moratorium on new coal-based capacity, except those under construction. It projects that by 2030, non-fossil energy sources will account for nearly 50% of total generation capacity.

### Perform, Achieve and Trade (PAT) Scheme

Under the National Mission on Enhanced Energy Efficiency, the PAT scheme incentivizes thermal power plants to improve their specific energy consumption. Plants that exceed targets earn tradable Energy Saving Certificates (ESCerts), creating a market-based mechanism for energy efficiency.

### Incentives for Energy Storage & Carbon Markets

India's new carbon trading framework (proposed under the Energy Conservation Act Amendment, 2022) lays the foundation for a carbon credit market. Thermal plants with efficient operations and emissions control could benefit through carbon finance and trading incentives.

### Biomass Co-firing Policy

The Ministry of Power has mandated thermal power plants to co-fire biomass pellets up to 5–10% of their fuel mix. A web-based portal (SAMARTH) tracks implementation and procurement, and financial incentives have been proposed for faster adoption. This initiative Reduces reliance on coal, mitigates stubble burning in northern India & Creates rural employment and a circular economy around agricultural waste.

### Renewable Energy Integration Guidelines

Thermal plants are now required to maintain flexibility in operations to support growing renewable penetration. Guidelines have been issued for flexibilizing thermal generation, especially during solar and wind peak hours.



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### Biomass Co-firing and Alternative Fuels

Blending crop residue-based biomass with coal in existing boilers can cut carbon intensity by up to 10% without major retrofits. Some plants have also explored torrefied biomass, refuse-derived fuel (RDF), and carbon-neutral syngas as supplementary fuels.

### Flexible Operation of Coal Plants

Adapting thermal units to operate at partial loads helps integrate variable renewable energy into the grid. This includes digital monitoring systems, automation, and better turbine control to improve efficiency and reduce emissions during low-demand periods.

## Technological Interventions and Industry Initiatives

Decarbonizing thermal power involves retrofitting existing assets, adopting emerging technologies, and modernizing operational practices. Key interventions include:

### Carbon Capture, Utilization and Storage (CCUS)

Pilot projects for post-combustion carbon capture are underway at select thermal units, with CO<sub>2</sub> being reused for industrial applications or geological storage. Future-ready plants are being designed with CCUS retrofitting capability as a baseline.

### Advanced Combustion Technologies

The shift from subcritical to supercritical and ultra-supercritical boiler technologies improves thermal efficiency (from ~33% to 42%), significantly reducing coal consumption and CO<sub>2</sub> emissions per unit of electricity.



### Digitalization and Predictive Maintenance

Use of AI/ML-enabled predictive analytics, condition monitoring systems, and automated combustion control allows for reduced auxiliary consumption, improved heat rate, and early detection of emission spikes.



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## Benefits of Attending TED INDIA - 2025

Unparalleled value for stakeholders seeking to lead India's thermal energy transition

<u>Deep Insights</u>	<u>Technology Showcase</u>	<u>Networking Opportunities</u>
Gain latest updates on government policies, regulations, and incentive schemes driving Decarbonisation.	Explore cutting-edge solutions in biomass co-firing, CCUS, supercritical technology, and digital tools.	Connect with government officials, power sector companies, technology providers, and academia for partnerships and collaborations.
<u>Best Practices and Case Studies</u>	<u>Policy Dialogues</u>	<u>Future Outlook</u>
Learn from successful projects, pilot initiatives, and emerging business models.	Participate in interactive sessions shaping the roadmap for thermal power sector reforms and climate commitments.	Understand investment trends, financing options, and innovation pipelines critical to achieving India's energy and environmental goals.

India's journey towards decarbonizing its thermal power sector is complex but achievable. By leveraging technological advancements, enforcing robust policies, and fostering industry collaboration, India can transition to a cleaner, more sustainable energy landscape, aligning with its commitment to net-zero emissions by 2070.

**TED INDIA - 2025** will catalyse these efforts by fostering cross-sector dialogue and aligning shared visions for a low-carbon future.

Join us at **TED INDIA - 2025** to shape India's path to a cleaner, sustainable thermal power sector — powering growth with responsibility and discuss the Way Forward Strategies for Decarbonization

**Accelerated Renewable Integration:** Enhancing grid infrastructure to accommodate the increasing share of renewables is crucial. Investments in energy storage and smart grid technologies will ensure reliability and efficiency.

**Phasing Out Inefficient Plants:** Decommissioning older, inefficient coal plants and replacing them with cleaner alternatives like SMRs or renewable energy projects will reduce emissions and improve efficiency.

**Financial Mechanisms:** Implementing carbon pricing and providing financial incentives for clean energy projects can drive investment and innovation in the sector.

**Research and Development:** Investing in R&D for advanced technologies like CCS, hydrogen-based fuels, and high-efficiency power generation methods will pave the way for a sustainable energy future.

**Policy Enforcement and Compliance:** Ensuring strict adherence to environmental regulations and timely implementation of mandated technologies like FGD systems is essential for achieving emission reduction targets.

Your Opinions are HEARD...



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## - the AUDIENCE -

**TED INDIA - 2025 is expected to draw participation from executives, managers and decision-makers from:**

- > Government & Policy Makers
- > Central Govt. Agencies
- > State Govt. Agencies
- > Central Regulatory Boards
- > State Regulatory Boards
- > Public Sector Utilities
- > State Sector Utilities
- > Thermal Power Plants
- > Captive Power Plants
- > Energy Technology & R&D Institutions
- > Industry Experts & EPC Companies
- > Investors & Financial Institutions
- > Environmental & Climate Advocates
- > Biomass & Alternate Fuel Supply Chains
- > Technology & Solution Providers



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## Draft AGENDA

Thursday, 25 September 2025

*Day 1– Policy, Market & Strategic Vision*

\*Invited & Confirmation Awaited

*Theme: Setting the Direction for Thermal Transition*

**08:30 - 09:30 - Registration & Welcome Tea**

**09:30 - 10:30 - Inaugural Session**

Shri Manohar Lal - **Hon'ble Cabinet Minister of Power\***

Shri Bhupender Yadav - **Hon'ble Minister for Environment, Forest & Climate Change\***

Shri Pankaj Agarwal - **Secretary Power\***

Shri Tanmay Kumar - **Secretary Minister of Environment, Forest and Climate Change\***

**10:30 – 11:00 Networking Tea Break**

**11:00 - 12:00 - Powering Progress, National Roadmap for Decarbonising Thermal Energy**

Dr Jai Asundi, Executive Director - **CSTEP**

Anuradda Ganesh, MD & CEO - **ARANTREE Consulting Services**

**12:00 - 13:00 - Designing Decarbonisation, the Policies & Regulations for a Cleaner Thermal Future**

A K Saxena, Senior Director, Electricity & Fuels - **TERI**

Manoj Kumar Upadhyay, Deputy Adviser Energy Vertical - **NITI Aayog**

Pankaj Kumar Gupta, General Manager (Energy Transition and Policy Research) & Dipankar Halder AGM (ET&PR) – **NTPC Limited**

Kaushik Hazarika - **Climate & Sustainable Development Strategist**

Niroj Mohanty, MD & CEO - **Core CarbonX Solutions**

**13:00 – 14:00 Networking Lunch Break**

**14:00 - 16:00 - Green Finance for Grey Power, Investing in Decarbonised Thermal Futures**

Nivruti Rai, MD & CEO - **Invest India**

Sandeep Dixit, Director Projects & Executive Board Member – **International Fintech Institute (IFI) GIFT City**

Shantanu Srivastava, Sustainable Finance and Climate Risk Lead - **IEEFA**

Shubhi Goel, Founder & CEO - **Parijata**

Karthik Ganesan, Fellow and Director (Strategic Partnerships) – **CEEW**

**16:00 – 16:30 Networking Tea Break**

**16:30 - 17:30 - Panel Discussion: Charting the Future, Sectoral Leaders on the Next Phase of Thermal Power**

Moderator: Tanya Singhal, Founder & Director - **Mynzo Carbon**

Bijan Mishra, Director SME - ESG & Sustainability - **EHSSaS Digitech**

Pramod Dabrase, Director - **Centre For Sustainable Environment & Development Initiatives (CSEDI)**

Dr. Gyanendra Kumar Attri, Founder & CEO - **SustainAble Solutions**

Umang Pathak, Founder - **ESG Advisory Services**

**17:30 – End of Day 1**



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## **Draft AGENDA**

**Friday, 19 September 2025**

*Day 2 – Technology, Operations & Industry Action*

*Theme: Enabling Clean Thermal Power Systems*

**09:30 - 10:00 - Registration & Welcome Tea**

**09:30 - 11:00 - Smart Thermal, Decarbonizing Heat with Next-Gen Technologies**

Praveen Gupta, Member Thermal - CEA  
Manoj Kumar Singh, Founder & CEO - Net Zero Think  
Tajinder Gupta, Director Power – BHEL\*

**11:00 – 11:30 Networking Tea Break**

**11:30 - 13:00 - Flexible Fuels, Flexible Future, Transforming India's Thermal Fuel Mix**

Satish Upadhyay, ED Fuels – NTPC Limited & Mission Director- SAMARTH  
Deepak Krishnan, Dy. Director Energy Program – WRI  
Nirmal Shaju, Manager Scalable Solutions - Global Energy Alliance for People and Planet (GEAPP)  
Pradeep Panigrahi, Lead Advisor - EDF+Biz India  
Suhas Baxi, CEO - BiofuelCircle

**13:00 – 14:00 Networking Lunch Break**

**14:00 - 16:00 - Powering Without Pollution, CCUS Innovations for Thermal Plants**

Sujay Karmakar, GM (NETRA & GC) – NTPC Limited  
Dr. R J Krupadam, Chief Scientist & Head, Climate Change & Green Materials Division - CSIR-NEERI  
Dr Vikram Vishal, Professor – IIT Mumbai  
Leena Pishe Thomas, Director and Principal Consultant - Global Business Inroads  
Manish Dabkara, CMD - EKI Energy Services Limited

**16:00 – 16:30 Networking Tea Break**

**16:30 - 18:00 – Flexible Thermal, Enabling Grid Stability in a Renewable Future**

Manju Gupta, Dy. COO - Central Transmission Utility of India Limited  
Rajiv Porwal, Director (System Operation) - Grid Controller of India Limited  
Naveen Srivastava, Director (Operations) - Power Grid Corporation of India Limited  
Dr Vedika Agrawal, Head - Renewable Energies Division - Steag Energy Services India Private Limited

**18:00 – End of Day 2 & Conference**



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### **- REGISTRATION PROCESS -**

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To participate as Delegates / be a Speaker submit your online registration

#### **Receive Invoice**

We will email you an digitally signed invoice along with necessary required documents for processing the payment.

#### **Make Payment**

Make online payment via Bank Transfer / Credit Card / Cheque / DD to our postal address.

### **- PARTICIPATION FEE STRUCTURE -**

#### **DELEGATE Registration**



**Indian Delegate:**  
INR 19500 + 18% GST

**Overseas Delegate:**  
USD 250

**Group Discount**  
5% for 3+ Participants  
10% for 7+ Participants

#### **SPEAKER Registration**



**Indian Speaker:**  
INR 29500 + 18% GST

**Overseas Speaker:**  
USD 350

### **WHO TO CONTACT?**

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# Organiser



## The Organisation

Mission Energy Foundation is a persistent, private, not-for-profit endeavour based in Mumbai, India. We are registered under sec 25 (1), 80G & 12AA respectively.

## The Beginning

A single man army with its mission to build platforms of discussion, exchange knowledge among industry professionals on core issues pertaining to growing energy sector.

## GOAL

Mission Energy Foundation is a micro-enterprise initiative that strives to spread knowledge in the globalising energy sector. We educate and spread technology awareness through ongoing contacts and discussions with the public and industry concerning what the future of the growing energy sector should be...

## Today

A human asset working together as one endeavour that expertise in organising and delivering successful international summits involving who's who from Entrepreneurs to Academicians to Government Authorities to Technology Providers to Consultants to Industry Professionals from the growing energy sector globally.

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