

6th EDITION

A VIRTUAL CONFERENCE

O&M OF THERMAL POWER PLANTS

Evolving Requirements and
Emerging Technologies

January 11, 2022



3rd EDITION

A VIRTUAL CONFERENCE

FLEXIBILISATION OF THERMAL POWER PLANTS

Experience, Challenges and
New Technologies

January 12, 2022

Organisers:

**Indian
Infrastructure**

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O&M OF THERMAL POWER PLANTS

Mission

- Coal-based power constitutes a major share of 53.6 per cent in the country's installed capacity mix, but its role is changing at a fast pace with the increasing integration of renewables. These thermal power plants, which were the main source of baseload power in the past, are now expected to play a supportive role to balance the variable renewable energy generation. These changes, coupled with tougher environmental norms and ageing thermal plant fleets, have posed challenges for utilities in terms of efficiency, generation and availability. In addition, the shift to market-based economic despatch is expected to push gencos to further optimise O&M costs. It is, therefore, imperative for gencos to move to the next level of operations and maintenance (O&M) practices to align with emerging trends and requirements.
- Cycling and part-load operation of thermal power plants (TPPs) close to technical minimum levels leads to thermal stress, component deterioration, poor heat rate and increased auxiliary power consumption, resulting in higher opex and outages, and consequent loss of revenue. Improved O&M practices such as real-time asset monitoring, along with data and predictive analytics, can help gencos mitigate these issues and ensure higher efficiency as well as cost savings.
- Utilities can also undertake renovation and modernisation (R&M) of old plants in order to meet the new environmental norms and control emissions. Going forward, the adoption of digital solutions such as condition-based monitoring and preventive maintenance, robotic inspection and AR/VR tools is also expected to pick up to help gencos maintain a competitive edge. Digital solutions can be used to seamlessly track operational parameters effectively and detect deviations to limit unplanned outages. Net, net, generation utilities need to scale up their O&M strategies manyfold in order to ensure sustainable operations in times to come.
- **The mission of this conference is to discuss the challenges being faced by coal-based power plants, and focus on O&M solutions and strategies to improve their reliability amidst the changing sector landscape. The conference will also showcase the best-in-class O&M procedures as well as emerging technologies and solutions for digitalisation.**

Target Audience

- The event is expected to draw participation from executives, managers and decision-makers representing:
 - Coal-based power plants
 - Research and development organisations
 - Technology providers
 - Coal/ash handling equipment providers
 - Other power generators
 - Energy efficiency consultants
 - Regulatory agencies
 - Coal quality analysts
 - Power plant O&M providers
 - Captive power plants
 - Environmental firms
 - Consultancy organisations
 - Boiler manufacturers
 - SEBs and gencos
 - Certification and inspection companies
 - Etc.

AGENDA/STRUCTURE

KEY TRENDS AND OUTLOOK

- ❖ What are the key trends in the coal-based power segment?
- ❖ What are the recent developments?
- ❖ What is the future outlook for the segment?

GENCO PERSPECTIVE

- ❖ What are the key O&M strategies deployed by gencos?
- ❖ What are the major O&M issues and concerns and how are these addressed?
- ❖ What are some of the upcoming technologies and solutions for O&M?

CONDITION-BASED MONITORING AND PREVENTIVE MAINTENANCE

- ❖ What are some of the asset management strategies adopted by gencos?
- ❖ What are the benefits of condition-based monitoring for power plants?
- ❖ What are the potential risks/challenges?

FOCUS ON BTG EQUIPMENT

- ❖ What are the O&M challenges with respect to BTG equipment?
- ❖ What are the technologies and solutions available to address these challenges?
- ❖ What are the best practices in the O&M of BTG equipment?

EMISSION CONTROL AND AQCS

- ❖ What has been the level of compliance with the environmental norms so far?
- ❖ What are the gencos' plans for the installation of FGD and other pollution control equipment?
- ❖ What are the promising AQCS technology options? What has been the experience in their deployment?

WATER MANAGEMENT

- ❖ What are the current water management practices at power plants?
- ❖ What are the new and emerging solutions being explored?
- ❖ What are the biggest issues and concerns? How are they being addressed?

FUEL MANAGEMENT

- ❖ What are the main issues and challenges with respect to fuel management and handling?
- ❖ What are some of the emerging technologies and solutions for addressing these challenges?
- ❖ What has been the experience of gencos in adopting these technologies/solutions?

ASH MANAGEMENT

- ❖ What are the O&M requirements of ash handling systems?
- ❖ What are some of the promising technologies and solutions in this regard?
- ❖ What has been the gencos' experience?

DIGITALISING O&M

- ❖ How can digitalisation aid in the O&M of power plants?
- ❖ What are the most promising digital technologies/solutions deployed by gencos?
- ❖ What is the outlook for the adoption of these technologies (robotics, AR/VR, etc.)?

AGEING TPPs AND FOCUS ON R&M

- ❖ What are the key R&M and life extension (LE) measures? What are their benefits?
- ❖ How has the uptake of these solutions by gencos been?
- ❖ What is the future outlook?

FLEXIBILISATION OF THERMAL POWER PLANTS

Mission

- Flexibilisation of thermal power plants (TPPs) is crucial to maintain grid stability in the emerging high renewables scenario. With renewables projected to meet 50 per cent of the country's energy requirements by 2030 as announced by the prime minister at COP 26, coal-based power plants need to operate flexibly in order to balance fluctuations in generation. This would require active measures by gencos to increase their ramping capabilities, reduce minimum loads as well as minimise start-up time - all while maintaining optimal operations. The implementation of market-based economic despatch (MBED) would further push gencos to flex as per market requirements.

In order to successfully transition to a flexible regime, it is imperative for gencos to modify O&M procedures, upgrade control and instrumentation as well as undertake mechanical retrofits. However, it must be noted that there is no "one size fits all" approach to achieve flexibilisation and processes need to be customised as per the unit's age, make, design, etc. Some common flexibilisation measures include optimisation of burners, reduced mill operation, application of advanced process control and predictive analytics, enhanced digitalisation for boiler and turbine feed monitoring.

Gencos need to undertake techno-economic analysis as certain measures and technologies can entail significant capex, while others may be carried out through minor modifications. In addition, the increased operational expenditure on account of a higher heat rate, wear and tear of components due to cycling, and oil consumption for frequent start-ups also need to be factored in. However, given the complicated cost-benefit matrix, there is reluctance among utilities to invest in flexibilisation measures. The regulators, therefore, need to devise an appropriate framework that incentivises flexibilisation as it will help in creating synergies between conventional and renewable energy sources in the years to come.

The mission of this conference is to highlight the needs and requirements for flexibilisation of thermal power plants, examine the risks of cycling and low-load operations, showcase promising technologies and solutions for flexibilisation, and discuss the challenges and the way forward.

Target Audience

- The conference is targeted at officials and managers from
 - Power plants (coal, gas, hydroelectric, nuclear, biomass)
 - Captive power plants
 - Technology providers
 - Solar and wind power developers
 - Equipment manufacturers (boilers, turbines, controls, auxiliary systems, etc.)
 - State-owned gencos
 - Research and development organisations
 - Engineering consultants
 - Energy efficiency consultants
 - Power plant operations and maintenance providers
 - Regulatory agencies
 - Certification and inspection companies
 - IPPs
 - Etc.

AGENDA/STRUCTURE

NEEDS AND REQUIREMENTS

- ❖ What is the nature and magnitude of flexibilisation requirements?
- ❖ What are the key challenges?
- ❖ What is the impact of flexibilisation on gencos?

FLEXIBILISATION STRATEGIES

- ❖ What are the drivers for improving flexibility in coal-based power plants?
- ❖ What are the upgrades required to facilitate frequent starts, stops and load ramps?
- ❖ What has been the gencos' experience so far?

POLICY PERSPECTIVE

- ❖ What is the government's perspective on flexibilisation of TPPs?
- ❖ What are some of the special dispensations needed to promote flexibilisation?
- ❖ What are some of key policy changes that can be expected in this regard?

GENCOS' PERSPECTIVE

- ❖ What has been the gencos' experience in operating baseload plants in flexible mode?
- ❖ What are the solutions and strategies being used to ensure flexible operations?
- ❖ What is the future outlook?

FOCUS ON GAS-BASED POWER PLANTS

- ❖ What are the costs and benefits of flexibilising gas-based power plants?
- ❖ What are the changes required in plant design and configuration?
- ❖ What are the issues and challenges?

IMPACT ON COSTS AND TARIFFS

- ❖ What is the impact of flexibilisation on O&M and generation costs?
- ❖ What is the capex of common flexibilisation measures/solutions?
- ❖ What is the future outlook?

DIGITALISATION AND AUTOMATION INITIATIVES

- ❖ What are the automation requirements for flexibilisation of TPPs?
- ❖ What are some of the key digital solutions/technologies in this regard?
- ❖ What are the issues and challenges? What is the future outlook?

TECHNOLOGY SHOWCASE

- ❖ What are the upcoming technologies, solutions and best practices for flexibilisation?
- ❖ What are the new and emerging requirements of utilities?
- ❖ What have been the biggest challenges? How are they being addressed?

What differentiates our conferences?

- The **agenda** is developed by our researchers, who track the sector round the year. It is thus **relevant** and **topical**. It is not driven by a particular organisation and does not have a particular slant.
- The **speakers** are **professionals** and **experts** involved in the sector, not a mix of ambassadors, ministers, celebrities and business owners.
- The conferences do not just comprise panels and speeches; they provide a good mix of **expert presentations** and **case histories**, and of course **panel discussions**.
- We have **representation** from **across the country**, as is the case at our physical conferences too.
- Each **stakeholder group** – **policymakers**, **developers**, **financiers**, **consultants** and **relevant NGOs** – is represented at our conferences.
- The moderators merely ask the questions. The **stars** are the **speakers** themselves.
- The **sessions begin and end on time**.
- There is adequate time for a **Q&A session** with **each speaker**. These are not “hit and run” speeches.
- The **delegates** are **professionals** who are vested in the sector, and are not just assembled through social media.
- A **recap** of the conference is also made available to reinforce the key takeaways.

Previous Participants:

ABB, Accenture, Adani Mining, Adani Power, Adani Power Rajasthan, Aries Power Systems, BASF, Bevcon Wayors, Bharat Forge Limited, BHEL, Black & Veatch, BMW Steels, Bosch, BPCL, BSBK Engineering, Bureau of Energy Efficiency, Busch Vacuum, C-FARM, Calderys India Refractories, Carbon Process & Plant Engineering S.A., Central Mine Planning & Design Institute, Central Water Commission, Centre For Fly Ash Research & Management, CESC, Chemical Process Equipments, Chemical Process Piping, Clyde Pumps, Coastal Gujarat Power, CRI Pumps, CRISIL, CSIR-National Environmental Engineering Research Institute, Dalmia Bharat Cement, DCW, Doosan Power Systems, Driplex, EagleBurgmann India, EIL, Emerson, Emta Coal, EPLAN Software & Services, Essar Power, Essar Power Gujarat, Essel Mining & Industries, EVIO, FLSmidth Private Limited, Forbes Marshall, GE, GSECL, Gujarat State Electricity Corporation, Gulbarga Power, Guru Nanak Dev Thermal Plant, Haryana PCB, Haryana Power Generation Corporation, IDE Technologies, IFC, Indian Hume Pipes, Indian Metals & Ferro Alloys, Ion Exchange, ISGEC Heavy Engineering, Jain Irrigation, Jash Engineering, Jenissi Management Consultants, Jindal Power, Jindal Steel & Power, JK Tyre & Industries, JSW Energy, KEPCO Plant Service & Engineering, Kirloskar Pumps Limited, Kohler, KPCL, KSB Pumps, L&T-MHPS, L&T Construction, L&T Power, L&T Valves, L&T-Sargent & Lundy, Lalitpur Power Generation (Bajaj Group), Lanco Amarkantak Power, Lara Global, Larsen & Toubro Power Development, M.P. Power Generating Company, Macawber Beekay, Maco Corporation, Magnetic Autocontrol, MAHAGENCO, Maharashtra State Power Generation, Mahavir Beneficiation, McNally Bharat, McNally Bharat Engineering Company, Meenakshi Energy, Metso India Private Limited, MGM Energy, NALCO Water, Nevco Engineers, Neyveli Lignite, NJS, NPCC, NPTI, NTPC, Nuclear Power Corporation, ONGC, Organica Water, Orient Cement, Panalytical India, PCP International, Perma Pure, Petro Carbon-Atha Group, Praj, PSPCL, Punjab State Power Corporation, Rattan India Power, Reliance Infrastructure, Rockwell Automation, Runh Power Corp, Schneider Electric India, Sesa Sterlite, SFC Environmental Technologies, SKF, Spectris Technologies, SRF, Steag Energy, Sumitomo Corporation, Sunrise Polymers, Talwandi Sabo Power, Tata Power, Tata Projects, Tata Steel, Techmark Engineers & Consultants, Technofab Engineering, Technofab Systems, Tega Industries, Tenova India, Tenovo, Teyma India - Abengoa, The Energy and Resources Institute, Thermax, Thermax Global, Thriveni Earthmovers, TIL, Timken, Torrent Power, Turbine Generators, UJVN, UPRUVNL, VA Tech WABAG, VAG-Valves, Vedanta, Vicat Sagar, Virginia Mining Resources, Voltas, Water Health, Weir Minerals, Western Coalfields, Wipro, Wipro Water, etc.

Organisers

The conference is being organised by **India Infrastructure Publishing**, the leading provider of information on infrastructure sectors through magazines, newsletters, reports and conferences. The company publishes **Power Line** (India's premier power magazine) and **Renewable Watch** (covers the entire spectrum of renewable energy), **Power News** (a weekly newsletter), and a series of research reports on the energy sector including **Electricity Market in India**, **Coal-based Power Generation in India**, **Solar Power in India**, **Power Equipment Market in India**, **Gas in India** and **Wind Power in India**. It also publishes the **Power Directory and Yearbook**.

REGISTRATION FORM

- I would like to register for the “O&M OF THERMAL POWER PLANTS “ conference (January 11, 2022)
- I would like to register for the “FLEXIBILISATION OF THERMAL POWER PLANTS” conference (January 12, 2022)
- I would like to register for **both the conferences**

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Both conferences

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1 Login	12,000	2,160	14,160	203
2 – 3 Logins	18,000	3,240	21,240	304
4 – 5 Logins	24,000	4,320	28,320	405
6 – 9 Logins	30,000	5,400	35,400	506
10 - 20 Logins	36,000	6,480	42,480	607

Any one conference

	INR	GST@18%	Total INR	Total USD
1 Login	7,000	1,260	8,260	116
2–3 Logins	12,000	2,160	14,160	203
4–5 Logins	17,000	3,060	20,060	287
6–9 Logins	22,000	3,960	25,960	371
10 - 20 Logins	27,000	4,860	31,860	456

- There is a 20 per cent discount before December 21, 2021.
- GST @18 per cent is applicable on the registration fee.
- Registration will be confirmed on receipt of the payment.

Payment Policy:

- Full payment must be received prior to the conference.
- Payments for “early bird” registrations should come in before the last date of discount. Discount offers cannot be combined with any other offer.
- Conference fees cannot be substituted for any other product or service being extended by India Infrastructure Publishing Pvt. Ltd.

For sponsorship and delegate registrations, contact:

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