5th Edition

FLUE GAS DESULPHURISATION SYSTEMS

A VIRTUAL CONFERENCE

August 24, 2021

Co-sponsors so far*:

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3rd Edition

AIR QUALITY CONTROL SYSTEMS

Technology Options, Emission Compliance Status and Outlook

A VIRTUAL CONFERENCE

August 25, 2021

Co-sponsor so far*:

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Indian Infrastructure

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FLUE GAS DESULPHURISATION SYSTEMS

Mission

- With the tightening of emission control regulations, flue gas desulphurisation (FGD) has emerged as a must-have technology for the thermal power industry to control SOx emissions.
- To recall, the revised regulations brought out by the MoEFCC required thermal power plants to cut SOx emissions by December 2022, with permitted emission levels varying with the age of the generation unit (older units were allowed higher emissions than newer ones).
- FGD systems are targeted to be installed in 448 thermal units in India, aggregating over 169 GW. In the National Capital Region, flue gas desulphurisation has been planned for 12.7 GW of thermal capacity.
- However, against these targets, progress in compliance has been slow as of February 2021, as only six units totalling 2,160 MW (just about 1 per cent of the targeted capacity) have commissioned FGDs. FGD tenders have been issued for 131 GW of capacity. However, bids have been awarded for only 68.6 GW of capacity. Of the 11 plants located in Delhi-NCR that were to install FGDs by December 2019, only one has been able to do so.
- The time required for the implementation of FGD units is a key challenge for developers with about 30 months required to commission FGD after obtaining regulatory and financing clarity.
- Further, there are systemic issues such as a limited number of vendors and sub-vendors globally to supply FGDs and import restrictions, which have delayed implementation. Further, as per the revised domestic content requirement for FGD systems, only 20 per cent of content can be imported instead of the previous 30 per cent.
- Moreover, there are several financial challenges facing developers. With an average price of Rs 5.5 million per MW, the capex requirement for installing an FGD (for 170 GW of existing thermal capacity, 10 GW of commissioned capacity after the preparation of the phasing plan, and 58 GW of under-construction capacity) is estimated at around Rs 131 trillion. The private plants, in particular, face funding issues, which have stressed their balance sheets.
- The availability of quality limestone and its long-distance transportation cost of the raw material is also a challenge. Further, unutilised gypsum, the waste produced from FGD plants, is a concern area.
- To resolve these issues, the thermal power industry has been seeking an extension in timelines beyond 2022. The MoP has sought a two-year extension of the current deadline for compliance with emission norms.
- **The mission of this conference is to provide a platform to discuss the genco experience, plans as well as the issues and challenges associated with FGD implementation. It will also showcase industry best practices and the latest and promising technology solutions.**

Target Audience

- The event is expected to draw participation from executives, managers and decision-makers from:

- Power plants
- State gencos
- FGD technology providers
- Pollution control boards
- Government and regulatory agencies
- Consultancies
- Other industrial plants
- Research and development organisations
- Environmental firms
- Etc.

AGENDA/STRUCTURE

KEY TRENDS AND OUTLOOK
- What is the current level of SOx emissions at coal-based power plants?
- What is the coal-based capacity affected by the revised SOx norms?
- What are the key issues and challenges? What is the future outlook?

GOVERNMENT PERSPECTIVE
- What is the government's perspective on FGD implementation by TPPs?
- What are the key issues and concerns? What are the steps being taken to address these?
- What is the way forward for expediting implementation?

NTPC's PERSPECTIVE
- What has been NTPC's experience in FGD implementation?
- What are the plans and targets going forward?
- What are the key issues and concerns?

MANUFACTURER'S PERSPECTIVE
- What is the perspective of equipment and technology providers on the FGD market?
- What are their key issues and concerns?
- What are the new and promising FGD technology options most suitable for Indian power utilities?

GENCO PERSPECTIVE
- What has been the experience of state gencos in FGD implementation?
- What are the plans and targets going forward?
- What are the key issues and concerns?

FOCUS ON FGD TECHNOLOGIES
- What are the various FGD technology options?
- How do they compare in terms of costs and SOx removal efficiency?
- What are the key factors to be considered in technology selection?

SPOTLIGHT ON WET FGD TECHNOLOGY
- What are the key advantages and features of wet FGD technology?
- What are the SOx removal efficiencies of these technologies?
- What is their suitability in the Indian context?

COST ECONOMICS, TARIFF IMPACT AND SCHEDULING
- What is the impact of FGD installation on costs and tariffs?
- What has been the stance of regulatory and lenders on the recovery of these expenditures?
- What are the issues and challenges involved in implementation?

FGD WASTEWATER TREATMENT
- What are the strategies for the treatment of wastewater from FGDs?
- What are the issues and concerns?
- What are the new and promising solutions?

Previous Participants

The previous participants in our related conferences include ***Aditya Birla Management Corporation, ADJ Engineering, Aerzen Machines India, AkzoNobel India, Amines & Plasticizers, ArudraEngineers, Balkrishna Industries, Banyan Tree Advisors, Beijing SPC Environment, Bharat Heavy Electricals, BMW Steels, Bray Controls, BTL EPC, Busch Vacuum, Bygging India, Carbon Process & Plant Engineering S.A., Center for Fly Ash Research & Management, Central Electricity Authority, Chemical Process Equipments, Chemical Process Piping,Chhattisgarh State Power Generation Co., Chhattisgarh State Power Generation Company, CLP India, Coastal Gujarat Power, Cottagon S.A., CSIR-National Environmental Engineering Research Institute, Damodar Valley Corporation, DB Power, Demech Chemical Products, Eagle Burgmann India, Edelweiss Asset Reconstruction Company, Edwards Vacuum, Elara Capital, Emerson, Environnement SA India, Ferbeck International, FLSmidth, Forbes Marshall, Furnace Fabrica (India), GSECL, H2L-Vedanta, Haryana Power Generation Corporation,HEG, Hindustan Petroleum Corporation, Hindustan Zinc, HPGCL, ICRA, Indiana Conveyers, International College of Financial Planning, IOCL, Jaiprakash Associates, Jaypee Power Projects (Jai Prakash Power Ventures), Jindal Power, JK Cement, J.K. White Cement Works Division, Kepco Plant Service &Engg, KSB Pumps, Lubrizol Advanced Materials, Maco Corporation (India), Maharashtra State Power Generation Co. Ltd, Maithon Power, Mascot Capital & Marketing, MEG, Ministry of Power, MSEB Holding Company, Multi-Act Equity Consultancy, Munters India, Nabha Power Limited, National Fertilizers, Nevco Engineers, NLC India Limited, NTPC, Odisha Electricity Regulatory Commission, Organo Corporation, Oriental EPC, Outokumpu India Private, Paramount, Petro Carbon-Atha Group, Praj Industries, PTPS, Reliance Jamnagar, RRVVNL, Rudis, Sangir Plastics, Securities Investment Management, Sick India, Siemens, Simona India, SKI Carbon Black (India) Private, SPC Environment Protection Tech, SRF, Stalwart Advisors, Sulzer Pumps India, Sunrise Polymers, TANGEDCO, Tata Consulting Engineers, Tata Steel, Technical Drying Services (Asia), Technofab Systems, Tenovo, Thermo Fisher Scientific, The Tata Power Company, TMEIC Industrial Systems, Torrent Power, Toyo Engineering, UPRUVNL, Weir Minerals India, West Bengal Power Development Corporation, and Yantra Harvest, etc.***

AIR QUALITY CONTROL SYSTEMS

Mission

- With thermal power plants contributing to the largest share in emissions, the reduction of pollutants such as SOx, NOx and PM remains a significant technological challenge for the industry. Indian coal is one of the worst in the world with extremely high resistive dust and low sulphur content.
- With the 2022 deadline for meeting the environmental norms laid by the MoEFCC in 2015 drawing nearer, a number of power plants are making continuous efforts to reduce their emissions as early as possible. The norms specify significant reductions in SOx, NOx, PM and mercury emissions from thermal power plants.
- However, they face challenges such as space constraints, lack of holistic and sustainable technology assessment, few good AQCS suppliers, shutdown time needed for the upgradation of pollution control equipment and stressed balance sheets. Further, the supply chain disruption due to Covid-19 has impacted the import of outsourced items and affected EPC works.
- Broadly, a suite of AQCS technology options is available for power generation plants that can help reduce emissions significantly. These include flue gas desulphurisation systems, spray dryer absorber, circulating dry scrubbers, limestone-based wet FGD, low NOx burners, selective non-catalytic reduction, electrostatic precipitators (ESPs), fabric filters, bag house dust collectors, all of which have the potential to reduce SO2, NOx, PM and other emissions.
- The choice of deploying one or a combination of AQCS technologies depends on fuel availability, capacity of the unit, boiler specifics, operating and capital costs, design parameters, emission reduction requirements, etc. Based on these considerations, developers need to carefully assess the most appropriate applications to scale and install AQCS technologies.
- **The mission of this one-day virtual conference is to enable sharing of knowledge, best practices, and gencos' experiences and plans for meeting the revised emission norms. The sessions will also showcase new advancements and innovations in AQCS technologies for thermal power plants.**

Previous Participants

The organisations that have attended our related conferences include: ADJ Engineering Pvt Ltd, Aerzen Machines India, AkzoNobel India Ltd, Amines & Plasticizers, ArudraEngineers, Atha Group, Balkrishna Industries, Banyan Tree Advisors Pvt. Ltd, Beijing SPC Environment, Bharat Heavy Electricals, BHEL, BMW Steels Ltd., Bray Controls, BTL EPC, BuschVacuum, Bygging India, Center for Fly Ash Research & Management, Central Electricity Authority, Chemical Process Equipments, Chemical Process Piping, Chhattisgarh State PowerGeneration Company, CLP India, Coastal Gujarat Power, Cottagon S.A., CP Piping, CPPE, CSRI NEERI, Damodar Valley Corporation, DB Power, Demech Chemical Products,EagleBurgmann India, Edelweiss Asset Reconstruction Company, Edwards India Pvt Ltd, Elara Capital, Emerson, Environment SA India Pvt. Ltd, Ferbeck International, FLSmidth Pvt. Ltd, Forbes Marshall, Furnace Fabrica (India), GE Power India Limited, GE South Asia, Greatall Dynamic Co Ltd, GSECL, GSK Powertel Pvt Ltd, H2L-Vedanta, Haryana Power GenerationCorporation, HEG, Hindustan Petroleum Corporation, Hindustan Zinc, HPGCL, ICRA, India Uniper Power Services, Indiana Conveyers, Indus Energy Consultants, International College ofFinancial Planning, IOCL, ION Exchange (India) Ltd, J.K. White Cement Works Division, Jaiprakash Associates, Jaiprakash Power Ventures, Jay Pee Power Projects (Jai Prakash PowerVentures), Jaypee Bina Thermal Power Plant, Jindal Power, JK Cement, Kepco Plant Service &Engg, KSB Pumps, LancoAnpara Power Limited, Lanco Power, Lubrizol AdvancedMaterials, Maco Corporation, Maharashtra State Power Generation Co. Ltd, Maithon Power, Mascot Capital & Marketing, MEG, Ministry of Power, MSEB Holding Company, Multi-ActEquity Consultancy, Munters India, Nabha Power Limited, National Fertilizers, Nevco Engineers, NLC India Limited, NTPC Limited, Odisha Electricity Regulatory Commission, OrganoCorporation, Oriental Nicco Projects Pvt Ltd, Outokumpu, Paramount, Praj Industries, PTPS, RattanIndia Power, Reliance Jamnagar, RRVVNL, Rudis LLC Trbovje, Sangir Plastics,Securities Investment Mgt Pvt Ltd, Sick India, Siemens, Simona India, SKI Carbon Black (India) Private, SPC Environment Protection Tech, SRF, Stalwart Advisors, Sulzer Pumps India,Sunrise Industries (India) Ltd, Sunrise Polymers, TakalkarPowe Engineers & Consultants Pvt Ltd, TANGEDCO, Tata Consulting Engineers, Tata Steel, Technical Drying Services (Asia), Technofab Systems, TenovaDelkor, TERI, The Tata Power Company, Thermo Fisher Scientific, TMEIC Industrial Systems, Torrent Power, Toshiba, Toyo Engineering, U.P. RajyaVidyutUtpadan Nigam Ltd, UPRUVNL, Weir Minerals, West Bengal Power Development Corporation, Yantra Harvest, etc.

AGENDA/STRUCTURE

KEY TRENDS AND OUTLOOK

- What have been the key trends in the coal-based power generation segment?
- What has been the trend in emissions from thermal power plants?
- What are the key issues and concerns? What is the outlook for the segment?

EMISSION NORMS COMPLIANCE - PROGRESS SO FAR, CHALLENGES AND THE WAY FORWARD

- What has been the progress so far in meeting the emission standards?
- What have been the recent developments?
- What are the key issues and concerns?

DEVELOPER PERSPECTIVE

- What has been the progress in meeting the environment norms?
- What are the key AQCS technologies being considered?
- What are the issues and challenges in meeting the norms?
- What are the expectations from regulators and other stakeholders?

FOCUS ON SOx EMISSIONS

- What are the various SOx abatement technology options?
- What are the key issues and concerns in meeting SOx norms?
- What is the efficiency of these options? What have been the recent advances?

NOx EMISSION CONTROL TECHNOLOGIES

- What are the various NOx Control technology options?
- What are the issues and concerns?
- What have been the recent developments and enhancements in primary and secondary control technologies?

PM CONTROL

- What are the PM emission control technologies?
- What are the advantages that ESPs offer as compared to other PM emission control methods?
- What has been the experience so far? What are the key issues and concerns?

FOCUS ON FABRIC FILTERS

- What are the advantages of fabric filters in capturing PM emissions?
- What has been the experience? What are the issues and concerns?
- What have been the recent advancements?

MULTI-POLLUTANT CONTROL TECHNOLOGIES

- What are the various multi-pollutant control technologies?
- What has been the experience? What are the issues and concerns?
- What are the new and promising solutions?

BEST PRACTICES AND TECHNOLOGY SHOWCASE

- What are the new and promising AQCS technologies?
- What is their efficiency and performance?
- What are the best practices for the operation of AQCS systems?

Target Audience

- The event is expected to draw participation from executives, managers and decision-makers from:

- Power plants
- State gencos
- FGD technology providers
- Pollution control boards
- Government and regulatory agencies
- Consultancies
- Other industrial plants
- Research and development organisations
- Environmental firms
- Etc.

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.
- The **participants** in each conference receive a **concise report outlining** the **key facts**, **trends** and **issues** in the sector.
- A **recap** of the conference is also made available to reinforce the key takeaways.

Delegate benefits (Virtual Conference)

- Direct interaction with senior speakers (Q&A facility)
- Easy connectivity to geographically dispersed delegates (click of a mouse)
- Concise report offered as a backgrounder
- Cost effective (lower ticket price as compared to a physical conference)
- Offers flexibility and convenience
- Recap of conference sessions
- Contributes to sustainability and lower carbon footprint

Benefits of sponsorship (Virtual Conference)

- E-meet influencers and decision-makers
- Reach out to and engage with new or active prospects
- Generate high quality sales leads
- Increase brand recognition
- Target a captive and engaged audience
- Drive website traffic through social media promotions
- Position your company as the thought-leader in your industry

REGISTRATION FORM

☐ I would like to register for the "**FLUE GAS DESULPHURISATION SYSTEMS**" conference **August 24, 2021)**

☐ I would like to register for the "**AIR QUALITY CONTROL SYSTEMS**" conference **(August 25, 2021)**

☐ I would like to register for **both the conferences**

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Sponsorship opportunities are available

Registration Fee

Both conferences

	INR	GST@18%	Total INR	Total USD
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	36000	6,480	42,480	607

Any one conference

	INR	GST@18%	Total INR	Total USD
1 Login	7,000	1,260	8,260	118
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

- 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.

Organisers

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Contact: Monish Grover, Conference Cell, India Infrastructure Publishing Pvt. Ltd.
B-17, Qutab Institutional Area, New Delhi 110016.
Tel: +91-9999401099 | Email: monish.grover@indiainfrastructure.com