



10th EDITION | A VIRTUAL CONFERENCE

# COAL-BASED POWER GENERATION 2022

March 15, 2022

Co-sponsor:



Exchange partner:



6th EDITION | A VIRTUAL CONFERENCE

# GAS-BASED POWER GENERATION 2022

March 16, 2022



Organiser:



# COAL-BASED POWER GENERATION 2022

## Mission

- Coal-based power generation in the country is gradually moving from being the main source of baseload power to playing more of a supportive role in the grid for balancing variable renewable energy generation. India's current coal-based capacity of 209 GW constitutes 54 per cent of the total installed capacity compared to over 60 per cent 4-5 years ago. Meanwhile, its share in the power generation mix stood at around 70 per cent during 2021-22 (as of November 2021), down from 76 per cent back in 2015-16.
- With the rapid transition towards renewable energy, thermal power plants (TPPs) are undergoing cyclic and part load operations. This trend is expected to gain further momentum especially in light of India's recent commitments at the COP26 climate summit, to increase non-fossil capacity to 500 GW and to meet 70 per cent of energy requirement from renewable energy sources by 2030. Further, as India aims to "phase down coal", the coal-based power generation segment would need to work towards measurable reduction in emissions.
- This is evident from recent policy measures such as the government allowing thermal generation companies to supply renewable power to consumers under existing PPAs and set up renewable energy capacity by themselves or through developers via open bids. Also, the power ministry has advised coal-based TPPs to mandatorily use 5 per cent blend of biomass pellets, to solve the problem of air pollution due to the burning of farm stubble and to reduce carbon footprint of TPPs.
- On the emission control front, bringing much relief to gencos was the Ministry of Environment, Forest and Climate Change's (MoEFCC) new order on location-specific, category-wise compliance deadline. This gives the majority of TPPs time up to December 2024 to meet the emission norms. As per the new timeline, 79 TPPs aggregating 23 GW (within a 10-km radius of the NCR or cities that have a million-plus population) have been given a compliance deadline of December 2022, while the majority, that is, 449 TPPs aggregating 163 GW have to meet a compliance deadline of December 2024. The ministry has for the first time notified a penalty in the range of Re 0.05-Re 0.20 per kWh to be levied on TPPs for non-compliant operations beyond the deadline.
- Gencos on their own are cognisant of the new and changing requirements and have begun taking measures to successfully transition to a flexible regime. They are adopting new-age digital and automation solutions as well as scaling up their O&M and asset management strategies manifold. The operators are transitioning to condition-based monitoring, and predictive and preventive asset management strategies along with technologies such as AI, ML and AR/VR tools to maintain their competitive edge.
- That said, coal-based power generation continues to remain stressed due to the issues of coal shortages and poor coal quality plaguing the sector. Recently, several states in the country witnessed electricity shortages owing to insufficient domestic coal and spiralling imported coal prices. In addition, mounting discom dues, ageing plant fleet, fly ash management and judicious water consumption continue to be some of the other areas of concern for gencos.
- Going forward, with the changing capacity mix, coal-based generation capacity in India is expected to peak at about 250 GW by the end 2030, according to NITI Aayog. It further adds that coal-based generation is expected to slow down a few years later and peak by the year 2040. Its share in the total power generation mix of the country is expected to decline to 50-55 per cent in the next 10 years. In addition, the think tank has proposed the formulation of a scrappage policy for TPPs, with around 54 GW of coal plants likely to be considered for retirement by 2030.
- **The mission of this conference to discuss and analyse the new and emerging role of coal-based power generation as well as the key issues and challenges facing the segment. The conference will examine emission norms compliance by TPPs and the impact of recent developments on the segment. It will also showcase emerging technologies, new-age digital and automation solutions for TPPs as well as the best practices in O&M and asset management.**

## Target Audience

- The event is expected to draw participation from executives, managers and decision-makers from:
  - Power plants
  - Renewable energy developers
  - Technology providers
  - Power trading companies
  - Other industrial plants
  - Financiers and investors
  - BTG manufacturers
  - Legal companies
  - Regulatory agencies
  - Pollution control boards
  - Government and planning agencies
  - Environmental engineering consultants
  - Coal producers and importers
  - EPC contractors
  - FGD technology providers
  - Etc.

## AGENDA/STRUCTURE

### KEY TRENDS AND OUTLOOK

- ❖ What are the key trends and developments in the coal-based power generation segment?
- ❖ What are the biggest issues and challenges?
- ❖ What is the future outlook for the segment?

### GOVERNMENT PERSPECTIVE

- ❖ What is the government's perspective on coal-based power generation?
- ❖ What are the key issues and areas of concern?
- ❖ What is the government's outlook for the segment? What will be the key priority areas?

### GENCO PERSPECTIVE

- ❖ What is gencos' perspective on the current state of coal-based power generation segment?
- ❖ What are the biggest issues and concerns?
- ❖ What is the future outlook for the segment? What are the key priority areas?

### CIL's PERSPECTIVE

- ❖ What have been the trends in domestic coal supply and coal prices in the power sector?
- ❖ What are CIL's plans with regard to e-auctions and coal supply under SHAKTI?
- ❖ What is the supply outlook and targets?

### FLEXIBILISATION STRATEGIES

- ❖ What is the nature and magnitude of flexibilisation requirements?
- ❖ What are the upgrades required to facilitate frequent starts, stops and load ramps?
- ❖ What has been the gencos' experience so far?

### 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?

### DIGITAL POWER PLANTS

- ❖ What is the potential for digitalisation in a coal-based power plant?
- ❖ What are the outcomes achievable with digitalisation?
- ❖ What has been the experience so far? What are the challenges?

### O&M AND ASSET MANAGEMENT STRATEGIES

- ❖ What are the key O&M and asset management strategies deployed by gencos?
- ❖ What are the benefits of condition-based monitoring for power plants?
- ❖ What are the major O&M issues and concerns and how are these addressed?

### WATER MANAGEMENT AT TPPs

- ❖ What are the current water management practices? What are the new and emerging solutions being explored?
- ❖ What has been the progress in meeting water consumption norms?
- ❖ What are the biggest issues and concerns? How are they being addressed?

### FUEL MANAGEMENT STRATEGIES

- ❖ 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?

### COSTS, TARIFFS AND POWER PROCUREMENT OUTLOOK

- ❖ What has been the trend in generation and fuel costs for coal-based plants?
- ❖ What has been the trend in power procurement costs for coal-based power vis-a-vis other sources?
- ❖ What is the future outlook for costs and tariffs?

### FOCUS ON BTG EQUIPMENT

- ❖ What are the key operating challenges for gencos with respect to BTG equipment?
- ❖ What are the best practices in the O&M of BTG equipment?
- ❖ What are the technologies and solutions for improving reliability?

# GAS-BASED POWER GENERATION 2022

## Mission

- Gas-based power plants, both open cycle and combined cycle, require the least amount of time for start-up and the lowest per megawatt energy for ramping up operations. In view of this, the role of gas-based power plants in grid balancing is being relooked at by grid operators, especially given the high renewable scenario of 500 GW targeted by 2030. Gas-based power plants offering faster ramp rates can play a significant role in providing round-the-clock power and balancing intermittent renewable energy sources.
- However, owing to the shortfall in domestic natural gas supply and relatively high cost of imported R-LNG, the country's gas-based generation capacity continues to record subdued performance and sub-optimal utilisation levels. India's installed gas-based generation capacity of 25 GW constitutes a 6 per cent share in total capacity. Meanwhile, during 2020-21, the share of gas-based capacity in the all-India generation stood at 4 per cent. Around 14 GW of gas-based capacity is stranded due to no availability of gas, while the remaining plants are operating at very low capacity. The PLF of gas-based plants has declined from the peak of 67 per cent back in 2009-10 to 20-23 per cent over the last four to five years amid a significant drop in the supply of domestic natural gas (mainly from the KG basin fields) in the power sector.
- Notably, despite the decline in power demand due to the Covid-19 pandemic, there was a marginal increase in the gas-based PLF levels in the first nine months of 2020-21. This was supported by the increased use of spot LNG for generation led by subdued prices of spot LNG at \$2-\$3 per million British thermal unit (mBtu). With lower fuel rates, around 2,600 MW of state-owned gas-based plants of Gujarat located near import terminals (including Pipapav, Uran, Dhuvaran, Utran and Hazira units) increased their PLF levels two to three times from the previous year. However, this increase in PLF and power generation was wiped out in the following months with a sharp increase in spot LNG prices to above \$3.5-\$4 per mmbtu.
- To recall, in order to revive and improve the utilisation of gas-based capacity in the country, the central government had sanctioned a scheme for the utilisation of gas-based power generation capacity for the years 2015-16 and 2016-17. As such, the scheme saw limited success, with total generation under the scheme being less than that quoted by the bidders. Furthermore, due to sufficient power in the country, many states refused to sign PPAs with gas-based plants, resulting in lower participation. Moreover, the proposal to revive the e-RLNG scheme had hit a roadblock owing to the reluctance of the state governments to extend waivers and concession in the state taxes and levies including GST on the transportation of gas.
- That said, the revival of gas-based generation hinges on the increase in the availability of domestic gas and prices of liquefied natural gas becoming more competitive. Apart from priority allocation of domestic gas, there will be a need for policy and regulatory support with regard to the scheduling mechanism; modifications in gas supply contracts for providing flexibility to power producers in terms of the gas delivery rate and time; suitable compensation mechanisms to support the peaking operation of gas stations; and modifications in the operating norms. Furthermore, the use of automation and digital solutions as well as advanced analytics can help improve the performance of gas-based projects and adapt to the changing requirements.
- **The mission of this conference is to discuss the key challenges facing the gas-based power generation segment, and deliberate on the strategies and solutions required to address them. It will also showcase the best practices in O&M and asset management, as well as new and emerging digital technologies and solutions in the segment.**

## AGENDA/STRUCTURE

### KEY TRENDS AND OUTLOOK

- ❖ What have been the key trends in the gas-based power generation segment?
- ❖ What have been the recent developments?
- ❖ What are the key issues and concerns? What is the future outlook?

### GOVERNMENT PERSPECTIVE

- ❖ What is the government's perspective on the gas-based power generation segment?
- ❖ What are the key issues and concerns? What are the steps proposed for addressing these?
- ❖ What is the government's outlook for the segment?

### GENCO PERSPECTIVE

- ❖ What is the genco perspective on the current state of the segment?
- ❖ What are the current gas requirements of genco? What has been their sourcing strategy?
- ❖ What are the major issues and concerns? What is the future outlook?

### FUEL SUPPLY OUTLOOK

- ❖ What are the recent trends and developments in domestic gas production and supply?
- ❖ What have been the recent trends in LNG prices? What have been the buying strategies?
- ❖ What is the fuel supply outlook for gas-based power generation?

### DIGITALISATION AND AUTOMATION

- ❖ What is the potential for digitalisation and automation in gas-based power plants?
- ❖ What are the outcomes achievable with digitalisation?
- ❖ What has been the experience so far? What are the challenges?

### FLEXIBILISATION STRATEGIES

- ❖ What is the impact of cycling on the performance of gas-based power plants?
- ❖ What are the flexibilisation strategies and solutions for gas-based power plants?
- ❖ What has been the experience so far? What is the outlook?

### LOAD BALANCING AND RENEWABLE INTEGRATION

- ❖ What role can gas-based power plants play in balancing the grid in a high renewables scenario?
- ❖ What are the advantages of using gas-based power for grid balancing?
- ❖ What are the enabling policy and regulatory requirements to incentivise gas-based power plant for grid balancing?

### COST ECONOMICS AND TARIFFS

- ❖ What has been the trend in generation and fuel costs for gas-based plants?
- ❖ What has been the trend in the generation costs of imported LNG-based plants?
- ❖ What is the outlook for costs and tariffs?

### FOCUS ON CAPTIVE AND COMMERCIAL CONSUMERS

- ❖ What are the advantages of gas-based power for onsite/captive power generation?
- ❖ What are the current gas sourcing strategies of commercial and industrial consumers?
- ❖ What has been the experience? What are the key issues and concerns?

## Target Audience

- The conference is targeted at top and middle-level managers from:
  - Gas-based power generators (central/state/IPPs/captive)
  - LNG/Natural gas producers
  - Equipment manufacturers
  - Technology providers
  - Gas marketers/suppliers
  - Government and planning agencies
  - Regulatory agencies
  - Power plant operations and maintenance providers
  - Energy efficiency consultants
  - Environmental engineering consultants
  - Certification and inspection companies
  - Investors and financial institutions
  - Industrial consumers
  - Infrastructure builders
  - Gencos, transcos and discoms
  - Pipeline operators
  - Research and development organisations
  - Consulting and legal firms, etc.

## Previous participants

The participating organisations in our previous conferences on “**Coal-based Power Generation**” include ABB, ABG Shipyard, ACB, ACC, Adani, Adani Ports, Adhunik Power, Aditya Birla, Amtek Auto, APCPL-NTPC, APGENCO, Archean Group, Asset Reconstruction Company (India), Atlas Copco, Atlas Logistics, Auma, Avantha Power, Axis Bank, Badrinarain Alloys & Steel, Bajaj Engineering, BALCO, Bank of Baroda, Banyan Tree Advisors, Bharat Forge, Bharat NRE Coke, Bharat Oman Refinery, Bhartiya Rail Bijlee, BHEL, Birla Tyres, Black & Veatch, BlueStar, Brookings India, Bygging India, C&S Electric, Canara Bank, Carborundum Universal, CERC, Cethar Vessels, CLP India, Clyde Pumps, CMPDI, Coal India, Coal Mint, Coastal Energen, Coastal Gujarat, CRISIL, Dalmia Cement, Damodar Valley Corporation, Deloitte Touche Tohmatsu, Development Consultant, Doosan Power, DVC, E&Y, Eagle Burgmann, EICS Group, EIL, Elecon, ELP, Emerson Automation Solutions, Emerson Network Power, Energy Infratech, Epiroc Mining India, EPSA, Essar Projects, Essel Mining, Evonik, Exxon Mobil, Ferro Tech, Fichtner Consulting, FLSmidth, Gandhinagar University, GE, GE India Industrial, GEMCO, Getzner India, Glencore India, GMR, GRIDCO, GSECL, GVK Power, Haryana Power Generation Corporation, HCC, Heavy Water Plant, Hilti, Hindalco Industries, Hindustan Zinc, Honeywell Automation, HPERC, ICF International, ICICI Bank, IDBI, IDFC, IIFCL, ILFS energy, IMFA, IMI CCI-Control Component India, IMI Critical Engineering India, India Uniper Power Services, ISGEC, IEX, Indus Law, Innovima Technologies, J Power, JBIC, Jhajjar Power, Jindal India Thermal, Jindal Power, JK Cement, JM Financial, Jubilant Life Sciences, JSPL, Karam Chand Thapar & Bros, Kennametal, Kepco Plant Service & Engineering Co., KfW IPEX Bank, Korus Energy, KPMG Advisory Services, KraftPowercon, L&T Finance, L&T Infra Finance, L&T Power, L&T-MHPS Turbine Generators, L&T-Sargent & Lundy, Lahmeyer, Lanco Infratech, Larsen & Toubro Limited, Leighton Contractors, Link Legal India Law Services, Lodge Cottrell, M3Investments, Macawber Beekay, Mahagenco, Mahavir Multitrade, Maithon Power, Marsh India, Mascot Dynamics, MB Power, McNally Bharat, MEIL, Mitsubishi, Mitsui, Monnet Ispat, Ministry of Power, Moser Baer, Multi-Act Equity Consultancy, Nabha Power Limited, NALCO, New Technical Water Proofing Service and Rehabilitation, North Karnataka Power, Northern Coalfields, NSPCL, NTPC, OERC, OPG Power, Oriental Rubber Industries, Peabody Energy, PFC, Power Machines, Princeton University, Proteck Circuits, PTC India, PTC India Financial Services Limited, PWC, RECPDCL, Reliance Infrastructure, Religare Capital Markets, Rolux Rockwool, Rosa Power, Safire Capital, ROTODYNE Engineering Services, Saigal Sea Trade, SBI Capital Markets, SCCL Mines, Schede Lagertechnik, SDG, SEW Infrastructure, Shanghai Electric India, Shapoorji & Pallonji, Shree Renuka Energy, Siemens, Siemens Power Engineering, Sindya Power Generating Company, SN Power, South Eastern Coalfields, SRF, Statkraft Energi, Sumitomo Corporation India, Supreme Nonwoven Industries, Surya Roshni, Takraf, Tata Power, Tata Projects, Technofab Engineering, Tecpro Systems, Telangana Power Generation, THDC, The Singareni Collieries Company, The West Bengal Power Development Corporation Limited, Thermax, Thermodyne Technology, ThermoFisher Scientific, Thriveni, ThyssenKrupp, Torishima Pumps, Torrent Power, Toshiba JSW Power Systems, TRF, Trident Group, VE Commercial Vehicles, Vedanta, Voith Turbo, Walchandnagar Industries, Wartsila, Welspun Energy, Western Coalfield, Wipro, WymanGordon, YES Bank, Zuari Cement, JSW Energy, JSW Power Trading, Volvo, etc.

The organisations that have participated in our previous conferences on “**Gas-based Power Generation**” include: 3i India, Adani Gas, Adani Power, AECOM, Aggreko Energy Rental, AGI Glas Pac, Aries Power, Assam Power Generation Corporation, Axis Bank, Baring Private Equity Asia, BGR Energy Systems, Bharat Forge, Bhartiya Marketing Revolution, BHEL, Brigade Infrastructure & Power, Camfil, Caparo Power, Carbon Clean Solutions, Caterpillar, CERC, Chemtrols, Cinda Engineering & Construction, Clarke Energy, CLP, Corporate Profiles, Corrtch Energy, COWI, CRISIL Infrastructure Advisory, Cummins India, Dalmia Cement, Deepak Fertilizers & Petrochemicals, DEIF, Economic Law Practice, Energy Infrastructure Management, Engie Global Markets, Engineers India Limited, Ergonomix Power Consultants, Essar Power, Essar Power Hazira, Excellence Enhancement Centre for Indian Power Sector, Exelon, Exxon Mobil Gas, GAIL, GE Infrastructure Energy, GE Power, GE-Oil & Gas, Ginni International, GMR Energy, Godawari Power & Ispat, Green Infra, Green Power International, Gujarat Gas, Gujarat State Electricity Corporation, GVK Power & Infrastructure, Haryana City Gas Distribution, Hazira LNG, HCC, H-Energy, Hindustan Electricity Generation, Hindustan National Glass & Industries, Hoerbiger, Honeywell Automation, ICF International, ICRA, IDBI, IDFC Project Equity, IFCI, IMC, India Power Corporation, India Uniper Services, Indian Energy Exchange, Indian Oil Corporation Limited, Indraprastha Gas Limited, Indraprastha Power Generation, Innovima Technologies, Inox Wind Infrastructure Services Limited, IOT Infrastructure & Energy Services, IsoluxCorsan, Jakson, JSL, Jubilant Energy, Kakoti Engineering Works, Kawasaki Heavy Industries, KazStroyService Infrastructure, Kirloskar Brothers, Kirloskar Oil Engines, KPMG, KRIBHCO, L&T Infrastructure Finance, L&T Sargent & Lundy, Larsen & Toubro, Link Engineers, Madhya Pradesh UrjaVikas Nigam, Madras Fertilizers, MahaGenco, Man Diesel & Turbo, Marsh India, MEC Global, Mechtech Group, MCX, Ministry of Power, Mitsui, Money Matters Financial Services, Moser Baer, MSPGCL, Nagarjuna Fertilizers & Chemicals, NDPL, NFL, Nirmal Industrial Controls, NPTI, NTPC, Oil India, ONGC, ONGC Tripura Power Company, OPG Power, PE Consulting, Petroleum & Natural Gas Regulatory Board, Petronet LNG, Pietro Fiorentini, Power Finance Corporation, Pratt & Whitney, Primove Engineering, PTC Energy, PTT International Company, Quippo Energy, Rai Industrial Power, Rajasthan RajyaVidyutPrasaran Nigam, Reliance Energy, Reliance Infrastructure, RMG Autometers, SBI Capital Markets, Sew Infrastructure, ShapoorjiPallonji and Company, Siemens, Sindya Power Generating Company, Siti Energy, Soma, Sterling & Wilson, Surya Roshni, Tata Power, TERI, Thermax, Toshniwal, Total Projects, Trilegal, Triveni, UJVNL, Vandana Global, Wartsila, Wendt India, etc.

## Organisers

The conference is being organised by **India Infrastructure Publishing**, the leading provider of information on the infrastructure sectors through magazines, newsletters, reports and conferences. The company publishes **Power Line** (India's premier power magazine), **Indian Infrastructure** and **Renewable Watch**. It also publishes a series of research reports including **Coal-based Power Generation in India**, **Mining in India**, **Small-Scale LNG Market**, **City Gas Distribution in India** and **Power Market in South Asia**. The company also publishes **Power News** (a weekly newsletter), the **Power Line Directory and Yearbook**, and the **Mining Directory and Yearbook**.

# REGISTRATION FORM

I would like to register for the “COAL-BASED POWER GENERATION 2022” conference (March 15, 2022)

I would like to register for the “GAS-BASED POWER GENERATION 2022” conference (March 16, 2022)

I would like to register for both the conferences

Please send wire transfer payments to:

Beneficiary India Infrastructure Publishing Private Limited  
Bank Name The Hongkong and Shanghai Banking Corporation Ltd  
Bank Address R-47, Greater Kailash-1, New Delhi-110048, India

Bank Account No. 094179587002  
Swift Code HSBCINBB  
IFSC Code HSBC0110006  
GSTIN 07AAACI5880R1ZV

Sponsorship opportunities  
are available

## Registration Fee

### Both conferences

	INR	GST@18%	Total INR	Total USD
1 Login	12,000	2,160	14,160	200
2 – 3 Logins	20,000	3,600	23,600	330
4 – 5 Logins	28,000	5,040	33,040	470
6 – 9 Logins	36,000	6,480	42,480	600
10 - 20 Logins	44,000	7,920	51,920	740

### Any one day / event

	INR	GST@18%	Total INR	Total USD
1 Login	8,000	1,440	9,440	130
2–3 Logins	14,000	2,520	16,520	230
4–5 Logins	20,000	3,600	23,600	330
6–9 Logins	26,000	4,680	30,680	430
10 - 20 Logins	32,000	5,760	37,760	530

- 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 opportunities and delegate registrations, please contact:

Monish Grover, Conference Cell | Rajni Rathore, Conference Cell  
Tel: +91-9999401099 | E-mail: monish.grover@indiainfrastructure.com | Tel: +91-9810887899 | Email: rajni.rathore@indiainfrastructure.com

Conference Cell, India Infrastructure Publishing Pvt. Ltd., B-17, Qutab Institutional Area, New Delhi 110016.  
Fax: +91-11-26531196, 46038149 | E-mail: conferencecell@indiainfrastructure.com