

Conference on

DESALINATION IN INDIA

Emerging Requirements and Challenges for Municipal and Industrial Segments

September 19, 2019, Le Meridien, New Delhi



3rd Conference on

WATER MANAGEMENT IN THERMAL POWER PLANTS

September 20, 2019, Le Meridien, New Delhi

Organisers:

POWERLINE

**Indian
Infrastructure**

DESALINATION IN INDIA

Mission

- The potential of desalination of seawater and brackish water to meet the growing municipal and industrial requirements is slowly being realised. Industries such as thermal power plants and oil refineries are setting up large-scale desalination plants to meet their water requirements efficiently.
- On the municipal front, Tamil Nadu, which is the most active desalination market, has set up medium- to large-scale plants to meet its drinking water requirements. In the past few years, Gujarat has also experienced a significant increase in desalination demand due to its industrial growth. At least 800 mld of desalination capacity will be added in these two states in the next three to four years.
- Initiatives are being taken to manage the high energy costs associated with desalination. Energy-efficient thermal technologies such as multiple-effect distillation are gaining prominence in the industrial segment. Advanced technologies such as ultrafiltration membrane, electrochemical desalination module and solar desalination are also being tested to reduce the cost of desalination. Further, superior equipment such as variable frequency drives is being deployed to reduce energy consumption.
- The presence of private players in the desalination market has also increased. New formats and models such as the build-own-operate-transfer and hybrid annuity models are being deployed to ensure the viability and timely execution of projects. At the same time, there is openness to adopting new automation tools and devices. Plants are being fully automated with highly sophisticated distributed control systems.
- That said, the current water demand-supply gap is large. In addition, freshwater resources are depleting rapidly. New desalination capacity must be built quickly in order to meet the growing industrial and municipal water demand. Vast amounts of investment will be required to take up this task. Thus, the private sector needs to play a larger role in driving innovation and growth. Meanwhile, issues arising from high energy costs, environmental damages and regulatory uncertainty need to be addressed in a time-bound and effective manner.
- The mission of this conference is to highlight the emerging requirements and new opportunities in the desalination segment and discuss the key challenges. The conference will focus on the strategies and solutions to meet the future desalination requirements. It will also showcase some noteworthy initiatives, projects and technologies.

Target Audience

- The event is expected to draw participation from executives, managers and decision makers from :
 - Thermal power plants
 - Desalination plant suppliers
 - Technology providers
 - Other consultants and financiers
 - Water supply & sewage boards
 - Consulting engineers
 - Research and development organisations
 - Other manufacturing units: Steel, Cement, Sugar, Paper pulp, Oil refinery
 - Municipal corporations
 - EPC contractors
 - Equipment providers

Previous Participants

Previous participating companies in the relevant conferences include: AECOM, Ahmad Nagar Municipal Corporation, Ahmedabad Municipal Corporation, Alfa Laval (India), Alom Poly Extrusions, APGENCO, Aqua Designs India, AUMA India, Bangalore Water Supply & Sewerage Board, BASF India, Bhagalpur Smart City, Bharat Heavy Electricals, Black & Veatch, Bosch, Brasten Group, C.R.I Pumps, Center for Fly Ash Research & Management, Central Pollution Control Board, CESC, CH2MILL, Clearford Water Systems Inc., Consortium for DEWATS Dissemination Society, CPCB, CPHEEO MOUD, CPWD, CRISIL Infrastructure Advisory, Damodar Valley Corporation, Danfoss Industries, Delhi Jal Board, Delhi State Industrial and Infrastructure Development Corp., Deloitte, Deseln Private, Dhariwal Infrastructure, DHR Holding India Private, EEC, EIL, Electrosteel Castings, Energy, Engineers India, Enviro Analysts & Engineers, Essar Power, Essar Power Gujarat, Forbes Marshall, Ghaziabad Municipal Corporation, GHMC, GIZ, GPCU,UP Jal Nigam Allahabad, Greater Noida Industrial Development Authority, GSECL, Gujarat International Finance Tec-City Company, Gurgaon Municipal Corporation, Gurugram Metropolitan Development Authority, Hitachi Zosen, HIMEL, IFC, Jash Engineering, JITF Water Infrastructure, JSW Energy, Kanpur Municipal Corporation, Maharashtra Pollution Control Board, McElroy Sales and Service India, McNally Bharat Engineering Company, Ministry of Water Resources, MM Aqua Technologies, Municipal Corporation Gurgaon, Municipal Corporation Jaipur, Municipal Corporation Kamal, Municipal Corporation Moradabad, Municipal Corporation Panchkula, Nabha Power, Nagpur Smart City, National Institute of Ocean Technology, National Institute of Urban Affairs, National Mission Clean Ganga, National Projects Construction Corporation, North Delhi Municipal Corporation, NPCC, ONGC, Organica Water, Pimpri Chinchwad Municipal Corporation, Praj Industries, Premier Tech Aqua Systems India Private, Pune Municipal Corporation, Punjab Pollution Control Board, Punjab Water Supply & Sewerage Board, PWD, PWSSB, Qua Water Technologies, Raj West Power, Rehau Polymers, Rex Polyextrusion, Schwing Stetter (India), Sekisui Chemical India, SFC Environmental Technologies, Shah Technical Consultants, Shubham Acqualink, SMS Envocare, SNC-Lavalin Infrastructure, STEAG Energy Services (India), Sudarshan Chemical, Sulabh International Social Service Organisation, Sumitomo Corporation India, Suzalkem Technologies, Tamil Nadu Water Investment Company, Tata Consulting Engineers, Tata Power Company, TATA Projects, Technofab Engineering, Teyma India, Thane Municipal Corporation, The World Bank, Tirupati Municipal Corporation,, Triveni Engineering & Industries, UP Jal Nigam Allahabad, VA Tech Wabag, Vishvaraj Infrastructure, Voltas, WaterHealth India, Welr Minerals (India), WIL0 Mather and Platt Pumps, Wipro Enterprises, Xylem Water Solutions, etc.

AGENDA/STRUCTURE

DEVELOPMENTS, FUTURE REQUIREMENTS AND OPPORTUNITIES

- ❖ What have been the key developments in the desalination market in India?
- ❖ What are the emerging requirements in India? What are the technologies, solutions and best practices?
- ❖ What are the new and upcoming opportunities? What are the key issues and challenges?

KEYNOTE SESSION: DESALINATION EXPERIENCE, POTENTIAL AND THE WAY FORWARD

- ❖ What is the perspective of key stakeholders on the current state of the desalination segment in India?
- ❖ What are the major issues and concerns? How are these being resolved?
- ❖ What are the expectations from the government? What is the outlook?

GOVERNMENT PERSPECTIVE

- ❖ What initiatives have been taken by the government to scale up the desalination capacity in India?
- ❖ What are the key opportunities under the National Mission on Desalination? What are the targets and timelines?
- ❖ What are the future desalination capacity expansion requirements in light of the growing water demand and depleting freshwater resources?

STATE/LOCAL PERSPECTIVE: UPCOMING PROJECTS AND OPPORTUNITIES

- ❖ What is the existing desalination capacity in the state? What are the new policy and regulatory initiatives being taken to promote desalination?
- ❖ What are the capacity expansion plans of states/local utilities over the next few years? What are the emerging opportunities for private developers?
- ❖ What are the main challenges and how can these be addressed?

INDUSTRIAL USERS' PERSPECTIVE: CURRENT AND FUTURE REQUIREMENTS

- ❖ What are the current freshwater requirements of various industries? How are these being met?
- ❖ What is the percentage of water requirements being met through desalination? What are the plans for expanding the desalination capacity over the next few years?
- ❖ What are the emerging requirements and opportunities? What are the key issues and concerns?

COST ECONOMICS, VIABILITY AND FUNDING

- ❖ What has been the trend in the capex of desalination plants?
- ❖ What are the key cost components? What is the share of land, technology and energy costs in the total plant cost?
- ❖ What are the strategies that can be deployed to optimise energy costs and requirements associated with desalination plants?
- ❖ What role can renewable energy technologies play in reducing the energy cost of desalination? What is the cost economics of such systems?

THERMAL AND MEMBRANE DESALINATION TECHNOLOGIES: KEY FEATURES, CURRENT DEPLOYMENT AND OUTLOOK

- ❖ What are the key features of various types of membrane and thermal desalination technologies (with regard to capital cost, land requirement, production cost, plant performance, quality of treatment, etc.)?
- ❖ What is the current state of deployment of these technologies? What are the new technological advancements?
- ❖ What are the specific issues and challenges? What is the segment outlook?

ENVIRONMENTAL ISSUES AND BRINE DISPOSAL MANAGEMENT

- ❖ What are the broad environmental consequences of seawater desalination processes? What are the environmental norms and regulations in this regard?
- ❖ What are the current practices for brine management?
- ❖ What steps can be taken to reduce the impact of brine on the marine environment?

PROJECT SHOWCASE: MUNICIPAL AND INDUSTRIAL DESALINATION PLANTS

- ❖ What are some of the noteworthy desalination projects in the municipal and industrial water segment? What are the specific features (in terms of installed capacity, project cost, land requirement, production cost, quality of treatment, etc.)?
- ❖ What are the advanced technologies and solutions deployed?
- ❖ What are the key challenges? What lessons can be learnt?

GLOBAL EXPERIENCE AND BEST PRACTICES

- ❖ What are global developments, trends and experiences in desalination?
- ❖ What are some of the noteworthy desalination projects? What are the key features in terms of cost, land footprint, quality and treatment technology?
- ❖ What can be learnt from the global experience?

WATER MANAGEMENT IN THERMAL POWER PLANTS

Mission

- The vulnerability of the power generation industry to constraints in water availability has been growing over the years. As per official data, the power generation loss due to water shortages was around 16 BUs during the period 2013-14 to 2016-17.
- The thermal power generation industry is one of the highest users of water with a share of around 87.8 per cent in industrial water consumption. However, over 70 per cent of India's power plants are located in water stressed areas as per estimates. Thus, diminishing water supply and the pressure from competing water users have been the areas for concern for power plant owners.
- Adding to the pressures are the regulatory constraints that impose limits on water consumption. As per the norms issued by the environment ministry in December 2015, the existing plants' specific water consumption has been capped at 3.5 cu. m per MWh. As per industry data, the majority of coal-based power plants in India have a water consumption of 5-7 cu. m per MWh.
- New plants (added after January 2017) have to meet even more stringent requirements with a cap of 2.5 cu. m per MWh as well as achieve zero liquid discharge (ZLD). Meanwhile, as thermal power plants move towards wet FGD systems to comply with the new air emission norms, their water requirements are expected to increase.
- Further, the government has made it mandatory for all thermal power plants within 50 km of a sewage treatment plant to use treated wastewater in their operations. While a few state and central gencos have been complying with this requirement, challenges with regard to the quality of water from STPs have been a constraining factor in greater uptake.
- All these factors are increasing the pressure on power plant owners to look for alternative technologies and solutions that minimise water consumption in various systems and processes such as cooling systems and ash handling. Increasing the cycles of concentration of cooling water to reduce blow down, installing high efficiency drift eliminators in cooling towers, adopting dry cooling systems, optimising the ash water ratio, and installing ash water recirculation systems and high concentration slurry discharge systems are some of the strategies that the industry is considering.
- **The mission of this conference is to discuss the needs and requirements for water management at power plants, identify the opportunities and areas in better water management, and look at the innovative water use and recovery practices adopted by leading developers and across noteworthy projects. The conference will showcase new and advanced technologies and solutions to help generation utilities minimise water consumption.**

Target Audience

- The event is expected to draw participation from executives, managers and decision makers from:
 - Thermal power plants
 - Steel manufacturing units
 - Cement manufacturing units
 - Plant supplier
 - Water supply & sewage boards
 - Municipal corporations
 - Consulting engineers
 - EPC contractors
 - Technology providers
 - Research and development organisations
 - Equipment providers
 - Other consultants and financiers, etc.

Previous Participants

Some of the previous participating companies includes: AECOM, Andritz Hydro, APGENCO, Aquatech System, Banyan Tree Advisors, BHEL, Black& Veatch, Brookings India, Central Electricity Authority, CESC, CLSA, Damodar Valley Corporation, Deloitte, Dhariwal Infrastructure, EEC, Essar Power, Forbes Marshall, GE, GIZ, GSECL, HEG, Hindustan Power-MB Power, Hydranautic-Nitto Group of Companies, ICRA, IL & FS Energy Development Company, Indo German Energy Fortum, Jindal Power, Kalpatru Power Transmission, Kirloskar Pneumatic, Lars Enviro, Maharashtra State Power Central Electricity Authority Govt of India, Multi Act Equity Consultancy, Nabha Power, National Institute of Ocean Technology, Nitto Group Company, NTPC, Odisha Electricity Regulatory Commission, ONGC Tripura Power Company, Rattan India Power, Reliance, Securities Investment Management, Shubham Acqualink, Siemens, Skipper, SMS Envocare, SRF, Suez Water, Tata Power, TERI, Thermax, Thermo Fisher Scientific India, TSGENCO, Uniper Power Service India, Uttar Pradesh Electricity Regulatory Commission, VDMA India Services, Weir Minerals, etc

AGENDA/STRUCTURE

KEY TRENDS AND OUTLOOK

- ❖ What has been the trend in water consumption by thermal power plants?
- ❖ What are the various areas of water consumption in thermal power projects?
- ❖ What are their projected water requirements? What are the issues and concerns?

REVISED WATER CONSUMPTION NORMS - THE PROGRESS SO FAR

- ❖ What is the total capacity of TPPs covered under the revised water norms?
- ❖ What has been the progress so far in meeting these norms?
- ❖ What are the issues and concerns? What is the way forward?

DEVELOPER PERSPECTIVE

- ❖ What are the current water conservation practices adopted by TPPs?
- ❖ What are the planned initiatives with regard to meeting the revised water consumption norms?
- ❖ What are the key areas for concern? How are they being addressed?

FOCUS ON COOLING SYSTEMS

- ❖ What are the typical water requirements for cooling systems in TPPs?
- ❖ What are the cost economics of wet and dry cooling systems?
- ❖ What are the best practices and solutions available for reducing the water consumption in cooling systems?

ASH HANDLING SYSTEMS

- ❖ What are the water requirements for ash handling systems?
- ❖ What are the new and emerging technologies for optimising the use of water in ash handling systems?
- ❖ What has been the trend in the uptake of such solutions so far?

WATER REQUIREMENTS FOR FGD SYSTEMS

- ❖ What are the water requirements of TPPs with wet FGD systems?
- ❖ What are the various processes and systems that require water in an FGD system?
- ❖ How is the industry gearing up to meet the water requirements for TPPs with FGD?

WASTEWATER TREATMENT AND ACHIEVING ZLD

- ❖ What are the current wastewater treatment practices followed by TPPs?
- ❖ What are the new and emerging technology options for achieving zero liquid discharge?
- ❖ What has been the uptake of such solutions so far?

INDUSTRY SHOWCASE AND CASE STUDIES

- ❖ What have been the noteworthy projects/initiatives in water management?
- ❖ What are the water management-related plans and initiatives?
- ❖ What are some of the new technologies and solutions being deployed?

PREVIOUS SPEAKERS INCLUDES

(in alphabetical order):

Anandrao Abhare, Executive Chemist,
Maharashtra State Power Generation Corporation

Kaushik Chaudhuri, Senior Manager, Operation,
Budge Budge Generating Station, CESC

Ashit Desai, Joint General Manager,
Essar Power

Himanshu Gupta, Sales Director, South Asia,
GE Water and Process Technologies

Manoranjan Hota, Advisor, Ministry of Environment,
Forest and Climate Change

S.S. Kacker, Additional General Manager,
CenPEEP, NTPC

Vimal Kumar, Secretary General,
Centre for Fly Ash Research and Management

Ravinder Singh Lall, Head, Mechanical Maintenance,
Nabha Power Limited

K Krishnan, Sr. Vice-President,
MHPCSL

Subhendu Podder, Vice-President and Head,
Special Projects, Jindal Power Limited

P.V Ramana, Chief Chemist,
APGENCO

P.P. Sah, Deputy Chief Engineer,
Damodar Valley Corporation

C.P. Tiwari, Group Head- BTG & Renewables,
Core Technology, TATA Power

Organisers

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- I would like to register for the "WATER MANAGEMENT IN THERMAL POWER PLANTS" conference (September 20, 2019, Le Meridien, New Delhi)
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Two delegates	28,000	5,040	33,040	551
Three delegates	40,000	7,200	47,200	787

BOTH CONFERENCES

Delegates	Fee			
	INR	GST @18%	Total INR	USD
One delegate	22,500	4,050	26,550	443
Two delegates	37,500	6,750	44,250	738
Three delegates	52,500	9,450	61,950	1,033

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