



2 days training workshop on
"BALANCE OF PLANT - IN THERMAL POWER PLANTS"
On 22nd & 23rd November, 2017.



INTRODUCTION: India has an ever-growing need for secured, reliable, quality, inexpensive power, having commercial viability and with a mission aiming at "Power to All". As a country India is poised with 8% growth on Power, as envisaged by the Government of India as "sufficient power". Presently the installed capacity is around 211.80GW out of which thermal power contribution is 141.72 GW (66.9%) comprising of coal based fuel 121.62GW(57.42%), gas based fuel 18.9GW (8.9%) and oil as fuel (1.2GW-0.56%). India, as a nation has always been having a power deficient country, since supply has not been able to match the demand. This is primarily due to capacity constraints. While the generation of power from the huge capacity is to be maximized by further improving Plant Load Factor (PLF) to more than 90% against national average of 72%. The capacity addition to the power generation in next 5 to 10 years needs to be addressed with serious concerns. The growth target for XII (2012-17) and XIII (2017 -2022) five years plans, is addition capacity of 1,06,774 MW and 1,34520MW, thereby enhancing to install capacity of 276GW and 410GW respectively. The fossil fuel will continue to contribute major dominating role especially in coal-based power plants and will remain the mainstay in growth/capacity addition. Power sector is highly capital-intensive industry, with long gestation periods of 3 to 5 years and operating period of 25 years. Presently the economy not only in India but in the whole world is passing through a big recessional phase and power sector is affected severely.

Based on the foregoing, this leads to the current business concerns, which are enumerated as under:

- 1) Technology leaders are unwilling to share technology and are insisting on direct participation or through JV.
- 2) An investment sentiment has been dampened due to slow down in project finalization.
- 3) Coal availability has adversely affected the existing as well as new projects.
- 4) Losses of the State Electricity Boards could cross Rs.1 Trillion (Say about Rs. 1 lakh Crores) by 2013-14 from Rs.0.50 Trillion, which again is a serious cause of concern.
- 5) Slow pace of reforms especially in the distributor segments is hurting the sector.
- 6) Major infrastructure and logistical constraints in terms of Over Dimensional Consignments (ODC).
- 7) Continued dependence on few overseas supplies for critical input materials (CRGO, P11AS, and Casting &Forgings).
- 8) BOP capacity constraint is equally a major bottleneck.

The major problem encountered is availability of Coal and heavy dependence on equipment suppliers. In fact, equipment shortages have been a significant reason for India missing its capacity addition targets for X & XI five years plans. Although the standardized design specification of main plant has been formulated for sub-critical TPP of 500MW or higher capacity it is not site specific except for coal quality, ambient temperature and cooling water temperature, since it is fairly uniform. However, number of inputs, which varies from site to site, are involved for designing the BOP (Balance of Plant). For example in case of Ash Handling Plant (AHP) system, the ash content in coal, station capacity, ash disposal mode (dry or / and wet) ash utilization, pumping distance etc.. Similarly, with the same stroke, for Coal Handling Plant (CHP), the water systems, civil works (Soil condition, wind load, seismic conditions etc.) become the governing factors. *In this programme, we will try to go through the various design criteria/guidelines for sizing/selection of equipment and evolve specification requirement that all the system/equipment having mechanical, electrical, instrumentation & control and civil components of work & perform in an integrated system in conjunction with main plant as a single integral entity.*



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Meet Your Expert Coaches: Mr. G. S. Baveja & Mr. S. S. Singh:

Mr. Baveja is a mechanical engineering graduate of 1970, with meritorious educational + background, having more than 42 years of professional & management experience. Prior to his retirement, he served Bharat Petroleum Corporation Limited (BPCL) for over 26 years and led various departments including "Major Projects", "Engineering & Construction", "Materials", "Energy & Environment" and Advisory Engineering. Lastly he was Corporate Entity Head of HSE in the rank of General Manager. During his tenure with BPCL, he was Project Manager to procure & install a combined cycle Captive Power Plant (Two Units of Gas Turbine Based Generators with HRSGs) under World Bank financing. While head of "Engineering & Construction" department, he lead the "Project Engineering", "Drawing & Design", "Contracts" and "Construction" teams. During this tenure many a Balance of Plants (BOP) projects and facilities were executed from concept to completion, as in-house projects, like Raw water / Cooling Water system, Augmentation of Fire Protection & Fire water network system, plant air compressors, DM Plant, Fuel Oil Tankages etc. which were tied up during major turnarounds with main plants.

Prior to joining BPCL, for about 12 years he worked for Bharat Heavy Electricals Limited (BHEL), with its Power Projects department. While in BHEL he was engaged in construction, erection and commissioning of Thermal Power Plants at various locations in the country. This experience was very intense. He was associated precisely with installation, commissioning of TG sets & its associated auxiliary systems. He had opportunity to work on plants of varying capacities of individual machines from 30MW to 500 MW with its associated auxiliaries at different locations within the country.

While in BHEL, he worked on power plants at 30 MW Parli TPS, Maharashtra; 120 MW Santaldih TPS, West Bengal; 220 MW RAPP, Kota, Rajasthan; 120 MW Chandrapura TPS, DVC; 210 MW Bandel TPS, West Bengal and 500 MW Trombay TPS, Maharashtra.

For six months he underwent a training programme for Erection of large size machines at M/s KWU in West Germany, wherein he was exposed to an individual machine of 800MW. The core competency of Mr. Baveja is his ability to offer an array of best in class training with accent on real life situations using techniques like case-studies, simulation exercises and various other structured or spontaneous pedagogic tools.

Mr. Baveja is a qualified "Assessor" for Sustainability Excellence, based on the material from European Foundation for Quality Management. He has passion for Water conservation. He worked with M/s Det Norske Veritas (DNV) as a "Consultant & Safety Auditor, DNV's Energy- India (Region Asia & Middle East). He serves as "Panel" member on many Government & non-Governmental committees. He chaired sessions in National & International seminars on varying subjects. His passion for quality during installation made him to be one of the co-authors to develop the first ever "Field Quality Assurance" manual for TG sets. He has been a regular speaker in Conferences / Seminars around the world.

Mr. Swatantar Shah Singh

After having completed degree in Mechanical Engineering from Delhi College of Engineering, Delhi University in 1974, Mr. S. S. Singh joined BHEL in Power- Sector & worked throughout, till June 2011 (36&1/2 years), in the field of Construction of power plants of varying capacities, mostly thermal & a few hydro power plant throughout India. He retired in the rank of General Manager.

He had opportunity to work on technology transfer of Construction Management of 500MW TG sets from KWU; Germany He was a Member of the Special Task Force comprising of Designers from Manufacturing Units, Collaborators KWU, and RDSO for the design, manufacture of special railway trolley arrangement to handle transportation of 500MW Generator Stators by Rail.

While posted at Head Quarter PSNR of BHEL, he was a single point contact for the Project & Construction Management of 2x210MW Unchahar TPS, NTPC, Unit 3 & 4; Suratgarh projects (RSEB) 2x250MW, Unit 4 & 5.

He worked on Consortium with Siemens, Germany for 817MW Dadri Gas based power station for the erection and commissioning of bottoming cycle from Chimney to HRSG, Steam Turbine Generator package. He worked for the Project Management of Paricha TPS on EPC basis with M/s BSES (now Reliance Power) as BOP partner. He executed a 2X3.5MW EM package with BOPs in consortium with M/s SEW (consortium partner for civil works) at Sikasar (Chattisgarh State Electricity Board).

As Leader of Project & Construction Management team, he worked for following power projects:

- 2x660 MW super critical Barh Stage-11, NTPC (BTG project) (under execution)
- 2x500MW Tuticorin (NLC)-EPC except BOP (under execution)
- 2x270MW GVKG Goindwal-BTG project (do)
- 4. 2x250MW Bina TPP-BTG project (do)
- 2x250MW NLC (Lignite based CFBC Boiler) EPC except BOP (under execution)
- 2x125 MW NLC at Barsingsar (Bikaner) -EPC except BOP - Completed till Units handed over for commercial operation.
- 2x125MW Surat Lignite Power project -EPC- Completed till Units handed over for commercial operation.
- 1x250MW Santaldih Unit-6-EPC.
- 1x250 Santaldih Unit-S EPC
- 2x210MW Bakreshwar, WBP DCL

He, as a Field General Manager successfully completed, the commissioning of Gas Turbine with HRSG Units 1&2 and Utility Boiler unit 1 of Refinery at Guru Gobind Singh Refinery (HMEL), Bathinda in a stretched time target. This brought special laurel to him. He was, assigned a special assignment to Head the Valves Division of BHEL, Goindwal Sahib (Punjab) to control the various operations of the unit as there was a huge delay and overdue projects supplies.

Mr. Singh has attended a large number of training programmes both in India & abroad on his management skill developments.

He is an ace "speaker" with practical anecdotes to bank with.



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2 days Agenda

Day I

SESSION - I

- General Developments in Power Sector.
- Current Environmental Concerns.
- Vendor Preparedness for Main And Bop Plant.
- Functioning Of Coal Based Thermal Power Stations.

SESSION- II

- Factors Required For Bop Plant Location & Design Considerations.

SESSION – III

- COAL HANDLING PLANT(CHP) covering:
 - Unloading Of Coal.
 - Crushing & Pulverisation..
 - Site Specific Factors for Planning and Designing CHP-station Rating Coal Quality.
 - Unloading Of Coal—tracks Hopper Or Tripler.
 - Firing System- Balancing Burners.

SESSIONS – IV

- ASH HANDLING SYSTEM covering:
 - Impact of Coal Quality on CHP And Ash Handling.
 - Marketability of Fly Ash. Impact of Combustion
 - Optimization On Ash Quality.
 - Firing System- Balancing Burners.

SESSION –V

- Q&A session

Who Should Attend?

Maintenance (Electrical & Mechanical). Plant Heads. Mechanical Engineering. Technical Management. Electrical Engineering. Operations and Production.

Industries: Cement, Fertilizers, Petrochemicals and Refineries, Steel and Aluminum, Original Equipment Manufacturers (OEM) Paper and Pulp, Oil & Gas, Construction & Engineering.

Day II

SESSION - I

- Liquid Or Alternate Fuel Receipt, storage & handling System.

SESSION - II

- Raw Water Intake & Recirculation Water System & Cooling Towers,
- Water Treatment & DM Water Plants.

SESSION - III

- Effluent Water Treatment Plant.

SESSIONS – IV

- Fire-protection, Detection and Alarm system.
- Firefighting system & its important design considerations

SESSION - V

- Group Discussions: "Leading towards Benchmarking Best Practices".



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Participants Registration Form

Full Name: _____

Organization: _____

Mailing Address: _____

City: _____ State/Province: _____

Zip/Postal Code: _____

Country: _____ Telephone: (_____) _____

Email: _____ Signature: _____

For Registration:

Call Marylen R. Velasco at +65 6524 4973/+65 83229495 or email at marylen@ctsolutionsglobal.com

Fees Include with course materials for the subject training, plus breakfast, lunch and tea & Coffee.

2 day Training per Delegate Fees

Professional training fee @ INR 26,500 + 18% GST.

Professional training fee for international participants @ USD 1300

Discount Offer

Table of 3 Delegates & benefit 10% Savings off the regular price.

Table of 5 Delegates & benefit 15% Savings off the regular price.

Table of 7 Delegates & benefits 20% Savings off the regular price

Payment Cheque / DD Courier to: **MASTERS IN TRAINING**, Mr. Irfan Shaikh, A/104, Chandresh Mahal, Lodha Road, Opp to Umar Masjid, Mira Road East, Thane - 401 107

Register Soon! Space Is Limited!!!

MIT Payment Terms: A confirmation letter and invoice will be sent to you on Receipt of your registration.

Payment is required within 5 working days on receipt of invoice. Please note that full payment must be received prior to the event. All payment should be in favor of **MASTERS IN TRAINING** and should be couriered to the following address: **MASTERS IN TRAINING**, Mr. Irfan Shaikh, A/104, Chandresh Mahal, Lodha Road, Opp to Umar Masjid, Mira Road East, Thane - 401107

Cancellation Policy: If you are unable to attend, a substitute delegate is welcome in your place with no Extra cost. Cancellations must be in writing (letter/Email) and has to reach this office within 11 working days prior to the event. Registration cancelled before 7 days of the said event will be charged in full and no refund will be entertained or be entitled to 50% discounts in our forth coming events.



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Delegate Fee includes: Documentation, Luncheon, and Refreshments & Certificate of attendance. MASTERS IN TRAINING reserves the right to alter the venue or speakers. This is a Non – Residential Programme, claim in the said regard shall not be entertained. Please Note: If you are unable to attend, we offer you the documentation course material at a discounted price on the said subject.

Disclaimer, Terms & Conditions:

- Location is subject to change
- Minimum number of participants has to be reached prior to confirmation of event
- Please note that trainers and topics were confirmed at time of publishing, however, CTS may necessitate substitution, alterations or cancellations. CTS reserves the right to change or cancel any part of its published programmed due to unforeseen circumstances.
- Registrations should be made 3-4 weeks prior to event date
- Full payment for the course should be made 2 weeks prior to event date
- Cancellation 3 weeks prior to event date or no shows are liable to pay the full course with no refund, however you may substitute delegates at any time
- Participants are required to attend at least 80% of the course program prior receipt of Certificate.
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- Force Majeure: Should for any reason outside the control of CTS, the trainer changes his dates or event cancels due to the act of terrorism, extreme weather conditions, industrial action or epidemic, CTS shall reserve the rights to replace the trainer or reschedule the event but the client hereby indemnifies and holds CTS harmless from and against any and all costs, damages and expenses, which are incurred by the client.

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