



USEA/USAID ENERGY PARTNERSHIP PROGRAM Mirant Shares Maintenance and Overhaul Procedures with NTPC

Under the USEA India Energy Partnership Program funded by the **U.S. Agency for International Development**, **Mirant Energy Executive, S. Christoffersen, A. Bilmanis and T.C. Garg** met with **National Thermal Power Corporation** Executives from Jan. 18 - 24, 2007 to discuss boiler, turbine, generator, and auxiliary equipment maintenance, overhauls, and outage procedures for super and sub-critical power stations.



During the five-day program, they gave multiple presentations in the workshop organized by NTPC for 20-30 executives associated with boiler/turbine, and power plant equipment from all of NTPC's power stations within India.



Mr. C. Roy, Director Operations and S. Christoffersen

Mirant executives addressed diverse methods and Mirant's approaches for power plant maintenance and overhauling procedures specifically discussed the following:

- Boiler tube failure reduction programs
- Boiler water treatment –chemicals & cleaning,
- Tube replacement philosophy
- Boiler inspections
- Generator, relays, and electrical transformer evaluation and other equipment maintenance procedures

- Alternative considerations to OEM recommendations
- Condition assessment techniques for determining remaining life of critical components
- Techniques for extending overhaul intervals while maintaining high reliability on older (>40 years) coal fired plants
- Benefits and approaches to implement a system wide high energy piping reliability program

Mirant provided many examples of how their condition assessments and trending of key parameters allowed them to increase the intervals between outages and major overhauls without sacrificing unit reliability. Mirant offered comparisons between sub-critical and super critical units which provided NTPC some insights as to the different issues that NTPC future supercritical units will pose.



A. Bilmanis and T.C. Garg

Mr. T.C. Garg gave detailed descriptions of Mirant's inspection and testing programs of electrical systems. He compared Mirant's experiences relative to the OEM's more conservative recommendations. He also shared valuable information on inspection techniques and trouble shooting processes that have saved Mirant time and money.

Mr. Andy Bilmanis and Stephen Christoffersen provided some options for NTPC to consider in their planning to extend their overhaul interval. They answered many questions on project management as well as boiler/turbine

Inspections maintenance and overhaul process. NTPC executives were keen to learn on how to introduce some of these techniques discussed.

Results:

- NTPC plans to extend its boiler outages from one year to two years was bolstered. They were encouraged to take that first step and continue that evaluation to extend even further depending on the history of the machines.
- They were encouraged to demonstrate to their inspection agency that appropriate processes were in place to assure boiler safety thus allowing an extension.
- NTPC will review the OEM recommendation on its major equipment and evaluate the cost effective recommendation of its in-house engineers with the support of other industry experts.
- NTPC was complemented by Mirant on recent investments that they have made in software technology for performance and boiler tube monitoring. Mirant shared some of its own examples of investments that they have recently made in major turbine replacements projects and encouraged NTPC to continue evaluating and making prudent investments with the notion that “the best can get better “.



S. Christoffersen, S. Samudrala, A. Bilmanis and T.C. Garg

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