



## USEA/USAID ENERGY PARTNERSHIP PROGRAM

# Reliant Energy Shares Outage Planning and Maintenance Procedures with NTPC

Under the USEA India Energy Partnership Program funded by the **U.S. Agency for International Development**, **Reliant Energy (headquartered in Houston, TX) Executive S. Jit Singh** met with **National Thermal Power Corporation Executives** from September 18 - 22, 2006 to discuss boiler,



turbine and auxiliary equipment maintenance, overhauls, and outage procedures for supercritical power stations.

During the five-day program, Mr. Singh gave multiple presentations in the workshop organized by NTPC for 40-50 executives associated with boiler and turbine maintenance from all of NTPC's power stations in India.

*Left to right: D.K. Agrawal, GM, CenPEEP, NTPC; S. Samudrala, Dep. Prog Mgr, USEA; Chandan Roy, Director Operations, NTPC; S. Jit Singh, Supervisor Outage & Planning Maintenance, Reliant Energy*

Mr. Singh addressed Reliant Energy's approaches for power plant maintenance and overhauling procedures and specifically discussed the following:

- Outage Cost and Time Reduction.
- Increasing Time between Outages.
- Reliability Based Maintenance.
- Condition Based Maintenance.
- Predictive Maintenance.
- New Tools and Processes for Equipment Inspection and Life Improvement.
- Refurbishment and Replacement Strategy for Aging Equipment.

Mr. Singh gave detailed descriptions of Reliant Energy's procedures to increase the duration between overhauls/outages and methods to shorten time during overhauls. NTPC executives are keen to introduce some of the techniques discussed. Mr. Singh



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also traveled to Hyderabad and met with the BHEL executives (NTPC's service provider) and discussed the roles of service providers in the United States.



*Mr. Roy and Mr. Singh discuss methods to utilize the Reliability Centered Maintenance (RCM) in NTPC. Based on discussion NTPC is moving from a one to a two year overhaul schedule and wants to ensure that all critical equipment is prepared to provide two years service using the RCM process. This will increase the time between outages and improve NTPC's power plant availability, which may in the long run provide India with reliable and low cost service.*



*NTPC's Dadri Power Station*

### **Results:**

- NTPC is planning to introduce Condition Based and Reliability Centered Maintenance (RCM) techniques used by Reliant to increase the duration between unit overhauls (outages) from one to two years (interval between unit overhauls).
- NTPC will review and incorporate Reliant Tube Tracker type software for super critical boiler units (determines condition and replacement schedule for boiler tubes before failure).
- NTPC plans to modernize its tools such as laser alignment tools, laser water cutting machines for precision cutting, and acoustic tools for greasing etc used for maintaining boilers, turbines, generators and auxiliary equipment, based on U.S. best practices.

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