Engineering Service: Thermal Power Plant Operation and Maintenance

Features

Providing engineering services on the operation and maintenance of thermal power plant, with following features

- Viewpoints from the utility, as an operator of the facilities
- A long history of remarkable achievements in energy saving
- Experiences of procurement from various manufacturers

Basic Concept or Summary

TEPCO provides engineering services and technical assistance for operation and maintenance planning on overall thermal power station facilities, including advanced combined cycle plants, ultra supercritical power plants and coal-fired power plants.

A. Planning of O&M

1. O&M Management
   - Preparation and Review of Management Manual / System
     - Operation
     - Maintenance
     - Quality Control
     - Security and Safety
     - Environment

2. O&M Contract
   - Request for Proposals for O&M
     - Scope of Works
     - Guarantee items
   - Pre-qualification for Possible O&M Contractors
   - Evaluation of Contractors
   - Review of O&M Proposal
     - Overall Schedule
     - Suppliers
     - Management Manual / System
     - Quality, Environment and Safety Control
   - Drawing O&M Contract
     - Scope of O&M
     - O&M Cost

B. During Commercial Operation

1. Plant Operation Management
   - Operation, Security, Safety and Environment Manual / System
     - Operation and Performance Management
     - Operation Record Management
   - Operation, Security, Safety and Environment Plan
   - Operation Staff Training
   - Budget Management

2. Plant Maintenance Management
   - Maintenance, Security, Safety, Environment Manual / System
     - Maintenance Procedure
     - Consumables and Spare Parts Control
     - Maintenance Record Management
   - Daily / Long Term Maintenance Plan
   - Maintenance Staff Training
   - Diagnostic Analysis
   - Budget Management

Source: JASE-W Japanese Smart Energy Products & Technologies
https://www.jase-w.eccj.or.jp/technologies/index.html
3. Measures for plant abnormality
   Verification and Advice
   Plant Abnormality Report
   Schedule Management for Inspection and Repair Work
   Root Cause Analysis and Measures
   Repair Work Proposal
   Repair Work Management

Effects or Remarks
- Energy saving by improving the thermal efficiency
- Improving availability by quality management
One of the indices demonstrating TEPCO’s power supply efficiency is their 47.1% thermal efficiency at overall thermal power plants (2010).

Installation in Practice or Schedule

**Domestic**
Operation and maintenance of thermal power stations within TEPCO service area (approx. 38,700MW at 25 locations; as of March 2011)

**Overseas**
- Technical Assistance on Ultra Super Critical Thermal Power Facilities, P. R. China (2005)
- HRSG Installation Study for Existing Gas Turbine Power Plants, Indonesia (2005)
- “TeaM Energy Project,” Pagbilao Coal-fired (735MW) and Sual Coal-fired (1,218MW) power plants in Philippines
- “Chang Bin/Fond Der Project” in Taiwan
- “Loy Yang A Project,” Coal-fired power plant in Australia

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