Engineering Service: Thermal Power Plant Development

Features

Providing engineering services on the design at EPC stage in the development 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

Acting from the perspective of making a contribution to improving the environment in a number of different overseas countries, improving thermal efficiency and expanding measures to protect the environment, TEPCO has fully utilized its own experiences for thermal power station construction, operation and maintenance based on its own technologies.

1. Conceptual Plant Design
   Basic Design
   - Plant Performance
   - Plant Specifications
   - Plant Operation
   Plot Plan
   - Plant Layout
   - Plant Configuration
   - Equipment Transport and Installation Plan

2. EPC Contract (Engineering, Procurement and Construction)
   Request for Proposals for EPC
   - Scope of Work
   - Design Conditions
   - Plant Operation
   - Guarantee Items
   Pre-qualification for Possible EPC Contractors
   - Evaluation of Contractors
   Review of EPC Proposal
   - Specifications of Equipment
   - Manufacturing, Transport, Installation Schedule and Procedure
   - Equipment Vendors
   - Test Criteria
   Detailed Engineering
   - Overall Schedule
   - Responsibility
   - Plant Layout and Plant Configuration for Maintenance and Safety
   - Specifications of Equipment
   - Manufacturing, Transport, Installation Schedule and Procedure
   - Overall Quality, Environment and Safety Control
   EPC Contract
   - Scope of EPC
   - EPC Cost

3. Project Schedule (Engineering, Construction and Commencement)

4. Permission
   Plant Specifications for Environmental Permission
   Fuel Specifications for Environmental Permission
   Application for Permission
   - Environment
   - EPC Cost

Source: JASE-W Japanese Smart Energy Products & Technologies
https://www.jase-w.eccj.or.jp/technologies/index.html
**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**  Development of thermal power stations within TEPCO service area (approx. 38,700MW (as of March 2012) at 25 locations)

**Overseas**  (1) Owner's Engineering Service at Phu-My 2-2 Combined Cycle Power Plant (715MW) Project in Vietnam  
Owner: Mekong Energy Company Ltd.  
Term: February 1999 -- October 2004  
Technical Service  
- Feasibility study  
- Environmental impact assessment study  
- Review on the plant design, drawing and document provided by the EPC  
- Assisting owner in the negotiation and finalization of the EPC contract  
- Providing technical support and assistance during negotiation with the lenders and insurers

- Heat Recovery Steam Generator in the Phu-My 2-2

(2) Owner's Engineering Service at Chang-Bin (490MW) / Fong-Der (490MW x2) Combined Cycle Power Plant Project in Taiwan  
Owner: Star Energy Power Corporation for Chang-Bin Power Plant, Sun Ba Power Corporation for Fong-Der Power Plant  
Term: August 2000 -- April 2004  
Technical Service  
- Review on the plant design, drawing and document provided by the EPC  
- Assisting owner in the negotiation and finalization of the EPC contract  
- Providing technical support and assistance during negotiation with the lenders and insurers

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