

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 Venders
- 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



- ◆ 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**



Chang –Bin Power Plant (Taiwan)



- (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

Contact: Tokyo Electric Power Company Holdings, Incorporated, International Affairs Department
<http://www.tepco.co.jp/en/corpinfo/consultant/top-e.html>
consultancy@tepco.co.jp