SP-2

Thermal Efficiency Improvement Experience of Existing Thermal Power Plants in Foreign Countries

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Abstract

Chubu Electric Power Co., Inc. has conducted heat efficiency restoring projects through operational improvements at existing thermal power stations overseas, in order to contribute in countering the global warming issue.

In this project, we are working to improve the operation and maintenance management of the power station's main unit and auxiliaries and equipment conversion, from the perspective of heat efficiency restoration/improvement.

In concrete terms, we have conducted the following three projects in Thailand and Indonesia:

1 A thermal efficiency restoring project through operational improvement of the existing thermal power stations in Thailand

(1) Project period: November, 1996 to February, 2001

(2) Joint implementation by: EGAT, Chubu Electric Power Co., Inc., the Kansai Electric Power Co., Inc., Electric Power Development Co., Ltd.

(3) Subject facility: Unit No.4 of EGAT's South Bangkok Power Station (310MW), developed horizontally to Unit No.3 and No.5 (310MW each) afterwards.

(4) Implementation results

a. Heat efficiency improvement: heat efficiency improved by 0.23%

b. Improvement items:

- Reducing reheater spray water volume
- Reducing power consumption of the auxiliaries by stopping the boiler water circulating pump (BWCP) and the gas recirculating fan (GRF)

c. CO2 emission reduction effect: approximately 16,000t-CO2/year

2 A thermal efficiency restoring project through operational improvement of the existing thermal power stations in the Republic of Indonesia

(1) Project period: October, 1998 to March, 2002

(2) Implemented by: Chubu Electric Power Co., Inc.

(3) Subject facility: Suralaya Power Station Unit No.3 of PT Indonesia Power (400MW)

(4) Implementation results

a. Heat efficiency improvement: heat efficiency improved by 0.22%

b. Improvement items:
- Reducing power consumption of the auxiliaries and spray loss of the heater/reheater by stopping all GRF units.
- Reducing power consumption of the forced draft fan (FDF) and the primary air fan (PAF) by removing the steam air preheater (SAH)
- Changing the Boiler Water Treatment Method

c. CO2 emission reduction effect: approximately 12,300t-CO2/year

3 A heat efficiency restoring project through facility conversion of the existing thermal power stations (NEDO activity) in the Republic of Indonesia

(1) Project period: September, 1999 to June, 2002

(2) Implemented by: Chubu Electric Power Co., Inc.

(3) Subject facility: Muara Karang power station unit No.5 of PT Indonesia Power (200MW)

(4) Implementation results

a. Heat efficiency improvement: heat efficiency improved by 0.72%

b. Improvement items:
- Changing the material of the condenser tubes (from cupronickel to titanium)
- Changing the ball cleaning equipment of the condenser tubes (improved model)
- Improving the turbine gland seal (improvement in the seal fin)
- Improving the air preheater (coating the low-temperature element with enamel)
- Introducing a heat efficiency management system

c. CO2 emission reduction effect: approximately 18,000t-CO2/year