

# CPJ/CPO Seminar on the Latest Technologies for Power Plant Facilities for Vietnam

## 1. Background

In Vietnam, domestic demand for electricity has increased conspicuously in recent years, as previously discussed in detail (*JCCP NEWS* No. 113, August 2012), and has prompted Petrovietnam to increase its electric power supply by operating a state-of-the-art combined-cycle power generating facility that uses the company's own supply of natural gas. Under this situation, Petrovietnam is directing priority efforts to achieving increased stability and efficiency of its power plant facilities, and has sought an opportunity to acquire the latest technologies toward that end. JCCP thus planned and organized customized programs (CPO/CPJ) in response to Petrovietnam's request.

Part 1 of the seminar consisted of a six-day Customized Program-Overseas (CPO) in Ho Chi Minh City. Part 2 was a 12-day Customized Program-Japan (CPJ) for a group of selected participants from Petrovietnam. As with a similar seminar that was held last year, the lectures given in Part 1 of the seminar were complemented by practical technical training of various equipment and facilities in Part 2. Based on this concept, the seminar aimed to deepen and increase participants' understanding of power plant facilities, and was implemented according to schedule.

## 2. Part 1 (in Vietnam)

### (1) Dates

July 30 to August 4, 2012 (6 days)

### (2) Lecturers

Four lecturers gave lectures on their respective fields of specialty. In addition to a lecturer from JCCP's Training Department (Shintaro Miyawaki), they included Mr. Yuki Kogure (Hitachi, Ltd.), Mr. Takashi Suzuki (Suzuki Technical Consulting Ltd.), and Mr. Mikio Yoshikawa (Babcock-Hitachi K.K.).

### (3) Participants

A total of 40 middle-level operating engineers and manager-class employees from Petrovietnam's electric power departments attended Part 1 of the seminar. They were from various companies affiliated with Petrovietnam, including the Petrovietnam Power Generation Department, Nhon Trach Power Plant, Ca Mau Power Plant, Dung Quat Refinery, Petrovietnam Fertilizer and Chemicals Company, and a number of project engineering companies.

### (4) Program Content

In line with the needs of Petrovietnam, the program covered the following technical fields through lectures and Q&As by experts in the respective fields.

- 1) Reliability improvement technologies for dynamic equipment (JCCP)
- 2) Case examples of Kaizen activities for efficiency improvement of facilities and equipment (JCCP)
- 3) Latest maintenance technologies for steam turbines (Hitachi, Ltd.)
- 4) Technical development of high-performance turbines (Hitachi, Ltd.)
- 5) Water treatment technologies for boilers (Suzuki Technical Consulting Ltd.)



At Nhon Trach Power Plant



*Opening ceremony*

- 6) Corrosion prevention technologies for boilers (Suzuki Technical Consulting Ltd.)
- 7) Water quality management technologies for cooling water (Suzuki Technical Consulting Ltd.)
- 8) Optimization technologies for energy-saving boilers (Babcock-Hitachi K.K.)
- 9) Latest combined-cycle technologies (Babcock-Hitachi K.K.)
- 10) Supplementary discussions, explanations and Q&A related to all themes
- 11) Case studies of Nhon Trach Power Plant

supercritical turbines, which have advanced greatly in recent years, and the latest technologies of next-generation power plants.

- 1) Yokogawa Electric Corporation, Head Office: Latest instrumentation technologies for efficiency improvement of power plants
- 2) Hitachi Nico Transmission Co., Ltd., Omiya Factory: Latest gear technologies for large rotary machines

### 3. Part 2 (in Japan)

#### (1) Dates

October 22 to November 2, 2012 (12 days)

#### (2) Participants

A group of 15 middle-level mechanical engineers and manager-class employees from Petrovietnam's electric power departments participated in Part 2 of the seminar. They were from various companies affiliated with Petrovietnam, as mentioned above in Section 2 paragraph (3).



*Practical training at Woods Corporation*

#### (3) Site-visit Training Destinations and Program Content

Site-visit training was implemented at the facilities of JCCP member companies and other destinations as shown below. At all destinations, training was organized that closely matched the jobs and operations of the participants, and fulfilled the objectives of the program by providing deep understanding of the equipment manufacturing process and key technologies at each company and plant. The program particularly captured the participants' strong interest by introducing



*At Hitachi Works*

- 3) Hitachi, Ltd., Hitachi Works: Latest technologies and diagnostic techniques for power generating turbines
- 4) Babcock-Hitachi K.K., Kure Works: Latest technologies for power generating boiler systems
- 5) Woods Corporation: Governor functions and reliability improvement technologies
- 6) Osaka Gas Co., Ltd., Semboku Power Plant: Latest technologies for LNG-fired combined cycle power plants
- 7) Sakai Photovoltaic Power Station: Latest technologies for sustainable and renewable power generation



*At Yokogawa Electric Corporation*

## 4. Summary

The themes selected for the seminar all represented key technologies that are indispensable to improving the reliability of mechanical devices that compose the heart of turbines and boilers, in particular, among the facilities of a power plant. As they are important issues that pertain directly to stable and efficient operations in Petrovietnam's operational departments, the seminar was planned and designed to closely satisfy Petrovietnam's needs with the cooperation of JCCP member companies.

JCCP intends to continue offering CPO-CPJ combination programs like this one in the future, with hopes that they will open the path to the formulation of even more timely and beneficial training programs in the personnel development field and will strengthen the direction toward the implementation of even more practical courses in the future.

Furthermore, JCCP is entertaining the idea of applying this approach to regular courses as an initiative that would correspond to the future direction of JCCP

activities. Planning and organizing programs that allow the results of customized training to be shared by even larger numbers of participants in oil-producing countries is expected to promote the overall effort to renew and improve future training programs.

As a specific example, JCCP is preparing to offer a new course by further deepening and developing the program content of this customized program for Vietnam and reorganizing it into a new curriculum. The new course will be intended for management-level engineers and middle-level mechanical engineers in the Middle East and Gulf countries and other major oil-producing countries.

By the time this newsletter reaches our readers in oil-producing countries, the content of a new regular program will have taken shape and the necessary arrangements toward the creation of a new regular course will be complete. JCCP looks forward to receiving greater participation in JCCP training programs from oil-producing countries in the future.

*<by Shintaro Miyawaki, Training Dept.>*

